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KLEI™Harmony RCA Plug

BROCHURE

Advancing the art and science of the Bullet plug
Keith Louis (KL) proudly introduces the next generation Bullet plug design

The Bullet plug (introduced in 2000) was anything but a quiet revolution. It was an all-out assault on the precepts, the taken-for granted compromises inherent in the design of the RCA jack, and conventional thinking. After all, the RCA jack was a connector designed by the Radio Corporation of America (RCA) over 80 years ago for the connection of a 'record player' to their radios. Despite its humble beginnings, this connector became by default the industry standard for component connection, and remains so to this day. Accepted for what it is, the RCA jack offers industry-wide compatibility, but is far from an ideal connector.

Demonstrating a considerable amount of out-of-the-box thinking, and a willingness to challenge what was taken for granted, KL designed and introduced the Bullet plug in 2000. The Bullet plug was an instant success. It simply sounded better. KL's design eliminated eddy current distortion, capacitive reactance, and micro-arcing. It offered a new kind of grounding, a radically different architecture, and superior conductivity.

After seventeen years, a patent, a trademark, and numerous copycats, the original Bullet Plug has undergone a significant redesign and improvement. That same outside-the-box thinking by KL, which produced the Bullet plug, has been applied with many further and advanced improvements to produce the next generation Bullet plug, the KLEI Harmony RCA plug – the mantle has been passed on. The Harmony RCA plugs, by Keith Louis (KL), deliver vastly superior performance and simply sound better.

To inform and advise, Keith Louis (KL) is the inventor and designer of the both the Bullet plug and the Harmony RCA plug. We consider the Harmony RCA plug the new and highly upgraded next generation Bullet plug design.

FOREWORD: Many have endeavoured and failed to understand the new and superior technology and architecture that has been utilised in the Harmony RCA plug. Unfortunately – due to frustrations and gross misunderstanding(s) of the proprietary Harmony RCA plug technology and architecture – misleading, false, and even defamatory information has been posted on various forms of media, ie websites, forums, etc.

We believe that all KLEI products are quality products and are well manufactured. The technology and architecture – ie forming, layering, and manufacturing processes – is proprietary and therefore will always have some mystery surrounding them. Customers often/frequently ask:

- How do KLEI products achieve such astonishingly high levels of performance when they look and appear so simple?
  - Our answer is that it is all in the art, that simple is best and less is more, hence the Bullet plug (introduced in 2000) and now the next generation Bullet plug design, the Harmony RCA plug (introduced in 2014).

- A customer(s) who assumed that the Harmony RCA plugs are simply silver plated, published misleading, false, and defamatory information on various media, insinuating that KLEI are not honest with customers.
  - We would like to assure customers that we conduct our business with utmost integrity and advise everyone to refer to the following sections, which details that proprietary and superior Mathematical Modelling is utilised to control and determine the required metallurgy, forming, layering, and manufacturing processes.

- Why are KLEI technologies and manufacturing processes proprietary?
  - Our reply is that of course our technologies and manufacturing process we use are proprietary. Electrically, sonically, and mechanically, we believe that KLEI products perform as indicated on the KLEI website, and we have used trademarked ™ names to indicate our beliefs and impressions. We are happy to discuss the sonic performance of all KLEI products, but, by necessity, we will not be revealing proprietary aspects of KLEI products, ie how they work and/or how they are made. To do so, would allow our special and superior technology to be taken and used by others. Some manufacturers are very good and quick to copy superior technologies and manufacturing processes.

MATERIALS: From the very outset, KL has had an understanding of and a sensitivity to electron/energy flow. His designs focus on signal integrity, the elimination or mitigation of causes of electron turbulence, most notably eddy currents, capacitive reactance, and micro-arcing. A central theme in his designs has been his choice of materials.

He made a conscious decision to eliminate metal housings as standard on his connectors, as well as the universally used metal collars. Whether magnetic or not, metals surrounding the conductor contribute to electron chaos, and inhibit smooth signal flow. KL uses highly heat resistant and electrically inert polymers both as housings and for the collar. Not as a cost savings, but for better performance. In fact, the tooling required for these glass impregnated polymer housings arguably results in costs that are *higher* than those for metal housings. These materials serve to improve signal integrity and reduce or eliminate known compromises for smooth electron flow.

OPTIMUM MASS: Bigger, thicker, and more massive doesn't add up to better sound. In fact, quite to the contrary. A studied, optimised, and in most cases a minimalist approach to mass actually results in better sound – and better electron/energy flow. KL's proprietary signal to ground mathematical formulae, ensure an optimal architectural relationship between all metal complements and dielectrics that have been utilised. The result is control, and the avoidance of sonic compromises caused by skin effect. Also, the reduction of EF and EMF interference. Controlling these parameters ensures a complete, full, and extended frequency range, where harmonics are conveyed from component to component intact.

METALLURGY: This is of paramount importance; and something that's been central to KL's designs from the very beginning. KL is committed to implementing and using, in his current Harmony RCA plug designs, only conductors that are *more* conductive than pure copper, and even pure silver.

KL is in fact responsible for bringing IACS (International Annealed Copper Standard) into the audio conversation. Using pure copper (100% IACS) as a reference, the IACS percentage defines a metal's electrical conductivity relative to pure copper. For example, brass (25%~37% IACS), bronze (15 ~ 48% IACS), and rhodium (35%~38% IACS) are poor to average electrical conductors when compared to pure copper. Pure silver is better at 105% IACS. Gold is about 70% IACS. These numbers — 100, 28, 105 and 70 are known as percentages of IACS.

KL's Harmony RCA plugs are all at an IACS rating of 101% or greater, and are breaking the conceptual boundaries that have been previously thought to be absolute. A lot has happened since the days of the original Bullet Plug; and the metallurgy utilised in the Harmony RCA plugs represents new understandings that have grown out of research into the processes of forming and finishing—also, metallurgical affinities and intrinsic crystalline structures.

KL also rejects the use of passivation for preserving and protecting conducting metals – something touted by some connector manufacturers as being a feature. We are opposed to zinc, zinc oxide or these kinds of coatings, and simply will not knowingly compromise our IACS ratings for unnecessary protection.

It is important to note that the Harmony RCA plugs' signal and ground pins are harmoniously formed in a way that the metallurgical processes work together and not in opposition to each other – both electrically and mechanically.

Extrapolation indicates, electrically, that the utilised metal complements are at least as conductive as pure copper (100% IACS) and/or pure silver (105% IACS). In pure annealed form, pure copper and pure silver are too soft to machine and easily bend. As such, the machinable forms of copper and silver, as used in audio applications, have noticeably lower IACS values than their pure copper and pure silver forms. The bottom line is that conductivity (IACS percentage) is defined by a metal's formation, i.e. its completed form. No matter how you get there and to quote Keith Louis, *the proof's in the pudding/listening*. The Harmony RCA plugs excel in this area, and better any RCA connectors we have seen to date.

ARCHITECTURE: Conventional RCAs utilise a metal collar, which encircles the signal pin as the plug's ground – a configuration which contributes to the kinds of electron turbulence discussed earlier. These disturbances are in the form of electrical eddy currents, capacitive reactance, and micro-arcing.

To combat the degrading effects of electron chaos, KL went way outside the box. He opted for single point grounding, sometimes referred to as star grounding in high-end electronics, where the plug makes single point contact with the female RCA socket. In so doing, he eliminates the metal collar. This is a radical departure from eighty years of RCA connector design, and eliminates every vestige of eddy current turbulence, capacitive reactance, and micro-arcing.

When comparing the Harmony RCA plug to the Bullet plug, it is important to note that the Harmony RCA plugs signal and ground pins have been further and dramatically optimised in terms of shape, mass, thickness, and metallurgy – and are electrically and mechanically superior.

MATHEMATICAL MODELING: The relationships between ground and signal pin, i.e. metal complement, mass, and other critical parameters, are derived via KL's signal to ground mathematical formulae, and differs from Harmony RCA plug to Harmony RCA plug.

SUMMARY: Each Harmony RCA plug in the product range, from Classic to Perfect Harmony RCA plug, offers progressively enhanced conductivity from >101% to even >105% IACS, which results in an improved response to those exceptionally fast transient signals in the audio signal, improvement in the transmission and resolution of fine details, and achieves a more realistic reconstruction and presentation of the recorded image.

KLEI CLASSIC HARMONY RCA PLUG … Black KLE Logo

- Proprietary mathematical modeling is utilised to produce the Classic Harmony's ground to signal pin relationship, parameters, and determines the proprietary metallurgical processes that are used. Extrapolated: >101% IACS
- Excellent for digital. 100% compatible with SPDIF standards
- Glass filled heat resistant thermoplastic polymer body and collar
- Tolerates high temperature soldering required for high silver content solder
- Single point grounding
- Cable OD sizes from 4mm to 9.5mm. Small cable grommet and 2 screws supplied to retain and secure the cable
- *Higher conductivity. Calculations indicate a progression in IACS percentage, in the series. Greater than that of the Eichmann Copper and Silver Bullet plug*

Recommendations: depending on the audio system…

- Burn-in Time: >125hrs and even >225hrs
- Cable OD: 4.0mm to 9.5mm

KLEI COPPER HARMONY RCA PLUG … Yellow KLE Logo

- Proprietary mathematical modeling is utilised to produce the Copper Harmony's ground to signal pin relationship, parameters, and determines the proprietary metallurgical processes that are used. Extrapolated: >101% IACS, even >102% IACS
- Excellent for digital. 100% compatible with SPDIF standards
- Glass filled heat resistant thermoplastic polymer body and collar
- Tolerates high temperature soldering required for high silver content solder
- Single point grounding
- Cable OD sizes from 4mm to 9.5mm. Small cable grommet and 2 screws supplied to retain and secure the cable
- *Higher conductivity. Calculations indicate a progression in IACS percentage, in the series. Greater than that of the Classic Harmony RCA plug*

Recommendations: depending on the audio system…

- Burn-in Time: >150hrs and even >250hrs
- Cable OD: 4.0mm to 9.5mm

Steve Reeve, reviewer for *Fine Art*, has the following to say about the Copper Harmony RCA plug (vs Silver Bullet plug):

'I cannot recall my modestly priced hi-fi ever reproducing music with such clarity. Every instrument, every artist, every venue, every album, is being reproduced in a manner that would normally be attributed to spending thousands of dollars on significantly better components — not a $60 set of RCA plugs! Even my oldest recordings are revealing details I've never before heard. There is also a warmth that was previously missing, which is especially nice for digital playback, creating a more engaging rendition, with what appears to be a much larger "sweet spot" as a bonus.
'

KLEI SILVER HARMONY RCA PLUG … Light Grey/Grey KLE Logo

- Proprietary mathematical modeling is utilised to produce the Silver Harmony's ground to signal pin relationship, parameters, and determines the proprietary metallurgical processes that are used. Extrapolated: >101% IACS, even >103% IACS
- Excellent for digital. 100% compatible with SPDIF standards
- Glass filled thermoplastic polymer body and collar
- Tolerates high temperature soldering required for high silver content solder
- Single point grounding
- Cable OD sizes from 4mm to 9.5mm. Small cable grommet and 2 screws supplied to retain and secure the cable
- *Higher conductivity. Calculations indicate a progression in IACS percentage, in the series. Greater than that of Classic or Copper Harmony RCA plugs*

Recommendations: depending on the audio system…

- Burn-in Time: >175hrs and even >275hrs
- Cable OD: 4.0mm to 9.5mm

Steve Reeve, reviewer for *Fine Art*, has the following to say about the Silver Harmony RCA plug:

'…more of everything, but in a very balanced presentation that does not accentuate any part of the audible bandwidth.

In the case of the KLEI™Copper Harmony RCA plug I summed up their performance in one word – Clarity

With the KLEI™Silver Harmony RCA plug, especially on acoustic tracks and classical ensemble tracks, it is like being at a live performance.
'

KLEI PURE HARMONY RCA PLUG … Light Red/Pink KLE Logo

- Proprietary mathematical modeling is utilised to produce the Pure Harmony's ground to signal pin relationship, parameters, and determines the proprietary metallurgical processes that are used. Extrapolated: >101% IACS, even >104% IACS
- Excellent for digital. 100% compatible with SPDIF standards
- Glass filled thermoplastic polymer body and collar
- Tolerates high temperature soldering required for high silver content solder
- Single point grounding
- Cable OD sizes from 4mm to 9.5mm. Small cable grommet and 2 screws supplied to retain and secure the cable
- *Higher conductivity. Calculations indicate a progression in IACS percentage, in the series. Greater than that of Classic, Copper, or Silver Harmony RCA plugs*

Recommendations: depending on the audio system…

- Burn-in Time: >200hrs and even >300hrs
- Cable OD: 4.0mm to 9.5mm

KLEI PERFECT HARMONY RCA PLUG … Orange KLE Logo

- The ultimate Harmony RCA Plug design
- Proprietary mathematical modeling is utilised to produce the Perfect Harmony's ground to signal pin relationship, parameters, and determines the proprietary metallurgical processes that are used. Extrapolated: >101% IACS, even >105% IACS
- Excellent for digital. 100% compatible with SPDIF standards
- Glass filled thermoplastic polymer body and collar
- Tolerates high temperature soldering required for high silver content solder
- Single point grounding
- Cable OD sizes from 4mm to 9.5mm. Small cable grommet and 2 screws supplied to retain and secure the cable
- *Higher conductivity. Calculations indicate a progression in IACS percentage, in the series. Greater than that of Classic, Copper, Silver, or Pure Harmony RCA plugs, arguably an industry best.*

Recommendations: depending on the audio system…

- Burn-in Time: >300hrs and even >500hrs
- Cable OD: 4.0mm to 9.5mm

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