

*Cambridge Audio*

Your music + our passion



851 Series hi-fi system

# 851 Series

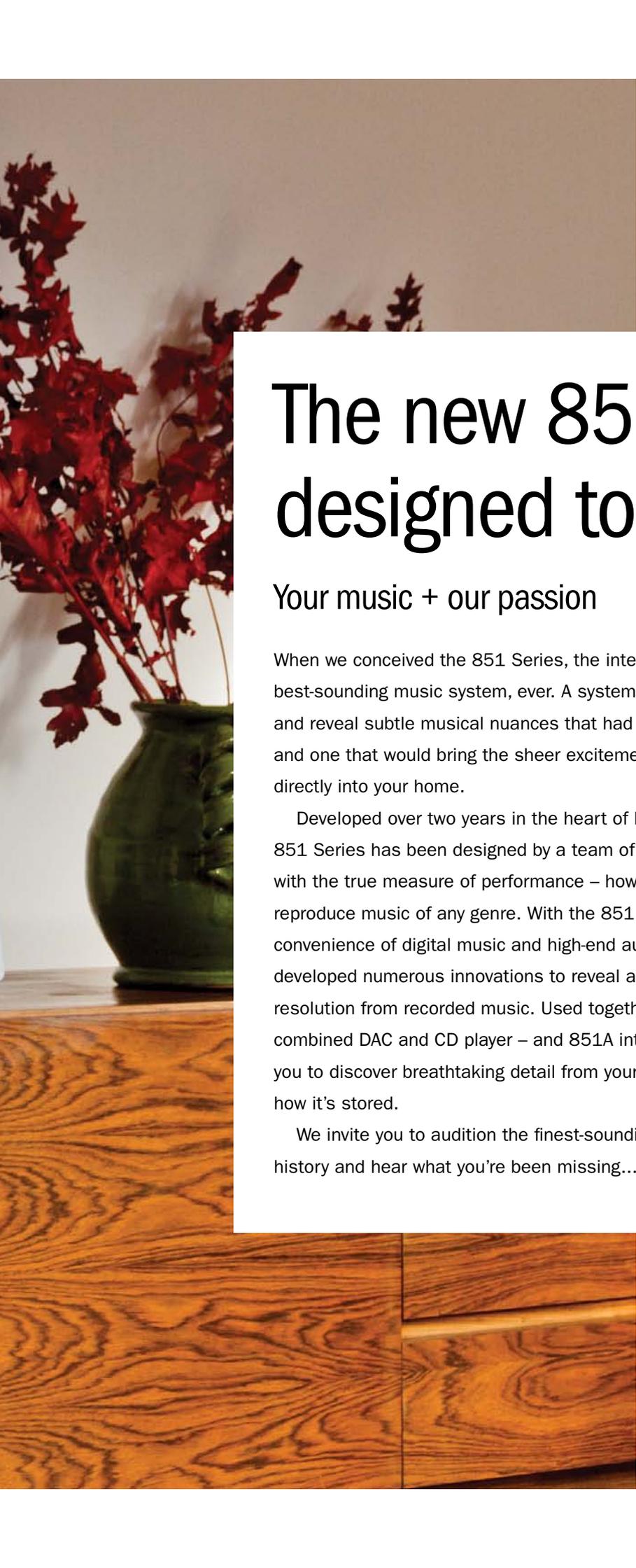


"As is so often the case with products from Cambridge Audio, what you're getting in the 851C and 851A is cutting-edge technology for substantially less than high-end prices."



"...compete with the very best in class when it comes to sound and are pretty much in a league of their own when it comes to features..."



A photograph of a green ceramic vase with red maple leaves on a wooden surface. The vase is on the left side of the frame, and the leaves are vibrant red. The wooden surface is in the foreground, showing a clear wood grain. The background is a plain, light-colored wall.

# The new 851 Series designed to stir your soul

## Your music + our passion

When we conceived the 851 Series, the intention was to create our best-sounding music system, ever. A system to dig deeper into the detail, and reveal subtle musical nuances that had previously gone unnoticed, and one that would bring the sheer excitement and drama of live music directly into your home.

Developed over two years in the heart of London, Cambridge Audio's 851 Series has been designed by a team of audio engineers obsessed with the true measure of performance – how faithfully their creations can reproduce music of any genre. With the 851 Series, we've truly united the convenience of digital music and high-end audio quality. We've also developed numerous innovations to reveal astonishing realism, clarity and resolution from recorded music. Used together, our new 851C – a combined DAC and CD player – and 851A integrated amplifier will enable you to discover breathtaking detail from your favourite music, regardless of how it's stored.

We invite you to audition the finest-sounding system in our forty-year history and hear what you're been missing...

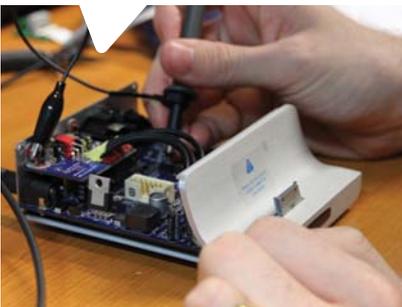
Everything we do is driven by the desire to bring you the very best possible sound quality



## Created by music lovers, for music lovers...

The beating heart of London, home to Cambridge Audio's Research and Development HQ

Everything our team creates is developed from concept in London



From our design headquarters, located on London's cultural Southbank, our team creates every Cambridge Audio product from start to finish. Many of our highly skilled engineers are musicians themselves and have a genuine understanding of how music and instruments should sound. This passion for live music is rooted deep within our DNA and we create all of our products from the ground up with one common goal: to transform the music you love into a truly spine-tingling experience every time you listen.

Each product is designed, developed and prototyped here in London with our 'Sound First' ethos

firmly in mind. It's our passion for music and design that has driven us for more than forty years and why Cambridge Audio has become an icon of performance and value. Most of all, it's our relentless quest to get ever closer to the live performance that gives us the motivation to innovate and the energy to develop products that are truly at the top of their game. Many of the technologies you'll discover in our products are custom-developed by us to help you enjoy more from your favourite music. If you delve into our product specifications you won't find unnecessary features or gimmicks. That's because unlike some



Tony, one of the Cambridge Audio design team



brands who insist on featuring all the latest gizmos and buzz words, we refuse to include any component or technology that doesn't benefit your music and invest only in things that offer a material benefit to the quality you hear.

Take our Adaptive Time Filtering (ATF2™) technology as one example. Now in its second generation, the process, which has been designed in conjunction with a team of Swiss scientists, uses a unique series of algorithms to dramatically upgrade sound quality from all digital audio sources. It's ingenious design like this that's helped Cambridge Audio win

countless awards and accolades from around the world including EISA product of the year and CES Innovation Awards.

Sharing ideas across the development team has created some remarkable product innovations



## 851A Class XD amplifier



# 851A

## Flagship integrated Class XD amplifier

Quite literally in a class of its own, the new 851A Class XD has been designed to offer power, finesse and astonishingly low distortion. At its heart lies our latest generation Class XD technology, which now offers truly spectacular musical detail and timing.

Like all Cambridge Audio products, the 851A adheres to our three core values: stunning performance, ease of use and incredible value.

Capable of delivering a staggering 120 watts of spine tingling power, it benefits from two audiophile-grade power transformers: one for the preamp section and one for the power amp to deliver the immense output. But power is nothing without control and the 851A features an all-new fully balanced silicon gate volume

control, which gives very fine adjustment across the volume range and highly accurate channel-balance.

For maximum flexibility, the 851A offers two main types of connectivity: the more commonly found RCA inputs, and fully balanced XLR inputs for connection to high end sources such as Cambridge Audio's matching 851C upsampling DAC/CD player, or our award-winning DacMagic Plus or Stream Magic 6.

Our casework is more than just an exercise in great design, too. The full-metal chassis is acoustically damped for greater performance, with a striking yet robust brushed-metal fascia.

Because we know everyone chooses different source components, we've developed an

Our proprietary casework is formed from thick brushed aluminium which guarantees ultimate strength and minimal resonance



The 851A's stonking toroidal transformer accounts for nearly one third of its total weight!

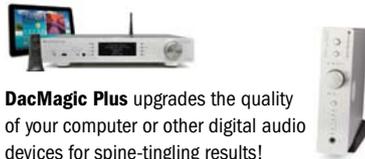


## 851A Class XD amplifier



### Perfect partners

**Stream Magic 6** plays music direct from your home network streaming services or internet radio in sensational quality.



**DacMagic Plus** upgrades the quality of your computer or other digital audio devices for spine-tingling results!



intuitive display which enables you to customise the names of your components – CD player, PC, TV etc. removing that perennial problem of having to remember which device is connected to which input!

Speaking of flexibility, you can even control your iPhone, iPad or iPod using the 851 Series remote control when they're docked in our matching iD100 Digital Dock.

Unlike many high end amplifiers which excel in one area over another, we believe the 851A offers the perfect combination of high performance, flexibility and ease of use. It's designed to take your



Sam, one of our 851 Series designers

### Sound First as standard

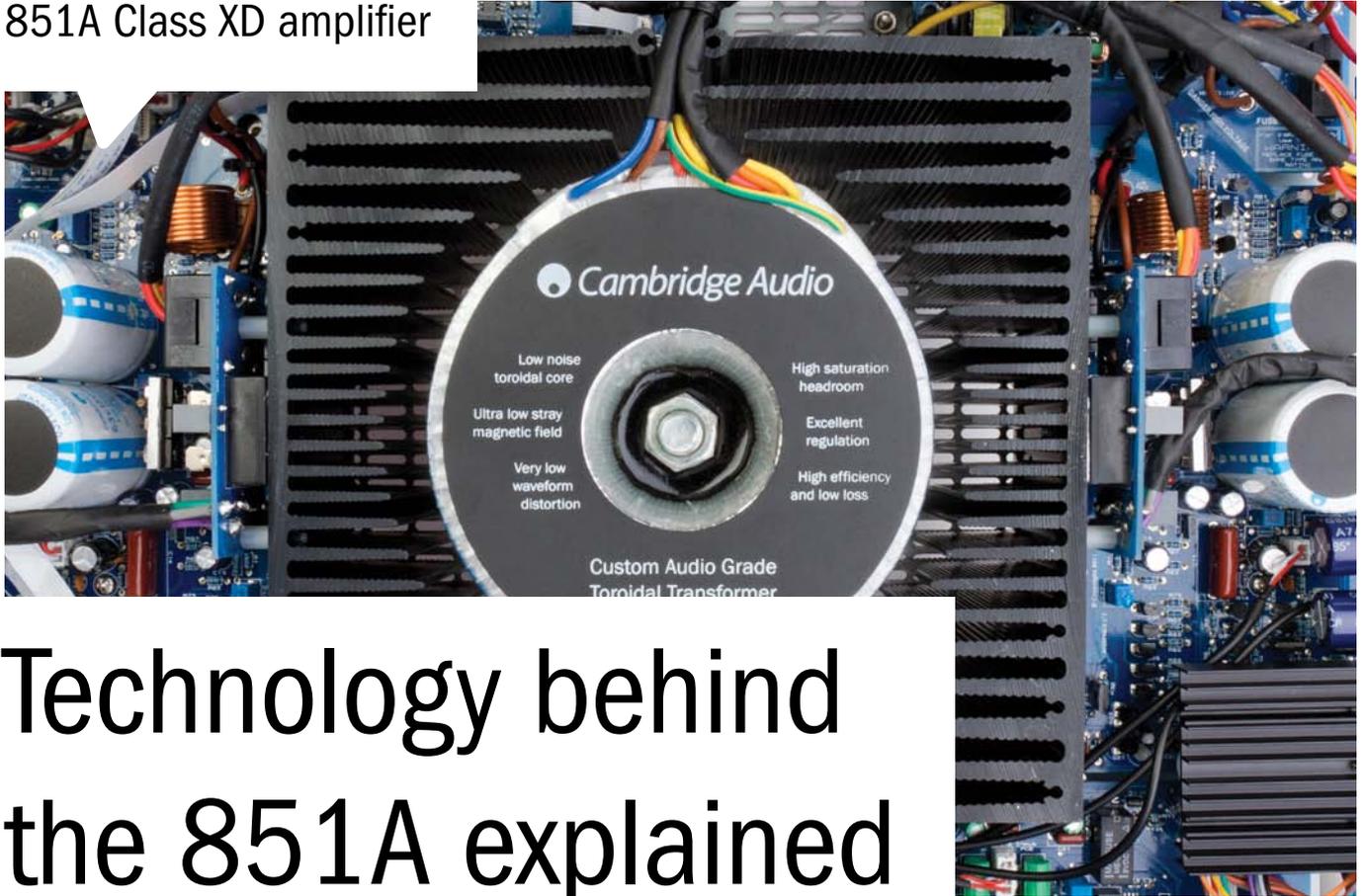
"While some audio designers spend every waking moment at the test bench, we like to take time as our creations progress to listen to them and hear how they benefit our favourite music. We take them home, play them to our friends and throughout the development process, we make subtle changes to deliver the best results we possibly can."

listening experience to an entirely different level and we invite you to audition our best amplifier to date at your nearest Cambridge Audio specialist.



"Smooth, svelte sounding amp with power"

## 851A Class XD amplifier



# Technology behind the 851A explained

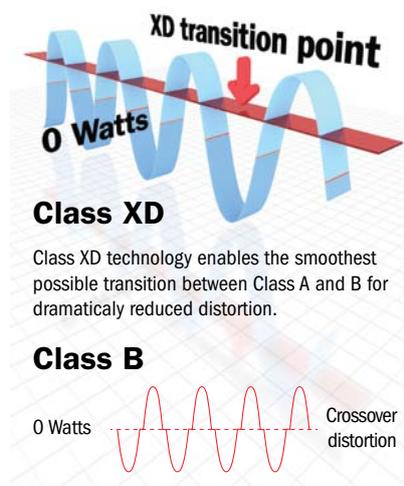
## Class XD amplification

Class XD, a proprietary Cambridge Audio technology, is a unique linear amplifier circuit created to offer optimum sound quality whilst retaining the high power levels required for truly dynamic performance. It was conceived by our engineering team to combine the best of both worlds from Class A and Class A/B amplifier operation.

Class XD (crossover displacement), gives the benefits of pure Class A operation at low levels and eliminates the distortion associated with conventional Class B operation as the fragile audio signal passes through the zero crossing point from transistor to transistor.

The result is a smooth and linear transition between the two key operating modes, Class A and B.

The benefits of this approach give the sonic refinements of Class A operation and the uncompromising efficiency and power of Class B operation. In fact, the new 851A delivers a gigantic 120 watts per channel – enough for the most demanding speaker set-up.



## Two in one

Shunning cheaper power supplies that many of its peers use, the 851A benefits from two, custom-designed toroidal transformers. Following a painstaking assessment period, our engineers have selected uncompromising, oversized, 'audiophile-grade' designs for benefits such as lower noise, quieter PSU operation and excellent bass response.

Towards the back of the amplifier is a separate, completely isolated unit supplying the pre-amp stage, and located in the centre is a colossal toroid supplying the main power-amp

stage. These critical components are key to delivering the sonic performance and the power reserves to the 851A.

## Ultimate protection

The 851A also benefits from the latest version of our proprietary protection system. CAP5 (Cambridge Audio Protection 5) is an innovative and intelligent circuit that constantly monitors the amplifier, without degrading signal purity, ensuring ultimate reliability. Designed to protect the amp in operation, the system has been developed to leave sound quality unaffected and also incorporates a clipping sensor that reduces the volume to keep levels in a safe range. It also boasts short-circuit detection and a solid-state temperature sensor with over-heat cut out. Combined, these technologies ensure that Cambridge Audio amplifiers will go on to deliver years of reliable, high-performance sound.

## 851C Upsampling DAC/CD/Digital Pre-amp



# 851C

## The heart of your digital music system

Our new 851C is a staggeringly complex creation but one with a simple mission: to make your digitally stored music sound sublime. It's a high-end CD player, a state-of-the-art DAC and digital preamp in one package. The 851C has been designed to operate at the very heart of your digital music system, offering incredible functionality and performance.

Central to the 851C's exceptional performance is a mouth-watering collection of advanced technologies, such as our high-specification digital-to-analogue converters from Analog Devices. Together with its onboard ATF2 upsampling technology, the 851C has the ability to improve sound quality regardless of the input format. From MP3 to studio master quality downloads, it showcases your music in its best possible light.

Offering flexible connectivity, you can link up a world of digital source components to the 851C, including: TVs, streamers, digital iPhone/iPad docks and computers. The 851C is



also capable of accepting the very highest quality music files currently available via USB: (24-bit/192kHz) enabling you to get closer to your music than ever before.

Everyone's ears are different and you can select from three filter options which each offer a slightly different presentation.

Particular attention has also been paid to the 851C's casework, which combines massive structural rigidity, careful damping and control of acoustic resonance. Both inside and out, the 851C and matching 851A have all the hallmarks of high-end thoroughbreds.

### Perfect partners

A wealth of digital inputs means the 851C can act as a digital to analogue converter and dramatically enhance any device which supports a digital audio output such as:

- PCs and laptops
- TVs
- Blu-ray players
- Music streamers
- Digital iPad/iPhone docks

"A major advance on its already capable predecessor, the 851C is a superb sounding digital hub that gives great hi-res and silver disc playback"



## 851C Upsampling DAC/CD/Digital Pre-amp



# A trio of talents...

## The 851C as a high-end DAC (Digital to Analogue Converter)

You could think of the 851C as a CD player 'plus'. Perhaps its most significant additional function is that of a fully fledged, high-resolution, audiophile DAC. Used in this way, it's capable of breathing new life into audio produced by everyday digital components to bring sparkling clarity and detail to music streams.

Practically any device featuring a digital audio output – from TVs to

computers, laptops or digitally docked iPod/iPhone/iPad devices – can benefit from 851C's highly advanced digital audio processing technology.

A number of external devices can be attached thanks to twin S/PDIF (coaxial) inputs, two Toslink (optical) inputs and, for truly high-performance sound quality, a USB input capable of handling up to 24-bit/192kHz resolution.



## The 851C as a CD player

Quite simply, the 851C is an outstanding CD player in its own right. It incorporates numerous technologies, including aforementioned Analog Devices DACs, the ATF2 upsampling process and it features balanced outputs. But at a more fundamental level, our engineers have created a custom-designed S3 servo mechanism which has the ability to retrieve the maximum amount of information from 16-bit CD. A Cambridge Audio-developed transport complements the servo drive perfectly, adding an additional audiophile touch to this critical part of the reproduction chain.



## The 851C as a digital pre-amplifier

Many people's music sources now function entirely in the digital domain (computers, audio streamers etc) and for such scenarios, the 851C can be used as a digital pre-amplifier and connect directly to a power amp, or active speakers. Volume and

balance control are processed completely using Cambridge Audio's proprietary Digital Signal Processor (DSP). This gives the highest quality of digital volume control, as opposed to analogue attenuation or digital bit reduction.

## 851C Upsampling DAC/CD/Digital Pre-amp



# 851C technology

## ATF2 upsampling

Developed in conjunction with Anagram Technologies of Switzerland, ATF2 stands for Adaptive Time Filtering. Using digital signal processing, the 851C upconverts the incoming music stream whilst restoring critical timing information. This means that whether you're playing a CD or listening to music from a connected audio device, our unique upsampling system will improve the incoming signal potential – adding dynamics and sparkling clarity to all



your music. The technology also includes a three-stage user-selectable filter, enabling you to further fine-tune the 851C's output. ATF2 benefits music stored in all formats, bringing significant improvements to low bitrate files as well as your reference quality recordings.



Matthew Bramble, Technical Director

### The best product we've ever made?

"The 851C really represents the pinnacle of what it's possible to reproduce from digital recordings. Our design team are true audiophiles but they also live in the real world and we know that people often listen to music in lower quality formats. That's why we've been equally committed to ensure that every format – from everyday MP3 to 24-bit lossless – sounds as good as is humanly possible!"

## Twin Analog Devices DACs

Following extensive listening trials, our engineers chose the highest-specification converters from Analog Devices, a world-leading audio component supplier. Used in dual-differential mode – where each channel has its own dedicated convertor – the two AD1955 24-bit-capable DACs combine to deliver astonishing soundstaging and stereo imaging.

Analog Devices was also chosen to supply the DSP. The 32-bit Black Fin DSP is at the heart of the ATF2 process, where it uses its impressive capabilities to interpolate all incoming data to 24-bit/384kHz resolution, to both maximise sound quality and minimise the unwanted effects of digital jitter.

## Tech specs



### 851A Integrated Class XD amplifier

Power output	120W RMS into 8 Ohms 200W RMS into 4 Ohms
THD (unweighted)	< 0.001% 1 kHz at 80% of rated power < 0.01% 20 Hz - 20 kHz at 80% of rated power
Audio inputs	2 sets of balanced XLR, 8 further RCA inputs
Audio outputs	Preamp output, Record output
Frequency response	10 Hz - 50 kHz +/- 1 dB
S/N ratio (ref 1W/8 Ohm)	> 93 dB
Input impedances	Inputs 1 and 2 (balanced) 20 kOhm Inputs 1-7 (unbalanced) 20 kOhm
Power Amp damping factor	> 110 at 1 kHz
Maximum power consumption	800W
Standby power consumption	<0.5W
Bass/treble controls	Shelving type Max bass boost/cut +/- 10 dB at 10 Hz Max treble boost/cut +/- 7.5 dB at 20 kHz
Dimensions (H x W x D)	115 x 430 x 385mm (4.5 x 16.9 x 15.2")
Weight	15.0kg (33lbs)

### 851C Upsampling DAC/CD/ Digital Pre-amplifier

D/A converter	Dual Analog Devices AD1955 24 bit DACs
Digital filter	Analog Devices Black Fin ADSP-BF532 32 bit DSP performing 2nd Generation ATF2 up-sampling to 24-bit/384kHz. Linear Phase, Minimum phase or Steep modes
Analogue filter	Two Pole Fully Differential Linear Phase Bessel filter
Digital Input 1	S/PDIF 75 ohms or Toslink optical
Digital Input 2	S/PDIF 75 ohms or Toslink optical
AES/EBU Input	XLR balanced 110 ohms per phase
USB Audio Input	USB Type B conforming to Audio profile 1.0 or Audio profile 2.0 (user selectable)
Analogue audio outputs	Balanced XLR and unbalanced RCA analogue audio outputs
Compatibility	USB 1.0 16-24 bit, 32-96kHz USB 2.0 16-24 bit, 32, 44.1, 48, 88.2, 96, 192kHz Toslink 16-24 bit, 32, 44.1, 48, 88.2, 96kHz S/PDIF and AES/EBU 16-24 bit 32-192kHz CD playback is intrinsically limited to 16-bit 44.1kHz
Max. power consumption	40W
Standby power consumption	<0.5W
Dimensions (H x W x D)	115 x 430 x 360 mm (4.5 x 16.9 x 14.7")
Weight	10kg (22lbs)

### Cambridge Audio in the community



As a successful company which benefits from society, we feel it's only right to give a little something back. Over recent years, profits from the sale of the Cambridge Audio products you've bought have directly helped thousands of disadvantaged adults and children across the world enjoy a better life. We support a wide range of worthy causes at home and abroad, and we also offer each of our colleagues additional annual leave entitlement to support a charity or good cause of their choosing.

You can find out more about our community activities at [www.cambridgeaudio.com/about](http://www.cambridgeaudio.com/about)

All rights reserved © 2012 Cambridge Audio. The Cambridge Audio name and logo is a registered trademark of Cambridge Audio Limited. Cambridge Audio Azur, Class XD and Anagram Technologies are trademarks of Cambridge Audio Limited. Cambridge Audio is a brand of Audio Partnership Plc  
Registered Office: Gallery Court, Hankey Place, London SE1 4BB, United Kingdom.  
Registered in England No. 2953313

[www.cambridge-audio.com](http://www.cambridge-audio.com)