



USB-TO-S/PDIF RECLOCKING ADAPTER OWNER'S MANUAL

PERFORMANCE AND DESIGN

The Reclocking Adapter serves two purposes:

- If you have a fine high-end system and want to start using your laptop or computer as another music source for the system, the Reclocking Adapter is a remarkably good sounding and inexpensive way of playing your digital music files through your big rig. If you already have a separate DAC--or a CD player with a digital coax input--you need buy only the Adapter and a digital interconnect. No other component is needed to play back digital music with the sound quality of a \$20,000 music server. (If your current big rig has a one-box CD player with no digital coax input, our Modded Cambridge DacMagic will provide the coax input to connect to the Adapter--*and* will be an inexpensive, superb-sounding sonic upgrade for your normal CD playback.)
- If you are already using a DAC with a USB input to play back your computer music files, then the Reclocking Adapter provides a major sonic upgrade by allowing you to use the much better sounding digital coax (S/PDIF) input on your DAC--and feeding that input with a S/PDIF data stream carrying far less jitter than the original USB data stream.

The Reclocking Adapter's input is a USB data stream from any PC or Mac USB port. Any standard frequency and resolution up to 192kHz/24bits is accommodated (as opposed to most current USB DACs or USB interfaces that limit input music to 96kHz). The Adapter reformats and reclocks the USB input data in order to output a very high quality S/PDIF digital signal via standard RCA coax digital interconnects to your system's DAC (or CDP with digital input). This diminutive Reclocking Adapter incorporates astonishing circuit sophistication and several key elements essential for high quality, high-resolution playback:

- **Low jitter, low phase noise, high stability clock oscillators.** Most audio interfaces and USB DACs use phase lock loops to derive their clock from the incoming noisy USB data stream, which introduces heavy jitter (i.e. the data timing errors that make even the finest DACs sound harsh). Instead, our Reclocking Adapter utilizes two extremely precise quartz, highly stable crystal clock oscillators; temperature stability is 2-5ppm approximately, compared to 50-100ppm for the clocks normally used on commercial CD players. These crystal clock oscillators independently and asynchronously reclock the output data stream to eliminate from the S/PDIF output data the sound-degrading jitter inherent in the USB input. That large jitter reduction greatly reduces listening fatigue and digititis; imaging, ambience, harmonic detail, analog warmth, transient dynamics and bass articulation all improve notably.
 - **Carefully-filtered, regulated power supplies for the clocks, buffers, formatting logic and output transmitters.** The Adapter is powered by the 5 volt power supplied at the source computer's USB port. To keep the computer-generated noise on this 5 volt power bus from introducing new jitter into the Adapter's S/PDIF output, the Adapter's extremely compact circuit board incorporates three independent supply regulators and filter networks.
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- **Low dielectric absorption, non-conductive, vibration-reducing enclosure.** Even highly miniaturized circuits like these suffer from signal-induced internal vibrations. Our Amish woodworkers assemble a beautifully crafted (and ultra-low dielectric absorption) maple enclosure directly to the circuit board, thereby greatly stiffening the board while creating an ample sink for draining internal board vibrations. This maple enclosure avoids the sound-muddying effects of the high dielectric absorption of the usual plastic enclosures—or, alternatively, the energy-robbing eddy currents that plague any metal enclosures (eddy currents are inevitably induced in any conductive wire or plate near signal circuitry). A final step after assembly is cryogenic treatment; this significantly reduces background grunge, thereby enhancing ambience retrieval, treble sparkle and the sustain of notes or chords fading into silence.
- **Proprietary drivers.** Standard audio processing in the Microsoft and Apple operating systems greatly constrain the potential for outputting good sounding audio from computers. Designer Marco Manunta has created proprietary drivers for his brilliant reformatting/reclocking circuit that allow the music player software to transfer audio data without loss of resolution, by-passing 96kHz frequency constraints imposed by Microsoft/Apple operating systems and bypassing their internal sound-degrading kernel-streaming processing.
- **Compact size, ease of use and elimination of the USB cable.** The extremely compact design of the complex processing circuitry of the Adapter makes it possible to plug directly into the USB 2.0 port of any computer. This eliminates the otherwise-essential USB cable interconnect, a major sonic advantage because even the best available high end USB cables induce significant jitter and clearly audible sonic degradations (S/PDIF interconnects carrying the music data stream from the Adapter to the DAC, notably our Clearviews, can be made far more jitter-free and clean sounding than any USB cable; USB cables are crippled by having to bundle power wires and data wires inside one jacket). An additional convenience is that no external power supply is required; the Adapter draws current from the USB bus, then regulates and filters the power internally.

INSTALLATION

Before using your Reclocking adapter for the first time, you'll need to download the appropriate driver for your computer type and operating system. Go to <http://www.m2tech.biz/download.asp> and select the appropriate driver for your computer type (Windows PC or Mac) and its corresponding operating system. If you have a PC, drivers are available for Windows 7, Vista, and XP 2003; for Macs, there are drivers for Tiger, Leopard, and Snow Leopard.

SPECIFICATIONS:

Connections- Input 1 x USB A type male
Output 1 x RCA female

I/O Standard- Input USB 2.0 Format
Output S/PDIF Stereo Digital Audio Format

Sampling Frequency- 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz

Resolution- 16 up to 24 bit

Dimensions- 10.2(d) x 2.2(h) x 2(w) cm

Power Supply- 5V DC from USB bus

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Temperature- from 0°C to 70°C