



# The UK's top music makers just got better!

The 651 Series amplifier and CD player have been developed to give you the best possible sound in your home, not just from CDs (via the 651C), vinyl and tuners, but crucially from the wide range of computer sources used by today's consumer. This is all possible because we only use the finest custom-developed audiophile-grade components, including high performance toroidal transformers and, of course, our passion for perfection.

The 651A is a smooth and powerful amplifier, thanks to class-leading design and carefully selected components. Its dedicated USB audio port bypasses the inferior audio processing and conversion inherent with most computer sound cards, enabling the amplifier to perform this critical process. With direct connection to a computer, the 651A can produce a pure, distortion-free sound to enhance your enjoyment of stored music in iTunes, internet radio and services such as Spotify like never before. Of course, the five analogue phono connections allow you to use a wide range of traditional hi-fi sources too.

Now with connectivity to your computer and an all new custom CD solution!

The 651CD player maximises audio potential from CDs, again thanks to using the very best components and state-of-the-art design. While competitor CD players use multi-purpose computer-derived CD ROM drive mechanisms (also known as transport), we have developed a pure audiophile CD transport for a more accurate and detailed sound.

### 651 Series at a glance:

-  Best possible sound
-  Audiophile-grade components
-  Solid metal construction
-  Toroidal transformers
-  Versatile connectivity inc. USB (651A)

### The inside story

#### 651A: An introduction to high-end audio

The 651A provides perfect stereo reproduction, thanks to separate transformer taps for the left and right channels, twin rectifiers and separate power supplies for dual-mono operation and regulation of the left and right power amplifiers. It also features a substantial heatsink; essential to keep it cool with so much power on board! The net result of these critical component choices is a pure, usable 75 Watts (at 8 Ohms) of smooth unruffled performance.

#### 651C: Audiophile-grade DACs

The 651C uses not one but two audiophile Wolfson WM8742 DACs (Digital to Analogue Converters) so each channel's data is processed completely separately ensuring superior accuracy and detail. This design also includes a sophisticated filter to ensure an incredibly low noise floor and barely measurable distortion to maintain the audio integrity.

## 651A amplifier

### No compromise power supplies – its part of our DNA!

At the heart of any great amplifier is its power source. In the 651A and 651C, Cambridge Audio uses high quality silicone-screened low-flux toroidal transformers as standard!

These are chosen to ensure lower noise, less distortion and incredibly quiet operation without any of the buzz or hum inherent in the more widely used, cheaper EI transformers. Specifically for the 651A, these deliver a perfectly smooth output waveform, with no signal clipping and huge amounts of high quality, distortion free, power. This enables the amplifier to react instantly to any changes in the music, dynamics, bass reproduction and timing all of which contribute enormously to the overall musical experience.

## Application guide for 651A amplifier and 651C CD player

### The 651 Series is incredibly versatile...



#### Home stereo systems:

The 651 Series is powerful enough for virtually any home stereo set-up and with a USB connection, ideal for those who stream music services on a PC or Mac or who use iTunes on their computer as a music source. And because we don't add unnecessary gimmicks, both are incredibly simple for all the family to use thanks to the intuitive front panels.



#### Offices and boardrooms

The high performance toroidal transformer makes for a powerful, unruffled amplifier that's ideal for amplifying board rooms, meeting rooms, receptions and lecture theatres.



#### Bars and restaurants

Twin speaker outputs mean the 651A is the perfect amplifier for commercial premises and by linking two 651As together (known as bi-amping) it's possible to control more speakers and bigger spaces too. This enables support for up to four pairs of speakers and as many rooms, therefore ideal for bars and restaurants. It's incredibly easy to use, and digital music from laptops or MP3 players can be quickly connected by employees or customers using USB or line input connectivity.

#### Schools and universities



Tens of thousands of classrooms across the UK are equipped with Cambridge Audio amplifiers, specifically chosen for their ease of use, effortless room-filling power and immense reliability.



### Finest components

A high specification volume control ensures perfect channel balance at low levels and is complemented with highly accurate tone controls offering equally intricate level settings.

Other important design choices include new audiophile-grade polypropylene signal capacitors, gold-plated speaker outputs, custom-made electrolytic capacitors in critical positions and several carefully calculated circuit designs, based on our many years of award-winning hi-fi experience.

### Class-leading connectivity



As well as five RCA phono inputs, the 651A has a USB audio input to receive files directly from a computer, whether stored in iTunes, streamed from an internet radio station or from a cloud service such as Spotify. What's more, the 3.5mm input allows connection of any device with a line output such as a MP3 player

or mobile phone, giving fast access to both stored and streamed content.

### Peace of mind guaranteed!

Cambridge Audio's proprietary CAP5 protection system constantly monitors for overloads, faults and clipping whilst guaranteeing no sound degradation – this technology allows for greater dynamics without risking damage to a system or speakers. This is particularly handy for customers with inquisitive young children or teenagers who, when home alone, may be inclined to test the amplifier to its limits. Peace of mind guaranteed!

### Designer's note



"We don't just rely on data sheets – I personally auditioned six of the most revered audio DACs before selecting the Wolfson WM8742 for the 651C, it adds a real edge of purity and dynamics"

*Chris Woolrych –  
Electronic Engineer and 651  
Series Designer*



## 651C CD player

Just like the 651A, the 651C features a high-quality, audiophile-grade toroidal transformer ensuring lower noise and less distortion as well as an incredibly quiet operation without any buzz or hum.

### State-of-the-art design

Whereas many 'comparable' CD players utilise an inferior CD/DVD-ROM computer-derived drive (also known as transport), the 651C takes full advantage of our custom designed audio-only CD transport. Coupled with our new S3 Custom CD Servo it gives the double benefit of error-free data retrieval from CDs with minimal levels of jitter. The result is a truly unsurpassed audiophile experience, as the 651C delivers precisely what is on the CD.



### Incredible performance

The 651C delivers superb accuracy, by using a pair of audiophile DACs (Digital to Analogue Converters) in a dual differential configuration. Each channel has its own dedicated DAC to process information for excellent imaging. The DACs also feature an easily selectable digital filter on the front panel with two settings enabling users to tailor the sound to best match their individual preferences.

### Ultra-rigid construction

Simply by lifting them, you will know how well these units have been constructed. Both the 651A and 651C use all-metal casework for an ultra-rigid construction and structural integrity and ensuring all components are completely isolated for the very best possible performance.

What's more, the high-quality and elegant brushed metal finishes make them look great in any room.



## Toroidal vs EI transformers

Both the 651A and 651C feature powerful toroidal transformers. Cambridge Audio was one of the first manufacturers to use toroidal transformers in the 1970s, and we continue to use them today. Some of the benefits of a toroidal transformer, over the cheaper, inferior EI transformers used by most other manufacturers are:

- ✓ High quality power output to the amplification circuits, with no clipping of the waveform signal, to provide a consistent signal
- ✓ No transformer noise, buzz or hum
- ✓ Sensational bass performance
- ✓ High power output, to allow large and demanding speakers to be driven at high volumes
- ✓ Large power reserves, to allow the transformer to deliver high peaks of volume when required
- ✓ Fully shielded against internal and external electrical interference, to maintain quality of power and signal



### A typical cheaper EI transformer:

- ✗ Weak inconsistent signal
- ✗ No shielding
- ✗ Noisy
- ✗ Won't drive powerful and demanding speakers

# Top reasons to buy the 651A/651C

The 651A and 651C deliver exceptional quality audio... here are 10 reasons to choose the Cambridge Audio duo over other systems

**1 Dedicated USB input:** With more and more listeners enjoying music from their computers, the 651A takes signals directly from a computer and uses its internal DAC, to avoid the huge loss in quality when playing computer music through a hi-fi system.

**2 All the power you need:** The 651A can be used in any room with even the most demanding loudspeakers due to the consistent, high power output providing effortless performance sound, at any volume.

**3 Stereo separation:** This class-leading performance is only possible thanks to our design principles. By separating the left and right channel amplification circuits, including separate power feeds, the 651A provides an incredible quality of stereo separation. The 651C uses completely separate DACs for the left and right channels, for a completely uncompromised performance, delivering the precise detail in each channel exactly as the original artist intended. This level of specification is normally only found in much more expensive designs.

**4 A protected purchase:** Our CAP5 – 5 way protection system has been designed to prevent the 651A from the commonly caused damage or malfunctions that most amplifiers can suffer from. This means you can be rest assured that your system is protected, regardless of how hard you push its limits!

**5 System building:** The 651A has both a subwoofer output – sending all low frequency signals to an active subwoofer (to augment bass reproductions) – and stereo pre-outputs, allowing additional Power Amplifiers to be connected to further improve audio quality.

**6 Personalisation:** Like our legendary DacMagic, the 651C incorporates selectable digital filters - sharp roll off or slow roll off enabling you to tailor the output to best match your taste.

**7 Solid foundations:** Unlike competitor models that use cheaper plastic construction, the components inside the 651A and 651C are completely isolated from any form of interference that could affect audio reproduction thanks to the ultra-rigid, all-metal casework and an acoustically-damped chassis.

**8 Makes sharing easy:** The 651A has a 3.5mm input on its front panel, which is automatically selected when a source such as an MP3 player, mobile phone,



or any other device with a line output is connected, making it simple and convenient for anyone to enjoy and share music.

**9 Ease of use and control:** Our full function 'Navigator' remote control can control all functions on both the 651A & 651C, reducing clutter, batteries and confusion!

**10 See what you're listening to:** The 651C features CD text, displayed on the easy to read front panel display, enabling you to quickly identify track, album and artist names.

### Did you know?

The processing and sound reproduction inside the 651C CD player is more accurate than the data on a Compact Disc can ever be. Therefore we know there can be absolutely no loss of fidelity during playback.