



EI-30 Balanced Power & Isolation Transformer Quick Start Guide & Considerations

The transformer plugs into any known grounded three prong outlet that provides 'standard' power (one phase).

Usually, the wall receptacle has two outlets in a dual socket.

One outlet socket is for the balanced power, and any and all equipment plugged into it.

The other outlet socket is best used for anything not used on balanced power.

This simple consideration ensures the dual wall outlet becomes the 'ground star' between anything on the balanced power transformer and anything else external (ie, a computer connecting ground through it's USB cable), helping to eliminate any further ground loops that may arise.

Not on balanced power: Computers, hard drives, battery backup systems, and any selected switch mode power supply audio equipment should usually not be used on balanced power, as they were not designed or optimized to benefit from a balanced power source, and can furthermore upset the stellar common mode rejection given by the transformer.

Some caution or consideration should be used when using odd consumer audio devices on balanced power, including older music instrument tube amplifiers and preamps from the 40's and 50's. Many are fine, but some have odd or unconventional power supplies that are not 'straightforward' and can trip the GFCI protection circuitry of the balanced power transformer. When in doubt, keep the balanced power on the recording equipment only. Synths and keys can be a good exception that would benefit from a balanced power feed. Usually, most devices are more than fine to plug into balanced power.

A Sample Equipment Power Scheme from the EI-30:

In general, do not use any line conditioners or power filters on the EI-30 balanced power scheme. They usually degrade the stellar performance given 'naturally' by the isolated & balanced nature of the transformer.

Hookup: Run a standard but solid quality power strip from the output of the transformer – the simpler, the better. Plug your power amplifiers and console, tape machines, or any other large current demanding equipment into this first power strip. Connect a second power strip from the end of the first one. From this second power strip, connect any other general 'branches' to equipment racks or lines for microphone power supplies to the live rooms, etc etc.

Your transformer and balanced scheme will have immediate improvements for sound and noise floor. Often, the first impressions are twofold – increased separation in instruments, improved senses of tonality in all equipment, and a sense of smoothness that comes from, in my perception, the removal of an 'aggression' and 'acceleration' of dynamics that is not natural in audio. Spend time letting your ears and equipment get acquainted with the power scheme. Listen to known album references. It is rather simple to turn off the transformer and plug the studio (or at least the monitors and playback DAC and associated items) into the normal wall power. This is the 'golden comparison' to hear the improvements in audio that the EI-30 transformer provides.

Further power based improvements: To wring an every ounce of sonics and performance from your studio, look into the following upgrades:

a clean and fresh wall outlet (for good contacts), tight and clean connections for power, neutral and ground at the breaker panel, properly sized in-wall cabling (12ga or larger) and a solid ground reference stake for the building are all considerations to do under the guidance of an experienced electrician.

“The Sound Is In The Ground”

Further Information about the EI-30

1:1 Power Transformer

Rated at 5kVA (40W at 120V)

Spec'd by Terry for 30A for best audio practice

Pure copper windings

Dual electrostatic shields between primary and secondary

True center-tapped secondary for balanced power, center tap referenced to ground

Chassis, electrostatic shields and center tap reference tied internally to ground, reference to power ground pin

Epoxy, stone and resin cast transformer to guard against all elements and to damp magnetic vibrations

Line Guard installed in-line with both balanced output phases – a 30A dual GFCI (ground fault current interrupter) protection – if there is any current imbalance between the two balanced power pins (ie, a fault in a piece of equipment or a power cord), the GFCI trips immediately to both phases and stops power being outlet from the main power cord, and must be manually reset via the front of the Line Guard GFCI.

For best performance, do not use an extension cord when plugging the EI-30 into wall power. If an extension cord is necessary, please use a 10-12ga extension cord of quality to ensure the strongest connection to earth for best performance.