

DRAGONFLY®

USB DAC + Preamp + Headphone Amp



BLACK



RED

- EN** Instructions in English are available at the link below.
- ES** Las instrucciones de instalación en el español se encuentran disponibles en el enlace que se indica a continuación.
- FR** Les instructions d'installation en français sont disponibles au lien suivant.
- DE** Eine Anleitung in englischer Sprache ist unter dem unten stehenden Link verfügbar.
- NL** Instructies in het Nederlands zijn beschikbaar via onderstaande link.
- ZH** 安裝說明請詳見下列網址連結.
- JA** 日本語 のインストールガイドは下記リンク先でご覧いただけます。
- KO** 한국어로 작성된 설치 지침은 아래 링크에서 볼 수 있습니다.
- RU** Инструкции по установке на русском языке можно найти по ссылке ниже.
- IT** Le istruzioni per l'installazione in italiano sono disponibili nel link indicato in basso.
- PT** Pode encontrar as instruções de instalação em português através do link em baixo.
- PL** Instrukcja w języku polskim są dostępne w linku poniżej.
- SE** Instruktioner på svenska finns på länken nedan.

<https://www.audioquest.com/dacs/dragonfly>





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AudioQuest DragonFly

USB Digital-to-Analog Converter

DragonFly is a USB digital-to-analog converter (DAC) designed to deliver cleaner, clearer, more naturally beautiful sound from any computer, smartphone, or tablet. DragonFly's unique design allows for playback of any file type regardless of resolution. Natively, DragonFly is capable of decoding 24-bit/96kHz data. *(For files with higher sample rates, your computer or mobile device, in conjunction with its playback software, will resample the data to a compatible resolution. For more details, see "The Importance of Format.")*

Today's DragonFly represents the culmination of several significant achievements: While the original DragonFly defined the market for micro-DACs, its USB power draw made it compatible with computers only. As music consumption quickly evolved, music lovers soon craved a more portable version—one that could be reliably used with Apple and Android smartphones and tablets.

Working closely with Microchip®, a leading provider of microcontrollers and analog semiconductors, AudioQuest and DragonFly designer Gordon Rankin developed sophisticated software that enabled the implementation of a new, high-performance class of USB microcontroller. Thanks to their exceedingly low power consumption and extremely low-noise power supplies, the Microchip® microcontrollers achieve unprecedented levels of efficiency and signal-to-noise ratio, regardless of bit- or sample-rate. The initial results of this collaboration were the critically acclaimed

DragonFlies Black and Red, the first of their kind to offer compatibility with Apple and Android mobile devices.

In the time since, significant advances in DAC chips have afforded performance that exceeds even our multi-award-winning DragonFly Red. We therefore developed DragonFly Cobalt. The current state of the art, Cobalt takes what music lovers around the world have come to expect from the DragonFly family—*naturally beautiful, seductive sound*—and strips away additional layers of fuzz and fog.

All DragonFlies use Gordon Rankin's monoClock® technology and the StreamLength® asynchronous USB code*. With monoClock® technology, a single ultra-low-jitter clock generated from the DAC chip runs the headphone amplifier as well as all microcontroller functionalities. This single ultra-low-jitter clock enables DragonFly to produce greater resolution and clarity than DACs that employ multiple clocks.

StreamLength® asynchronous USB code ensures improved delivery of the audio samples to the DAC chip. It produces low jitter, low resource load, minimal packet errors, world-class audio playback, and reliable connectivity between our DAC and any computing device compliant with USB Host Mode (as set forth by the USB Organization). StreamLength® is compatible with the USB Audio Class (UAC) and requires no additional drivers.

(monoClock® and StreamLength® are registered trademarks of Wavelength Audio, Ltd.)

Additionally, DragonFly is software upgradable. In today's fast-paced digital world, longevity in a hi-fi component is increasingly rare—at any price. AudioQuest believes that today's digital devices should evolve as technology itself evolves, thereby delivering musical pleasure for many years to come. With our free Desktop Device Manager application and a few simple clicks, when new software is available, DragonFly can be upgraded at no additional cost.

To stay up to date on the latest DragonFly news, please register your product at [*https://www.audioquest.com/warranty/register*](https://www.audioquest.com/warranty/register).

AudioQuest

Included Inside

- DragonFly Asynchronous USB DAC
- Travel Pouch
- Flight Manual

Supported Operating Systems

- Apple OS 10.6.8 and later
- Apple iOS 5 and later
- Microsoft Windows 7-10
- Android 4.1 and later
- Linux capable (no support provided)

Playback Status/Sample Rates Supported (LED Color Code)

Red: Standby **Green:** 44.1kHz **Blue:** 48kHz

Amber: 88.2kHz **Magenta:** 96kHz **Purple:** MQA

Note: DragonFly is an MQA renderer only and must be partnered with appropriate software to unfold MQA files. For MQA capabilities, please consult the user manual of your playback device and music-player application.

For instructions on how to play MQA files through the Tidal music player, visit <https://www.audioquest.com/page/aa-digitalupdates.html>.

* For more information on MQA and DragonFly, visit <https://www.audioquest.com/page/aa-dragonfly-series-faq.html#!/mqa>



At a Glance: DragonFlys Black, Red

MODEL	DragonFly Black	DragonFly Red
IDENTIFICATION	Black soft-touch finish	Red automotive finish
OUTPUT	1.2 volts drives almost all headphones	2.1 volts drives all headphones, including low-efficiency models
MICROCONTROLLER	Microchip PIC32MX	Microchip PIC32MX
DAC CHIP	ESS 9010 32-bit	ESS 9016 32-bit
HEADPHONE AMPLIFIER	Texas Instruments	ESS
VOLUME CONTROL	Analog VC	64-bit bit-perfect digital VC

Setting Up DragonFly

DragonFly is compatible with all major desktop and mobile devices and operating systems, such as Android, Apple, and Microsoft Windows 10. DragonFly requires no additional drivers to operate with any of these systems.

Note: While DragonFly Black is equipped with a high-performance 64-step analog volume control, DragonFlys Red and Cobalt employ a bit-perfect digital volume control that resides *inside* of the DAC chip itself—a sophisticated implementation that ensures maximum fidelity, dynamic contrast, and signal-to-noise ratio. With any DragonFly connected to a PC or mobile device, adjusting the host's system volume control will, through proxy, control the DragonFly's onboard volume.

The Importance of Format

CDs have a sampling frequency of 44.1kHz. Compressed MP3 and AAC music files and audio streams are typically encoded at one of three different quality levels—128kbps, 256kbps, or 320kbps—and are most often reconstructed as 44.1kHz files. Similarly, many music downloads and CDs ripped as Apple Lossless or FLAC files are reconstructed to 44.1kHz. For these reasons, DragonFly will often produce the best results when your computer is set to output a sample rate of 44.1kHz. If you have higher resolution files, however, it is important to choose the correct higher sample rate in order to maximize the benefit of those files. For the best performance with sampling rates above DragonFly's 96kHz ceiling, files should be played at a rate mathematically related to their native resolution. For instance, a 192kHz file should be played at 96kHz (i.e., $2 \times 96000.0 = 192000.0$).

There are many applications available (such as Roon, BitPerfect, Foobar, JRiver, Audirvana, Decibel, Amarra, etc.) that will automatically set the sample rate of DragonFly to that of the file, eliminating the need for manual setting of the sample rate.

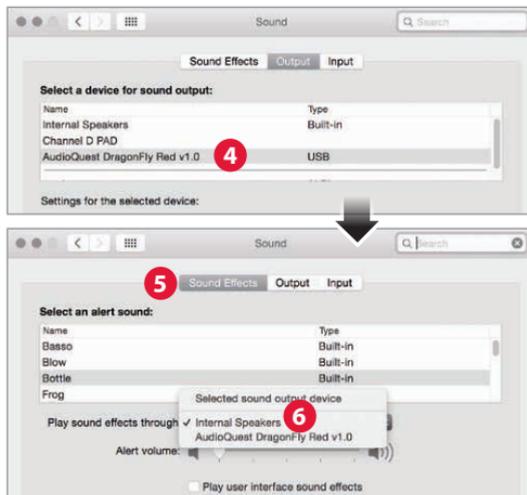
For Use with Apple OS 10.6.8 or newer

DragonFly is compatible with Mac OS X, versions 10.6.8 and later. OS X menus may appear slightly different from the screenshots shown below. Some have changed over the life of OS X, but their functionality has remained the same.

Setup for USB

Using System Preferences to send audio to DragonFly, while keeping alerts and sound effects on the computer's speakers:

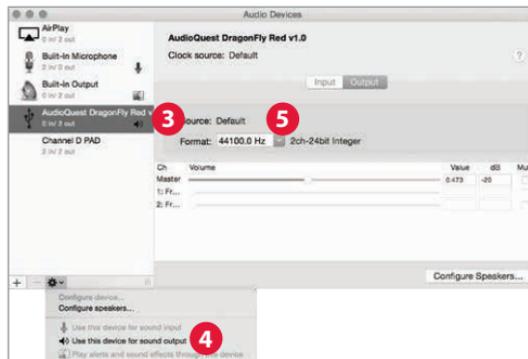
1. Insert DragonFly into your computer's USB port.
2. Open "System Preferences" from the Dock or from the Apple® dropdown menu (top left).
3. Click on the "Sound" icon.
4. In the Sound panel, click on the "Output" tab. Select DragonFly.
5. Click on the Sound panel's "Sound Effects" tab.
6. In the "Play sound effects through" menu, select "Internal Speakers."
7. Close the window.



8. In order to connect DragonFly to MacBook, MacBook Air, and MacBook Pro computers that are equipped with USB Type-C ports only, we recommend our DragonTail USB A-to-C adaptor (sold separately).

Adjusting the Audio MIDI Setup so computer audio plays through DragonFly:

1. Open the “Applications” folder, and then the “Utilities” folder.
2. Within Utilities, double-click to open “Audio MIDI Setup.”
3. Within the “Audio Devices” panel, select AudioQuest DragonFly.
4. Select “Use this device for sound output.”
5. Use the “Format” dropdown menu to choose a sample rate—most likely 44.1kHz. (See “The Importance of Format.”)

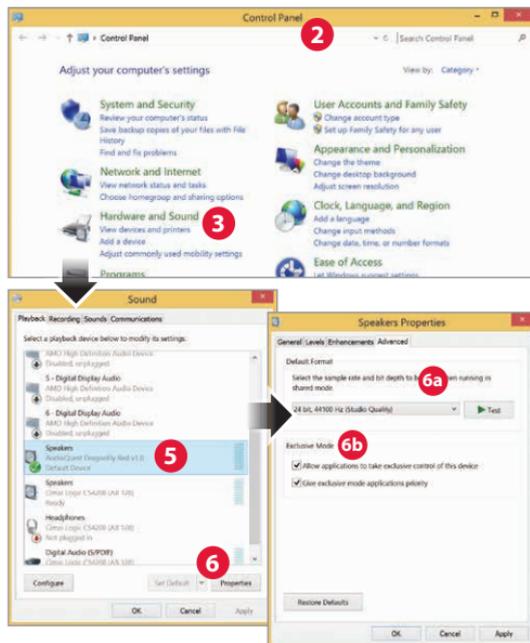


For Use with Windows 7-10

Setup for USB

Using Control Panel Sound settings to send audio to DragonFly, while keeping alerts and sound effects on the computer's speakers:

1. Insert DragonFly into your computer's USB port.
2. In the Cortana search bar at the bottom left of the Windows 10 desktop, type in "Control Panel" and hit enter key to launch the panel.
3. Open "Hardware and Sound" panel.
4. Select "Sound."
5. For USB: AudioQuest DragonFly is added as "Speakers." Ensure it is the "Default Device." Select "Speakers."
6. Click "Properties" button for more setup options.
 - a. Click "Advanced" tab. Use the dropdown menu to choose the sample rate—most likely



24-bit/44.1kHz. (See “The Importance of Format.”)

- b.** For “Exclusive Mode,” check both options, then click “OK.”
- 7.** To connect DragonFly to Windows computers with USB-C ports, we recommend our DragonTail USB A-to-C adaptor (sold separately).

For Use with Apple Mobile Devices

DragonFly will work with Apple’s mobile handheld devices (running on iOS 5 or newer). In order to connect DragonFly to an iPhone or legacy iPad, an Apple Lightning-to-USB Camera Adapter is required.

Note: In our tests, Apple’s Lightning-to-USB 3 Camera Adapter (with charging port) sounds better and is more reliable than Apple’s less expensive Lightning-to-USB Camera Adapter, while also providing the ability to charge during playback. For more information, visit <http://www.apple.com/shop/product/MK0W2AM/A/lightning-to-usb-3-camera-adapter>

- 1.** Plug the Camera Adapter into your Apple mobile device.
- 2.** Plug DragonFly into the Camera Adapter’s USB port.
- 3.** Turn down the volume on your mobile device to at least 50%.
- 4.** Select your desired music/media app, and then select your desired song or stream.
- 5.** Adjust volume to desired level.

For Use with Android Devices

Android devices that run Jelly Bean operating system (4.1 or newer) support USB audio output, and your DragonFly is pre-loaded with the latest firmware, which includes being optimized for use with Android devices.

Note: *If your DragonFly seems to have too little output, then there's more to do: Despite Android's support of USB audio output, there are still hardware manufacturers that do not completely adhere to the USB audio class specification. If you experience this, we recommend the USB Audio Player Pro application (UAPP; currently \$7.99 US): <https://play.google.com/store/apps/details?id=com.extreamsd.usbaudioplayerpro>.*

UAPP includes its own USB audio device driver that is compliant with the USB Organization's USB Audio Host Mode Class specification. Further, it is compatible with various audio formats and will manage music on both the Android's internal memory and inserted SD cards. With the phone connected to the Wi-Fi network, this application can also find and connect to DLNA servers/libraries. USB Audio Player PRO Version 5 now supports audio from Google Music, Tidal (including Tidal Masters), Qobuz, and Shoutcast, and includes an MQA Core Decoder, which will unfold MQA streams from 44.1/48kHz to 88.2/96 kHz and can be combined with DragonFly for further unfolding of even higher sample rates.

If you are not satisfied with this solution, the DragonFly can be returned to your dealer who will gladly refund your purchase price.

Connecting your Android device to DragonFly:

1. Android devices use a USB format known as “OTG” (On the Go). OTG USB ports require a unique 5-pin USB Micro to 4-pin USB A (Female) adaptor. In order to connect an Android device and/or USB cable to a DAC, an OTG adaptor must be used. See <https://www.audioquest.com/accessories/usb-extension/dragontail-micro-extender>
2. Select the appropriate cable for your Android device. AudioQuest offers a wide range of high-performance USB cables, with connectors suitable for Android devices (such as USB Micro and USB Mini). For more information, go to the USB Cables section at <https://www.audioquest.com/cables/digital-cables>. In some rare cases, a proprietary connection or adaptor will be required to transmit audio over USB. (Consult your device’s user manual or visit the manufacturer’s website.) If you would like to connect DragonFly to one of the many Android devices equipped with a USB-C port, then we recommend our DragonTail USB-A to USB-C adaptor (sold separately).
3. Turn down the volume on your Android device to at least 50%.
4. Select your desired music/media app, and then select your desired song or stream.
5. Adjust volume to desired level.

Desktop Device Manager Application

Available for Mac OS and Windows 7, 8.1, and 10

The AudioQuest Desktop Device Manager Application allows you to identify your DragonFly's serial number and software version to ensure that the device is up to date.

In order to install the AudioQuest Desktop Device Manager Application:

1. Go to: <http://www.audioquest.com/page/aa-digitalupdates.html> and download the latest Device Manager available for your operating system.
2. Double-click the installer icon and follow the onscreen instructions until complete. The application's icon will appear on your desktop.
3. To run the Device Manager Application, double-click the application's icon.
4. A window will appear, asking you to connect a DragonFly device to your computer. Once you have done so, a new window will appear, with tabs and controls that allow you to set various preferences.
5. The Device Manager Application will automatically check for available software updates. However, if you'd like to manually check for updates, you can do so whenever you wish by clicking the "Check for Updates" button. If an



update is available, the “Update Now” button will be enabled. Click this button to start the update process.

- 6. PLEASE DO NOT DISCONNECT YOUR DRAGONFLY DURING THE UPDATE PROCESS.** Doing so can leave the DragonFly in a non-functional state. If, for any reason, your DragonFly is disconnected during the update process, or your computer unexpectedly shuts down during the update process, your DragonFly may be rendered unusable.
- 7.** Once the update process is complete, the Device Manager Application will display the following message: *The update is complete and it is safe to disconnect your device.*
- 8.** Once you have checked for updates and/or made your desired changes, disconnect the DragonFly and quit the Device Manager Application. Your DragonFly is ready to use.



*DragonFly delivers beautiful sound
from phones, tablets, computers, and streamers.*

*DragonFly Black and DragonFly Red
will easily drive a wide range of headphones.*



Take DragonFly Higher



JitterBug FMJ USB Filter

Compared to the original award-winning JitterBug, the new FMJ adds superior shielding for improved noise-dissipation and an integrated noise-stopper cap to further prevent high-frequency noise from contaminating the vulnerable audio signal. We recommend using JitterBug FMJ either in series or in parallel to DragonFlies Black and Red. While we do suggest that you try using JitterBug FMJ in series with DragonFly Cobalt, because Cobalt employs some of JitterBug's filtering, results may vary depending on the associated devices. When using Cobalt, you can still optimize the digital audio from a computer, car stereo, or other hardware by adding a JitterBug FMJ (in parallel) into a different USB port. Results may vary; experimentation is encouraged.



Bridges & Falls Analog Cables

Determining the correct connection for your device, and finding a cable that's commensurate in performance with your needs and desires, should be painless. Bridges & Falls cables honor the fact that today's components require more connectivity options than ever before, while taking full advantage of the efficiencies in making single-ended stereo cables in a single jacket. With the appropriate Bridges & Falls cable, you can connect DragonFly to powered loudspeakers or a complete high-performance audio system! AudioQuest offers a comprehensive selection with a wide variety of modern connector configurations, such as 3.5mm, RCA, and DIN.



DragonTail USB Extender Cable

DragonTail is a USB extender cable that allows a USB device (such as DragonFly or a flash drive) to more easily and safely fit next to other occupied computer ports, and to easily connect with various smartphones. Regardless of the digital interface—whether micro-USB/OTG-to-USB A, USB A (female)-to-USB A (male), USB A (female)-to-USB C (male), etc.—we will design a DragonTail for the associated device and application.

Most importantly, like all AudioQuest products, DragonTail is designed and manufactured for low distortion and maximum performance. Sharing design elements with our Carbon USB cable, DragonTail uses semi-solid conductors with silver plating that comprises 5% of the total conductor metal and foamed-polyethylene insulation to maintain critical signal-pair geometry. In addition, as with all AudioQuest cables, DragonTail's signal-carrying conductors are controlled for low-noise directionality, resulting in more engaging, immersive sound.

For many devices that support USB C only, our newest DragonTail USB-A to USB-C adaptor allows users to enjoy the benefits of DragonFly.



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