

**Großes Gewinnspiel: Fettes PreSonus-Studio-Bundle** im Wert von **über 1.700 Euro!**

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# recording

**ENGLISH  
VERSION**



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CH Sfr 12,50  
Benelux € 7,00  
I € 8,00



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**DVD** 70 Minuten Studio-Praxis  
**VIDEO-WORKSHOP**  
 Mix einer Pop-Ballade

**mit Ulli Pallemanns** im Studio  
 Schlagzeug, Gitarren, Gesang und  
 Steinway-Flügel - Ulli Pallemanns  
 mischt eine äußerst aufwendig  
 instrumentierte Pop-Ballade.

## Mastering digital

Feinschliff für die Produktion:  
Die optimale Summenbearbeitung  
mit Plug-ins!

## Der perfekte Studio-Tisch

Ein Traum-Möbel für die Regie - mit  
Schreiners Hilfe zum idealen Tisch.



## INTERVIEW Steve Wilson

**Die Tricks des Sound-Hexers**  
Der ehemalige Porcupine-Tree-Fronter über die  
Produktion seines Albums "Hand. Cannot. Erase."

# Die Vocal-Chain

## Gesangsaufnahmen vom Mikrofon bis zum Mixdown



## EQUIPMENT IN DER PRAXIS

Neumann U47 fet + Warm Audio EQP-WA +  
Tomo Audiolabs Liam + Fredenstein F609 +  
Sontronics Aria + Mutec MC-1.2 + Røde NTR



**Infotainment**  
 Datenträger  
 enthält nur Lehr-  
 oder Infoprogramme



## MUTEC MC-1.2

# USB Sound Conditioner

The Berlin-based company Mutec is valued for its converters and clocks. With the MC-1.2, its mastermind Christian Peters first presented an audio interface and a format converter in one unit.

The MC-1.2 is a bidirectional USB digital audio interface without any analog connectors. The Mutec MC-1.2 simultaneously converts the computer's USB audio data stream into five different formats and is able to let a digital input simultaneously flow back via USB into the computer.

**The USB audio communication is therefore bidirectional in real time.** What comes from the computer's USB is then transformed into AES3id (BNC connector), AES3 (XLR male, transformer balanced), S/PDIF (RCA or BNC) and TOS-Link (S/PDIF optical). These

outputs even work when the device is bus-powered, i.e. is supplied with operating voltage via USB. In this way several digital audio receivers can be connected. Simultaneously, digital audio data is fed into the USB when the device has its IEC connector supplied with mains voltage. The following inputs are available: AES3id In (BNC), S/PDIF-In optical (Toslink) and electrical (RCA), AES/EBU In (XLR female). One of these sources must always be selected. The integrated power supply works everywhere in the world. The Mutec MC-1.2 also monitors status bits and shows the SCMS code as an original or a copy. Two additional status LEDs indicate deviations from standard PCM signals as AC-3 or MPEG and DTS (Digital Theatre System). The sampling rate is displayed as well as the clocking via USB or an incoming digital audio signal.

**With Windows (8, 7, Vista and XP) the device uses** a USB 2.0 audio driver that is

compatible with ASIO (2.2 with bit-accurate playback and recording plus 64-bit host support), MME, Direct-Sound, WASAPI and Kernel Streaming. For a Mac computer no driver is needed. PCM signals with 16, 24, 32 or 32 bit floating point are supported for USB1.0 and USB2.0.

### What's the use of it?

One might question the benefit of such a device when you already own an audio interface that is equipped with various analog and digital interfaces. Mutec holds out the prospect of an improvement of audio quality as a maximum of synchronism is achieved by a minimum of jitter and noise. Various segments of the circuit are supplied by individual voltage sources while the USB and the computer are electrically decoupled from the audio devices – quite similar to how a transformer acts in the analog world. The signal is renewed and improved. With all conventional sample rates up to 192

## INFO

Mutec MC-1.2  
 Manufacturer ..... Mutec  
 Sales ..... Mutec  
 Internet ..... www.mutec-net.com  
 Price (MSRP) ..... 419 EUR

kHz, the devices are clocked with enormous stability and do not lose step sample by sample – which can audibly improve the localization sharpness and sound quality. As every device is re-clocked, namely in both directions, it promises a sonic improvement of the used AD and DA converters. Thereby the clock rates of all connected devices and the computer's DAW have to be nominally identical.

**The MC-1.2 is thus basically a signal conditioner.** According to Mutec, converters often do not work optimally when they have to convert the USB data stream into an analog signal and the conversion could be optimized by an intermediate step where the USB signal is transformed into a digital audio format and is then fed to the transducers. That is exactly what the MC-1.2 does: from the incoming USB interface data it generates a digital audio data stream in various formats. This digital audio is then forwarded to a converter that now can work optimally with the digital audio signal.

**So the MC-1.2 is located in the signal chain between the computer and the converter.** Due to its large number of connectors, it can also distribute the incoming signal, e.g. to digital effects processors or recorders. However, the core competence is the translation from USB to digital audio.

**In practice, it quickly shows that Mutec not unjustly promises** improvements of the sound quality. Especially at the upper

## SCMS-Code

The SCMS (Serial Copy Management System) refers to a digital audio signal as "Original" or as a "First Generation Copy". The background of this status bit was the possibility of the digital cassette format ("DAT") with its 16-bit and optional 44.1 kHz or 48 kHz to losslessly copy the contents of audio CDs. With the action to enable "Consumer" equipment to copy only one copy generation (where the copied signal was given the "Copy" status), a compromise

had been found between the US American RIAA (Recording Industry of Association America) and the DAT-manufacturers Philips and Sony, that private cassette recorder users should be allowed to produce exactly one lossless copy generation (even repeatedly) but not copies of copies. This ensured that DAT remained a professional format and that it could not come close to the Compact Cassette's success.

end of the audio spectrum, a measurement of the frequency response clearly shows the MC-1.2's immediate impact. Through the intermediate step via the digital audio signal, the converters transfer the spectral curve's top end better into the analog world. The frequency response becomes abruptly more linear and extends further while the sonic clarity increases, too.

## Listening

Measurements are useful, but the aural impression is what is crucial. We build up a setup that allows us to switch between the USB conversion of an audio interface and the conversion of the same interface's digital audio input.

**The sound difference is real, this we can confirm after some A/B listening.** You may at first be skeptical about the pi-

thy statement that a conversion from USB to analog is suboptimal, but the practical experience supports the contention. Just do not expect the MC-1.2 to open up completely new soundscapes – that would be too unrealistic. It optimizes, it improves in nuances – it perfects. You have to listen carefully to recognize the difference. You only seem to feel it, but it is there and it will become more noticeable the longer you pay attention to it.

**The signals gain more depth. In comparison,** the direct conversion of USB seems to be flatter and a little less alive. By the detour over the digital audio, the frequency separation, the stereo image and the space become more sculptured and clearer while the compared USB signal partly appears somewhat hollow. The MC-1.2 will not raise a poor converter to the upper end of the scale. Nevertheless, who wants to get the most out of his already high quality converters can do this with Mutec's help.

## Conclusion

Everyone has to make up their minds how useful the Mutec MC-1.2 could be in their own setup. In fact, the little helper can improve the sound of conversion. The finding that the converters' digital audio is better processed than a USB data stream is particularly interesting and could prospectively find compliance with other manufacturers. Mutec did some rewarding pioneer work here.

▣ *Jan-Friedrich Conrad & Moritz Hillmayer*



The USB data stream can be transferred to the formats AES3id, AES3 or S/P-DIF to a digital-to-analog converter.