

bhi GroundBreaker Datasheet

Audio Isolation unit

A simple solution to RFI and ground loop audio breakthrough problems!



Introduction

A simple solution to RFI and ground loop audio breakthrough problems!

RF breakthrough and earth loop current issues tend to happen when a transceiver is in transmit mode (keyed). You will hear a buzz or your own distorted voice coming out of the audio. The main reasons are a poorly matched antenna or a difference in ground currents between pieces of equipment. RFI issues are usually caused by reflected waves coming back down the outside of the coax whilst earth loop problems are usually caused when the same power supply for the radio and “add-on” audio equipment is being used. The bhi **GroundBreaker** is a quick and easy solution for this issue as it isolates the grounds of your external audio equipment from those of the radio system and prevents ground loops and associated RFI problems from getting into your audio. The bhi **GroundBreaker** is easy to install and simply fits in between your radio and audio equipment. Connections are 3.5mm mono or stereo and no extra leads are usually required.

One of the simplest ways to sort out any earth ground loop and RFI issues with bhi DSP noise cancelling products is to use a separate 12V DC power supply. This in most cases has the effect of breaking the earth loop and keeping the stray RFI out. We sell a range of mains plug-in DC power supplies with world-wide power adapters for most countries that will work with your bhi DSP noise cancelling product. Please check the accessories page on our website <https://www.bhi-ltd.com/noise-cancelling/power-supplies-and-power-leads/>.

bhi GroundBreaker solution

Having tried improving your ground system using ferrites and a separate power supply and you still have issues then the bhi **GroundBreaker** is probably the solution to the problem as this passive in-line audio unit will totally isolate the grounds of bhi DSP noise cancelling product or other ancillary equipment you are using from those of the radio system, preventing the unwanted noise from getting into the audio path.

These small compact in-line audio units come in three different impedances (10 k Ohm, 600 Ohm and 8 Ohm with mono and stereo connections).

Installation

The bhi GroundBreaker is easy to use and simply connects between your radio and audio DSP/ancillary equipment using 3.5mm connections. The **GroundBreaker** can also be used to isolate headphones when plugged into the headphone socket on the radio or extension speaker.

Balanced to Unbalanced audio systems

Most audio amplifiers used in radios are Class A or AB. They normally have a single ended (unbalanced) output that works against ground, however, some manufacturers have started using balanced audio amplifiers and Class D (switch mode) amplifiers. These present a different problem as most audio ancillary products on the market (unless they are for professional audio) use unbalanced inputs.

The **GroundBreaker** can be used to isolate the balanced audio output of the set and allow the ancillary unbalanced input to be unaffected.

Maximum Power Handling

The **GroundBreaker** does have limits to its power handling. The 600 Ohm and 10k Ohm devices are capable of handling the normal audio levels that can be found in most audio systems. The 8 Ohm units are only meant to be used at powers up to 0.5 Watts input. This allows interfacing to most bhi DSP audio products and is not meant for the transfer of power into un-powered speaker units.

Product Code	Type	Maximum power
GB8M	8 Ohm Mono	500mW
GB600M	600 Ohm Mono	100mW
GB10KM	10 k Ohm Mono	100mW
GB8S	8 Ohm Stereo	500mW/Channel
GB600S	600 Ohm Stereo	100mW/Channel
GB10KS	10 k Ohm Stereo	100mW/Channel

Note: Select the relevant **GroundBreaker** unit above to suit your connection type and impedance.