



COMPUTER AUDIO DESIGN

Ground Control Manual

Thank you for purchasing the Computer Audio Design Ground Control.

The Ground Control is designed to reduce high frequency noise in audio systems.

The Ground Control is a passive device; it does not require power to function.

Each Ground Control contains a laminate structure of specialised materials which are designed to reduce high frequency noise in your audio system by absorbing and converting this noise into heat.

There is no internal isolation inside the Ground Controls. The two sockets on the GC1 and the six sockets on the GC3 are internally connected. If you make more than one connection with a Ground Control those two or more connections will be joined together inside the Ground Control.

Power Amplifiers

Do not attach Ground Controls to the output of an audio power amplifier. Connecting the output of a power amplifier to a Ground Control incorrectly can possibly damage the amplifier.

Our results have shown that better sonic results are obtained by connecting Ground Controls to source components, preamplifiers or the inputs of a power amplifier.

Ground Control Cables

We supply a range of cables to connect the Ground Control to your audio components.

Each cable has a 4mm banana plug at one end to attach to the Ground Control and a range of terminations at the other to connect to the audio component. Our standard terminations are RCA, USB, XLR, Spade and 4mm banana. Other terminations can be done on request

In each cable, the only connection inside is to the Signal Ground on the termination connector.

Connecting Ground Controls to Audio Components

Start by using one Ground Control on one audio device. Put the 4mm banana end into the GC and put the other end into an unused socket on the audio device.

We recommend you start by connecting a single Ground Control **directly** to a digital audio source such as: Audio Server, CD & SACD player, DAC, Digital Preamplifier, integrated music player and any product that contains Class D switch mode technology. Connect to an unused digital connection like USB or SPDIF (RCA) if possible. A Ground Control can be connected to the input or output side of source components, you should try both to see which sounds best. If you have no digital components connect the GC1 to your phono preamplifier.

A Ground Control can be connected to the input or output side of pre-amplifiers. Take care with integrated amplifiers / players that you do not connect to the output of the power amplifier side of the device. If in doubt contact your dealer or CAD to discuss your system.

The GC1 has two sockets. You can connect a GC1 to one device or you can also connect two different components (for example, a CD player and a preamp) to the same GC1. Try to connect a single Ground Control to both the digital source component and the input of the preamplifier using a second Ground Control cable.

The Ground Controls have proven very effective with speakers that contain built in amplifiers and/or DAC technology. If there is an unused digital connection, please try that.

An audio product that contains any type of class D “switch mode” technology typically responds well to Ground Controls.

Analogue systems can also benefit from noise reduction. The large gain of phono preamplifiers can make these products sensitive to high frequency noise. Try using a Ground Control on a phono preamplifier. Connecting a Ground Control just to a preamplifier can also work well.

CAD also supplies "short jumper" cables (4mm banana to 4mm banana cables) that are intended to connect one GC1 to another GC1. This will “daisy chain” two GC1s together and increase the effect. You can try connecting two Ground Controls to the same component and then also try connecting the two GC1s together.

Connecting Ground Controls to Mains Earth

A Ground Control can also be used to reduce high frequency noise coming into your audio system through the Mains Power Earth connection. For best results, we typically use the larger GC3 Ground Control for Mains Earth connections.

When we say **Mains Earth** we are talking about the third pin on your power plug. Most homes in North America and the EU have this but not all countries or homes do. Typically, all water taps and copper pipes in your home are attached to Mains Earth. For safety reasons it is a legal requirement for Mains Earth to be connected to the exterior metal case of any audio components.

Mains Earth is typically not directly connected to Signal Ground in audio components, but in some cases, it may be. When implementing Ground Controls, we rarely attach Mains Earth from mains power **and** Signal Ground in audio components to a single Ground Control. CAD feels sound quality is typically better if you keep Mains Earth from your power supply separate from Signal Ground in your audio components. Components where we have found this not to be the case are audio products where Signal Ground is directly connected to Mains Earth such as some audio servers and integrated music players.

The best option for connecting a Ground Control to Mains Earth is to obtain a mains power distribution block with an independent Earth connection and to connect the Ground Control(s) to this.

Any audio component with an outside case made from metal is required by law to have this case wired directly to Mains Earth for safety. If you have a GC3 Ground Control attached to your Mains Earth, you may find attaching the cases of your audio equipment to the GC3 Ground Control brings an improvement in sound quality. To do this order Ground Control cables with spade connectors. Then loosen a single screw on the case and insert the spade connector.

If you have any questions about how to best use your Ground Control, please do not hesitate to contact your dealer or CAD at: info@computeraudiodesign.com or telephone CAD at: +44 (0) 203 397 0334

We hope you enjoy your new CAD Ground Control!

Best Regards,



Scott Berry

Owner, Computer Audio Design Limited