

# KLEI GZSeries Cables

## Technical Paper

The KLEI™ GZSeries Series cables-- QFLOW™ and QPURITY™ -- take the highly acclaimed original Eichmann Express, Essence, Quiessence, and GZSeries cables to a new level of performance and sophistication.

They offer a new approach and significant design enhancements.

### History

KLEI cables are the result of over thirty years of dedicated research by designer Keith Louis Eichmann.

They represent the logical extension of his work on the interaction between ground and signal carrying conductors, and elevate the concepts behind the patented Eichmann Ratio™ to a new level. In his earlier Quiessence designs at ETI, passive Ground Nulling Circuitry (GnC™) was employed to reduce and control the effects of the ground on the signal conductor, and to simultaneously use the ground to protect it from external interferences such as EFI, EMF, RF, and static charges.

KLEI's GZSeries cables not only refine and advance this technology, but take a quantum leap beyond the earlier, and at the time, radical and ground-breaking Quiessence designs -- all the result of additional years of dedication, experimentation, measurement, listening, mathematical modelling, and new understandings of recent advances in processes and conductivity.

Cable manufacturers industry-wide essentially have the same stated goals. Most feel that a key aspect in reaching these goals relates to how inductive and capacitive reactances are dealt with. They spend development time and money addressing issues of capacitance and inductance in cables, and--using language from their literature--by 'controlling', 'balancing', or 'reducing' one or both. They build their marketing and technical stories around whichever approach they have taken; they write about it at length, and emphasize the uniqueness of their design direction.

All invariably focus on the signal carrying conductor, and manipulate variables such as the size and shape of the conductor, its configuration, the conductivity of various materials, the purity of the conductor, the kind and quality of the dielectric. Some even place networks in the signal path to compensate.

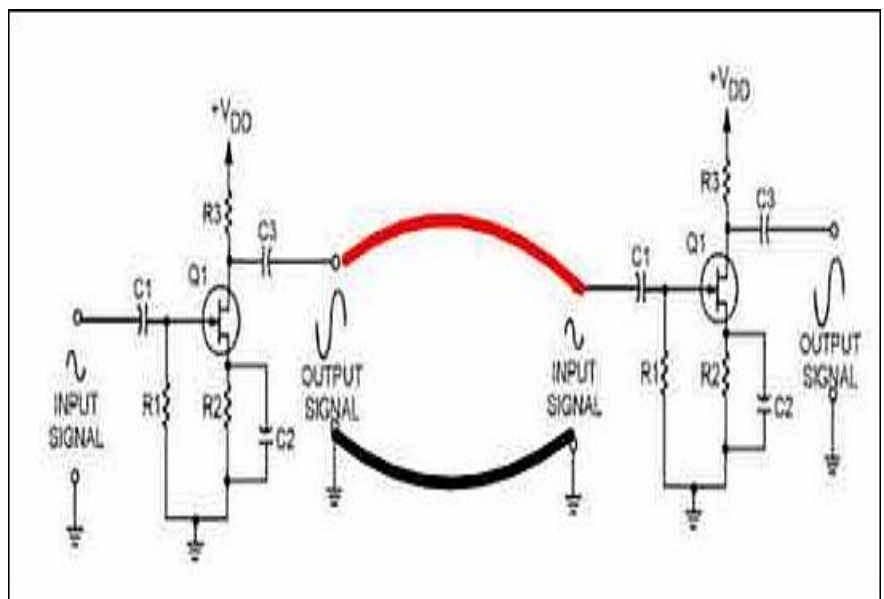
In stark contrast to these approaches, Keith Louis Eichmann's research produced a proprietary technology which actively works to maintain a quiescent zero Voltage state across the ground, protecting the signal conductor from ground induced capacitance and inductance. This facilitates smooth uninterrupted *effective signal flow* from one component to another, which effectively isolates them and allows them to perform their tasks without interference.

### GZSeries Cables

So, what happens when a component's output is connected to another component's input via interconnect cables? The component circuit diagram to the right shows that the signal/red and the neutral/black, i.e., ground/return, are connecting quite different circuits.

Looking at the electrical roles that the two conductors play, shows quite clearly that not only can they be different lengths, but they can be made from different materials and gauges.

The two conductors, though, are in



close proximity to each other, so as the electrical energy flows through the signal conductor noise is induced into neutral conductor and vice versa. If coupling feedback effects, i.e. induction processes, occur between the signal and neutral conductors due to electrical noise, capacitive and inductive reactive effects, impedance interaction effects, and/or ground flow issues then an impeded *effective signal flow* will result.

Because there are two amplifiers channels operating in a stereo system, the induction processes, per channel, will not be exactly the same. This can further result in subtle changes to the phase of the two LR channel signals. Changes in phase tend to alter the stereo image such that the image becomes "smeared" or "unfocused".

## Effective Signal Flow

Cables that affect the efficiency of *effective signal flow* will cause audio components to not perform to their *potential* and the result will cause amplified signal distortions and noise to be introduced and as such affect stereo image and various aspects of sonic reproduction.

Cables that provide *effective signal flow* will allow all audio components to perform to a significantly higher level, that is to their designed potential and perhaps even assist them to exceed their designed potential.

Although there is no flow of electrons, as such, because they simply shuffle back and forth, there is a transfer of electrical energy which flows in one direction from the sending component's output to the receiving component's input. This directional *effective signal flow* through the connecting cable is critical to an audio component's performance.

This is why your interconnect or speaker cable is important.

How do the KLEI GZSeries cables support *effective signal flow*...

1. The signal and neutral (ground/return) conductors have been designed in accordance with the Eichmann Ratio™, GNC™, gZero™, gZEROs™, zFlow™, and zPurity™ architectures, which act to control and reduce the effectiveness of the induction processes.
2. The neutral is placed around the signal conductor in accordance with the GNC™, gZero™, gZEROs™, zFlow™, and zPurity™ architectures which even further acts to control and reduce the effectiveness of the induction processes.
3. Re: Induction processes – capacitive, inductive, conductive/reactive coupling effects, refer to the following white paper... [Electromagnetic Interference - Considerations in Structured Cabling Systems](#)

The KLEI gZero™, gZEROs™, zFlow™, and zPurity™ architectures are exceptionally noiseless technologies and we have applied this technology to all KLEI™GZSeries cables, resulting in a level of fidelity you probably thought could only be attained by having components costing considerably more. We believe that the most noticeable improvements are the exceptionally revealing harmonics associated with venue acoustics, that is the echoes and reverberations that surround each artist and instrument. Other attributes that are clearly audible include clarity, neutrality, dynamic performance, bass depth and control, and phasing.

When you connect speakers out of phase the image becomes muddled and the bass performance drops off. Varying the phase by small amounts can move the position of instruments and artists within the image. Inductive noise impacts the phase of the signals of both channels differently, resulting in an inaccurate image. Phase appears to control the placement of instruments and artists in two ways.

1. Their location within the depth of the image
2. Their location outside the width of the speakers

Since the KLEI technology controls, and even eliminates, the noise within the interconnecting cable, you will notice an incredibly precise placement of instrument and artist within the image and an incredibly large image that melts and fills the boundaries of the listening room.

Please note that your audio system will probably not achieve its full potential by installing just one set of KLEI cables, so it is best that the KLEI technology cables are installed throughout your audio system.