



# DRAGONFLY

USB Digital-Audio Converter

BEAUTIFUL SOUND ... FROM ANY COMPUTER

- Plays All Music Files: MP3 to 24-bit/192kHz
- Drives Headphones Directly
- Variable Output Drives Powered Speakers or Power Amp
- Fixed Output Feeds Preamp or Receiver
- Asynchronous Transfer Ensures Digital Timing Integrity
- Two Clocks Enable Native Resolution Up To 24-bit/96kHz



audioquest®

## Computers Are Where Our Music Lives Today

Today's computers are the CD, the LP, and the golden age of radio all rolled into one. From streaming Internet radio to MOG and Pandora®; from convenient compressed file downloads at the iTunes® Store to high-resolution music downloads at sites such as HDtracks®; computers are a digital hub capable of delivering a nearly infinite amount of Internet- and computer-based music and video content. However, with their tiny budget, the analog and digital audio circuits in your computer are not designed with the quality of parts and sophistication of circuitry which would enable the computer to perform as a high-fidelity audio source component, fully honoring the fragile nature of audio data.

## What is a Digital-Audio Converter (aka "DAC")?

Anytime you're listening to music, or watching a movie or YouTube video on a computer, the digital audio data being played is comprised of streams of 1's and 0's. A Digital-Audio Converter is a device that converts these 1's and 0's to the analog waveforms that our headphones and home stereos then give to our ears as music. The sound card that's built into your computer and feeds its headphone jack is an example of a DAC. However, much better sound is possible using a purpose-built Digital-Audio Converter like AudioQuest's DragonFly.

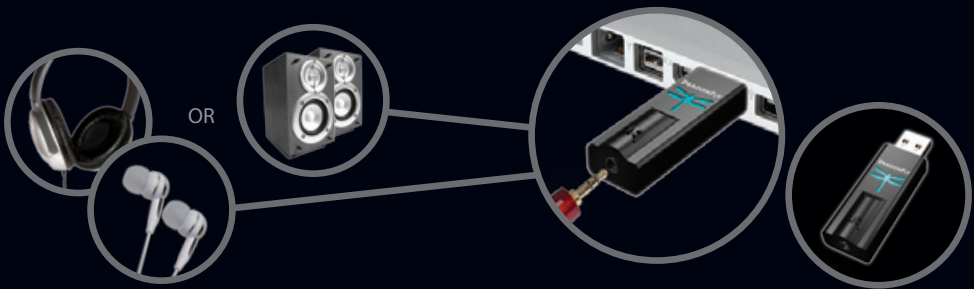
## Meet DragonFly

DragonFly is an affordable and easy-to-use device that delivers far superior sound by bypassing the poor quality sound card that is built into your computer. DragonFly is a sleek, flash drive sized Digital-Audio Converter that connects to a USB jack on a Mac® or Windows® PC, turning any computer into a true high-fidelity music source.

Whether you're on the go or at home, listening on ear buds or connecting your computer to a stereo system, DragonFly reveals all the emotional expression and nuance that makes your favorite music, or movies, so enjoyable.

## Spread Your Wings ... DragonFly

True high-fidelity audio has been restricted to our home stereos and home entertainment systems for generations. DragonFly is a 21st century hi-fi component that offers breakthrough price and performance. Getting truly great sound from any computer is now not only possible, it's portable. DragonFly.



## What DragonFly Does

DragonFly's 3.5mm mini-jack output signal can drive a variety of devices or systems depending on how it's connected and used.

- DragonFly drives headphones or ear buds directly
- DragonFly can be used in 'variable' output mode with computer-controlled analog volume control when connected directly to powered speakers or a power amplifier.
- Connecting to a traditional preamplifier or AV receiver, DragonFly can be set to a "fixed" output mode by turning the volume to maximum, allowing it to behave like a CD or Blu-ray player

However you connect and use it, DragonFly simply and easily makes any computer sound better.

## How DragonFly Does It

At the heart of DragonFly is a 24-bit ESS Sabre™ conversion chip, a high-performance 'computer' that's usually only found in better CD and Blu-ray Disc™ players. DragonFly plays all music files, from MP3s all the way up to 24-bit/192kHz high-resolution music files. 24-bit/176.4kHz and 24-bit/192kHz files are neatly halved by the source computer and processed by DragonFly as appropriate at either 24-bits/88.2kHz or 24-bit/96kHz.

DragonFly uses two discrete onboard 'clocks' so that the particular math algorithms used to convert the digital audio data to analog is always the one optimized for the native resolution of the audio file or stream being played. This ensures that DragonFly doesn't rely on imperfect mathematical approximations in reconstructing the signal, resulting in better 'tracking' and better sound. A smart LED indicator behind the dragonfly icon shows the resolution of the incoming signal.

However, high-quality digital-audio conversion alone isn't why DragonFly sounds great. How the audio data is transferred from the computer to DragonFly required particular attention from DragonFly's design team. Remember that digital audio is stored on computers and delivered to DragonFly as streams of 1's and 0's. Making beautiful music out of 1's and

0's isn't a case of simply getting all the music data from Point A to Point B. Maintaining subtle digital timing relationships is crucial in order to be able to reconstruct the analog waveform that we hear as dialog or music.

Timing errors have long been the plague of digital audio playback, never more so than in recent years as computers have been pressed into service as audio source components. DragonFly uses a very sophisticated 'asynchronous\*' USB audio data transfer protocol. Rather than sharing crucial audio 'data clocking' functions with the computer, DragonFly alone commands the timing of the audio data transfer, dramatically reducing digital timing errors. In addition, not all audio content is encoded at the same native resolution or 'sample rate.' DragonFly uses two discrete onboard 'clocks' so that the math algorithms used to convert the digital audio data to analog are always optimized for the native sample rate of the audio file or stream being played. This ensures the least amount of mathematical manipulation to the native audio data, which results in fewer errors and better sound. A smart LED indicator on DragonFly shows the resolution of the incoming signal.

While the digital domain is where your computer-based music experience starts, the analog domain requires attention too. Digital volume controls too often reduce signal resolution and decrease sound quality. Even when the iTunes volume slider is used, DragonFly's high-resolution analog volume control carries out the instructions in the analog domain for the best sound quality. And DragonFly's analog circuits are direct-coupled from the ESS converter chip's output, avoiding the need for any extraneous, sonically degrading components in the signal path.

All of these refinements allow DragonFly to make music with a natural solidity and clarity that is dramatically superior to the sound you would hear from your computer on its own.

For more on DragonFly visit  
[www.AudioQuest.com/DragonFly](http://www.AudioQuest.com/DragonFly)

\* DragonFly's Streamlength™ Class 1 asynchronous USB code is licensed from Gordon Rankin of Wavelength Audio. In addition to being an asynchronous transfer pioneer, Mr. Rankin has repeatedly contributed to advancing the frontier of high performance digital audio.

### Capabilities:

- Plays All Music Files: MP3 to 24-bit/192kHz
- Drives headphones directly
- Variable output drives powered speakers or power amp
- Fixed output feeds preamp or AV receiver

### Features:

- 64-position (computer-controlled) analog volume control
- Asynchronous Class 1 USB data transfer using the Streamlength™ protocol\*
- Direct-coupled circuitry from the ESS Sabre™ DAC chip through the analog volume control and analog output section
- Isolated Dual Master Clocks enable all sample rates to be ideally processed without any conversion or rounding errors

### Specifications:

#### Sample rates supported, LED indicator color codes:

44.1kHz (Green), 48kHz (Blue), 88.2kHz (Amber),  
96kHz (Magenta)

**Output voltage:** 2vrms

#### Minimum driven impedance

**(headphones, electronic input):** 12 ohms

**Maximum headphone driver output power:** 125mW @ 32 ohms

#### Analog Audio – Frequency Response:

DC - 22 kHz (44.1kHz sample rate)

DC - 24 kHz (48kHz sample rate)

DC - 44 kHz (88.2kHz sample rate)

DC - 48 kHz (96kHz sample rate)



Actual Size

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