Receiving AES/EBU signals with the **WaveCenter**™ SPDIF input

Any digital audio transmission has three interfaces: mechanical, electrical, and logical. With two connectors, two resistors, and some wire, you can make a simple adapter to receive AES/EBU signals on the WaveCenter SPDIF input. Unfortunately, no such simple adapter exists to make WaveCenter transmit AES/EBU signals from its SPDIF output, although more expensive solutions exist.

Mechanical

AES/EBU signals are provided on XLR connectors. The adapter schematic shown below requires a female XLR jack to receive AES/EBU and a male phono plug to connect to the WaveCenter SPDIF jack.

Electrical

The AES/EBU specification calls for a 2–7 Vpp signal into 110Ω (±20%), while SPDIF should be a 0.5 Vpp signal into 75Ω. In fact, the SPDIF receiver used in WaveCenter has a differential voltage range from 0.2 Vpp to well over 7 Vpp. The adapter schematic shown below increases the SPDIF receiver impedance to near 110Ω while reducing the voltage swing into WaveCenter. The length of this adapter should be kept short.

Note: This adapter is not guaranteed to work for other SPDIF receivers.

Logical

AES/EBU and SPDIF use the exact same logical signals for digital 1's and 0's. They also use the same stereo sample frame format and audio data representation. The logical difference between AES/EBU and SPDIF exists only in the channel status bits which indicate that the data stream has a particular sample rate, comes from a particular type of equipment, is copy protected or not, and so on. These channel status bits are ignored by WaveCenter, which stores only the audio data as it is received.

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