

## Quadratic MC-1: a positive step-up

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Chris Beeching



### Quadratic Audio MC-1 step-up transformer

Step-up transformers can make or break a moving coil's performance. Not necessarily its physical performance, but certainly at the aural end of things there can be some nasty surprises if you don't get the matching right. Here I'm putting the Quadratic MC-1 SUT through its paces. Connections are relatively straightforward. A set of in and out RCA phono sockets, and a fairly substantial centrally-mounted ground connection, all located on the rear panel. As you might expect of a purely passive device there's no on/off switch. Inside there are two rather splendid transformers mounted on a substantial PCB, and on which jumpers for load setting are located, as well as ground-lift options. Build quality is high, SUTs can often be rather basic but this one is nicely thought out and well finished.

Quadratic is run by Jam Somasundrum in California who designed the MC-1 as a dual mono step-up with separate ground planes for good channel separation, not something usually seen in such devices. He also hydrogen anneals the laminates in the transformer using a proprietary process in order to provide extremely wide bandwidth, something that eludes many transformers of all varieties. Parent company Cinemag has been making transformers for studio equipment for over 60 years, its products are used in compressors, mic preamps and equalizers among many others. Quadratic's transformers are exclusive to them and are not in the Cinemag catalogue.

Step-up transformer and cartridge matching used to be something of a black art, get the combination right and you had audio magic, get it wrong and there can be a distinct loss of focus, brashness, poor (or overblown) bass and potentially even mistracking, but that is an extreme situation and only occurs if the reflected loads totally wrong. Thankfully SUT manufacture and specifications have become rather more predictable over time. There is still something magical about certain pairings, and yes, they're not always predictable as such but work magically nevertheless.

I have a few moving coil cartridges in my stable ranging from an Audio Note Io to some of the more robust Ortofon and Audio Technica offerings as well as a Clearaudio Insider, and I have the manufacturers' matching SUT for each of them. Their loading (or rather, matching) requirements vary quite a bit, so it was going to be very interesting seeing how the Quadratic MC-1 coped, and how closely to the ideal it could get for each cartridge. Just to throw the cat among the pigeons I also have a mono Leak Dynamic arm with integral mono cartridge (head) so I tried mono as well.



The first thing to say is that unlike so very many other step-up transformers, unless the MC-1 was placed on the mains transformer of a valve amplifier, or the mains isolation transformer on my inbound audio system mains supply, the Quadratic was virtually immune to hum. You could induce it deliberately if you really wanted to – but why would you? Also, I've always tried to keep the arm to step-up leads as short as possible to reduce any chance of stray interference on the in-bound cabling. After the SUT I've assumed interference has rather less of a chance of making itself a nuisance, before the leads venture into the phono stage. This was very much the case, but equally, even with longer cables between arm and MC-1 than I'd usually use, the Quadratic didn't seem to succumb to anything outside the system.





Anyway, just to test, I took my courage in both hands, and moved the Quadratic around while easing the volume knob towards the end stop. I tried it with mixtures of long and short cables pre-and post-SUT. I was hard-pressed to actually hear any difference. Obviously the Faraday screening and pretty substantial metal case (and rather nice aluminium machined front panel) were doing their job.

Now, the MC-1 has a rather nice feature of being able to impedance-match via jumpers internally. You can play with these to your heart's content and find your own sweet spot, it meant that I could try each cartridge with its own SUT, then match the Quadratic to the manufacturer's loading and compare the two, and then vary the Quadratic's settings to hear any differences.

The results were quite consistent across all the cartridges, so I'll summarise them here. Sound quality-wise, with the Quadratic MC-1 set to match each cartridge maker's SUT I was struggling to hear any difference between the two. Several times (especially with the Io) I swapped back and forth but if there were differences they were marginal. Increasing the resistive loading generally gave a slightly brighter presentation. Decrease it and things became a little darker.

In terms of accessing the oh-so-important emotional aspects of music, the Quadratic was really exemplary. Janet Baker's dying Dido had me wrung out. Adele's albums had me reaching for the tissues. Coldplay had be bopping and foot-tapping. There was no shortage of detail, presence, and overall a commendable ease of listening which pretty-much made the Quadratic disappear.

This was further reinforced by its ability to reveal quite clearly the character of each cartridge; I could hear instantly when a cartridge had been changed, and as I know them all of old it was refreshing to discover (or rediscover) that my observations about the character of each one were still holding good through the MC-1. That having been said, it's commendable that a third party component should be so even-handed and be able to convey such subtle characteristics as well as the musical signal.

The only other area where step-ups sometimes struggle is with dynamic contrasts, especially with the very low output of the Io. In this instance it's obvious that the transformers have been very carefully wound, as interwinding coupling needs to be of a very high order; here the range of dynamic contrasts was really wide suggesting that Quadratic have achieved this aim. Low level detail is very well presented, and the overall effect is of a very believable and coherent musical event taking place in front of me.

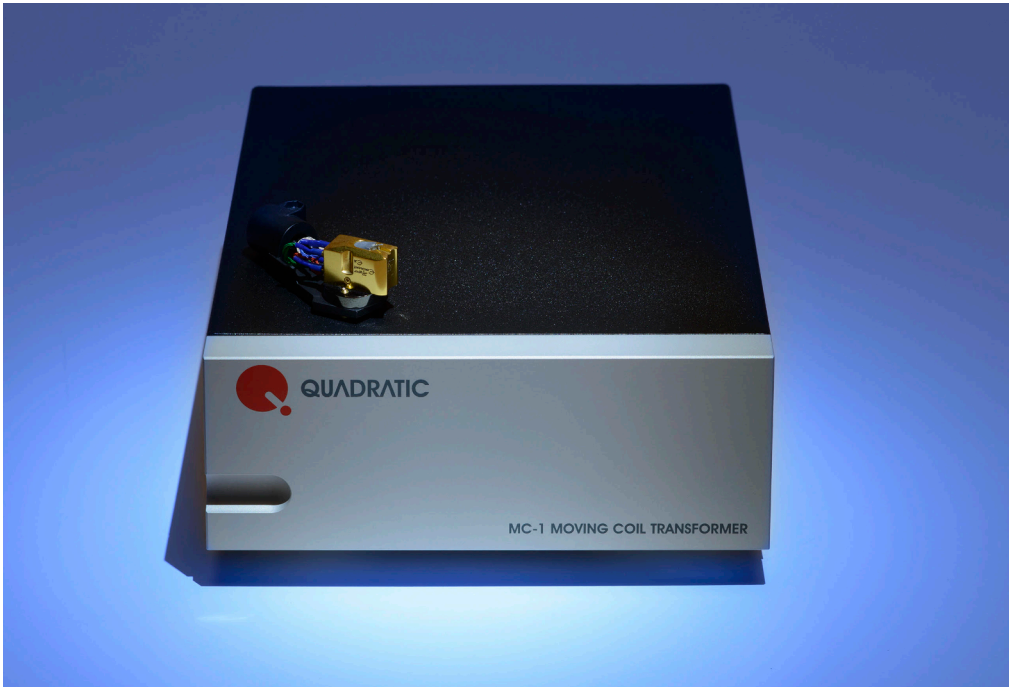
Does it go so far as to produce a totally immersive listening experience? Absolutely, it does. This is one of the few times when a third-party product with a variety of settings can actually handle and do justice to a wide variety of different cartridges and handle each with ease, poise and dexterity. Despite sometimes (deliberately, I might add) selecting horrendously wrong settings, although it was obvious things weren't right there were no nasties. The upper

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reaches always remained clear. The bottom end had great weight, presence and deftness. In fact it is perhaps one of the most articulate SUTs I've had the privilege to audition.

### Conclusion

The Quadratic MC-1 is commendably quiet, being both hum free and demonstrating very low levels of hiss (assuming your phono stage is capable of suitable resolution to show this up). Unless you're really daft with placement it should remain a super-quiet component in your



system. The fact that it has a small number of carefully-chosen settings available also makes changing cartridges a far less onerous (as far as your wallet is concerned) process. Unless you're really heading to the mega-bucks hi-end you'll be hard-pressed to find another step-up transformer which performance to match, and which is quite so adaptable.

### Specifications

*Type: passive step-up transformer for MC cartridges*

*Gain settings: high +28dB, low +22dB*

*Impedance (with 47kOhm phono stage): high 70 Ohms, low 200 Ohms*

*Frequency response: 10Hz – 100kHz*

*Dimensions HxWxD: 76 x 165 x 203mm*

*Weight: 1.9kg*

*Warranty: 3 years*



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