

## What is balanced power?

Standard AC systems have three conductors: Hot [120V]; Neutral [0V tied to ground]; and Ground. This scheme was developed over a century ago, mainly to deliver safe power for electrical trolley motors and lighting purposes. Very low levels of hum and noise were never a consideration until today. Balanced AC is a relatively new technology [recognized in the NEC National Electrical Code in 1996] that provides the low-noise power necessary for today's advanced electronics. 120V AC balanced is simple one +60V-to-ground and one 60V-to-ground. 120V @ 60Hz is available across the circuit, the identical voltage and frequency for which all audio/video equipment power supplies are designed. A balanced AC power system works the same way as a balanced audio circuitry, by using CMR [Common Mode Rejection] phase cancellation to eliminate noise. On a balanced AC power system's ground reference, there is never any voltage or current present. Transient voltages and reactive currents which normally appear on the neutral and ground wires of a standard AC system are out of phase and sum to zero on the ground, thereby canceling out AC hum and noise. Hum, even if not plainly audible as such, creates a noise floor below which fine details become inaudible [like looking through windshield wipers during heavy rain].

In video applications, this noise creates a blurring of images and washed-out colors. By vastly reducing hum and noise, previously masked details emerge. Rock-solid images now float from a truly black background. Soundstage width increases, giving a true sense of space between instruments. Vocalists become tangible, as though right in the room with you. Instrumental timbres sound real. Video becomes sharper, color more vivid, blacks blacker and whites whiter. You will notice improved sound and picture quality even from a standard television set! Improvements in audio bass reproduction below 100Hz are significant. Our ultra-low impedance balanced isolation transformers substantially improve definition, impact and weight.

Think of it as bringing a power station right next to your equipment. Our custom toroids provide near-zero source impedance for massive short-term transient reserves due to inductive energy storage. Whether kick-drum or tympani, Fender or upright bass, the sound is deep, taut and precise, delivering complex harmonics and extended decays. The dynamic range of an audio or home-theater system is predetermined by the noise floor of each component. The weakest link limits the maximum attainable performance of the entire system. That's why all components should be plugged into balanced AC power to obtain superior results! Note: According to 2002/2008  
Electrical Code, Article 647, balanced AC power is to be used solely for electronic equipment [audio, video, home theater, professional sound reinforcement, electronic instrumentation]. Do not connect to lighting equipment!