Hum Eliminator™ Applications

**POWER AMPLIFIERS**

- Running multiple amplifiers can create ground loops between the amplifiers, which will pick up the dreaded hum and buzz. Run each amplifier's input line through a Hum Eliminator™ to balance long unbalanced signals. Mobile DJs or bands never know when setting up their system if they're going to get a hum or not. The electrical wiring changes from one building to another. A common path for ground loops is through a rack and then into another chassis. Test this by removing the chassis from the rack. The Hum Eliminator™ will help but you should also try isolating the chassis from the rack. Electrical tape and insulating the rack screws with nylon washers. Use an EBTECH® Line Level Shifter™.

**LIVE SOUND / DJ MIXERS**

- A common problem with live performance is long unbalanced cables picking up noise. Use the Hum Eliminator™ to balance long unbalanced signals. Mobile DJs or bands never know when setting up their system if they're going to get a hum or not. The electrical wiring changes from one building to another. A common path for ground loops is through a rack and then into another chassis. Test this by removing the chassis from the rack. The Hum Eliminator™ will help but you should also try isolating the chassis from the rack. Electrical tape and insulating the rack screws with nylon washers. Use an EBTECH® Line Level Shifter™.

**KEYBOARDS / SAMPLERS / SYNTHS**

- A common problem with live performance is long unbalanced cables picking up noise. Use the Hum Eliminator™ to balance long unbalanced signals. Mobile DJs or bands never know when setting up their system if they're going to get a hum or not. The electrical wiring changes from one building to another. A common path for ground loops is through a rack and then into another chassis. Test this by removing the chassis from the rack. The Hum Eliminator™ will help but you should also try isolating the chassis from the rack. Electrical tape and insulating the rack screws with nylon washers. Use an EBTECH® Line Level Shifter™.

**BALANCED / UNBALANCED**

- Unbalanced signals are more susceptible to picking up electrical noise & RF signals. Balanced signals are more immune to picking up noise. Use the Hum Eliminator™ to get true balanced monitor outs for noise-free performance. When using more than one mixer (or submixing), there's a huge chance of getting ground loops (and that buzz!). Use Hum Eliminators™ to prevent these ground loops. Eliminating hum is one of the biggest challenges facing engineers today. Hum Eliminators™ can be placed anywhere you have a ground/power plug, you will not lose common mode rejection. The electrical tape and insulating the rack screws with nylon washers. Use an EBTECH® Line Level Shifter™.

For complex systems you may need to repeat these steps starting with a different piece of equipment in various combinations to locate the problem:

1) Strip the system down to one piece, such as the mixer, by disconnecting all interconnects and AC cords except for the mixer.
2) Add one piece of equipment at a time; hook up AC and interconnects (making sure all grounds are connected and in good condition) then listen for hum or noise.
3) Turn on the power and turn on the mixer.
4) Proceed until you find the offending piece(s) causing the problem.
5) Plug the Hum Eliminator™ in all lines between the offending equipment and the rest of the system. For example, insert the line outs of the keyboard into the inputs of the mixer.

**VERIFYING AND SOLVING GROUND LOOPS**

- Identify the ground loop causing the trouble; not all ground loops cause noise or hum. Several components can create ground loops without degrading your signal. These components can cause ground loops if they are common mode grounded.

**GROUND LOOPS**

- The Hum Eliminator™ stops ground loops from forming and AC breakthroughs.

**IMPACT: Never use the Hum Eliminator™ between an amplifier and speaker or power amp and speaker.**

- The Hum Eliminator™ prevents ground loop antennae from forming and picking up AC power. The Hum Eliminator™ does more than just prevent AC hum from being picked up by your sound system. It also can be used as one of the most effective ways to convert unbalanced signals to balanced signals.

**WHAT WILL THE HUM ELIMINATOR™ SOLVE?**

- Most sound cards have unbalanced inputs and outputs. They drop the inverted signal, creating unbalanced signals. It's possible to lose common mode rejection if you use them. A common path for ground loops is through a rack and then into another chassis. Test this by removing the chassis from the rack. The Hum Eliminator™ will help but you should also try isolating the chassis from the rack. Electrical tape and insulating the rack screws with nylon washers. Use an EBTECH® Line Level Shifter™.

**GROUND LOOP CAUSES**

- Unbalanced signals are more susceptible to picking up electrical noise & RF signals. Balanced signals are more immune to picking up noise. Use the Hum Eliminator™ to balance long unbalanced signals. Mobile DJs or bands never know when setting up their system if they're going to get a hum or not. The electrical wiring changes from one building to another. A common path for ground loops is through a rack and then into another chassis. Test this by removing the chassis from the rack. The Hum Eliminator™ will help but you should also try isolating the chassis from the rack. Electrical tape and insulating the rack screws with nylon washers. Use an EBTECH® Line Level Shifter™.

**GROUND LOOP REDUCTION METHODS**

- The Hum Eliminator™ prevents ground loop antennae from forming and picking up AC power. The Hum Eliminator™ does more than just prevent AC hum from being picked up by your sound system. It also can be used as one of the most effective ways to convert unbalanced signals to balanced signals.

**IMPORTANT: Never use the Hum Eliminator™ between an amplifier and speaker or power amp and speaker.**

- The Hum Eliminator™ prevents ground loop antennae from forming and picking up AC power. The Hum Eliminator™ does more than just prevent AC hum from being picked up by your sound system. It also can be used as one of the most effective ways to convert unbalanced signals to balanced signals.