Fidelity Nr. 9 5/2013
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Harnessed at Source

There is a revolution concealed "right at the front" Clearaudio's Absolute Phono phono-stage, waiting to be unleashed!
A FIDELITY exclusive about an (almost) out-of-sight analog dream

CLEARAUDIO ABSOLUTE PHONO • 9900 EUROS • TEXT: CAI.BROCKMANN@FIDELITY-MAGAZIN.DE AND ROLAND.KRAFT@FIDELITY-MAGAZIN.DE, PICTURES: IS

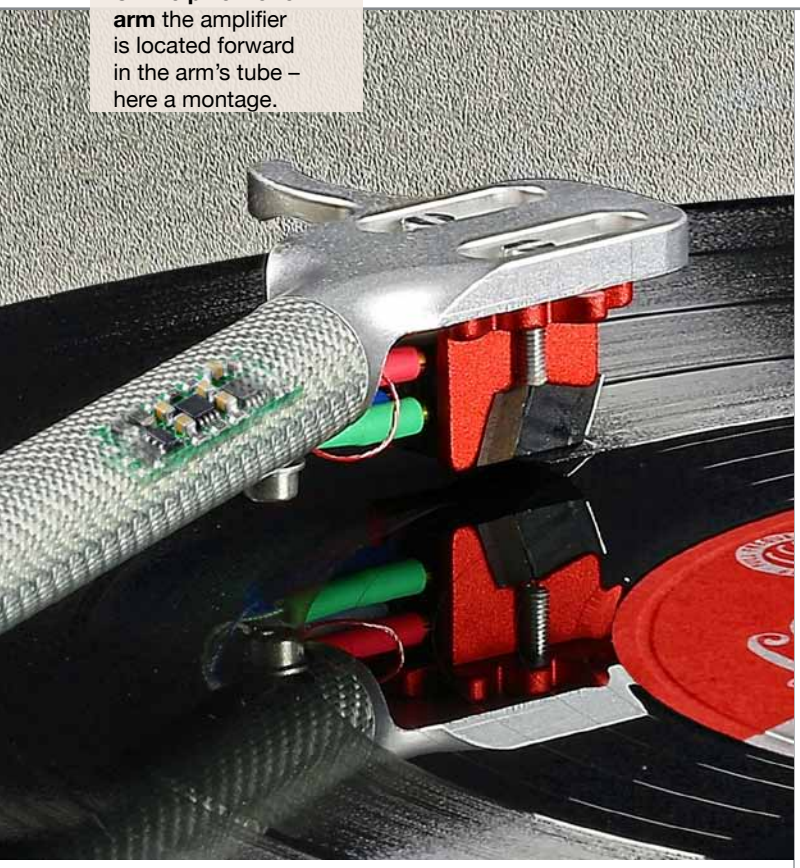
Peter Suchy is in a magnificent mood and joking around with his son Robert. Yet Junior is not distracted by any of this joviality and remains focused. Within a short space of time he has set up the Clearaudio turntable innovation in the FIDELITY editorial office and fitted it with two different tonearms. And this ensemble, an ode to precision engineering, does indeed look truly impressive. It cuts a fine figure even on the otherwise visually imposing LignoLab TT-100. Absolute Phono? Yes that is exactly what this turntable looks like.
Actually you couldn't be more mistaken. Since Absolute Phono, the real star of this show, works undercover and remains out of sight, or at least a key part of it is. Absolute Phono is neither the star-shaped turntable nor the tangential or pivot tonearms, featuring identical cartridges. The compact yet substantial box that Robert Suchy has set up on the rack right next to the turntable is the first thing that provides a clue as to what Absolute Phono actually is.

Dynamic duo

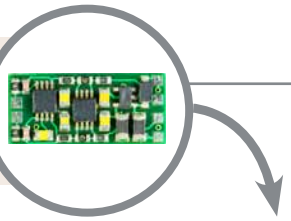
This attractive box of technological tricks – incidentally it dovetails perfectly with the turntable's aluminum/Panzerholz (armor-plated wood) sandwich design – is one of two components that make up Absolute Phono. The other component is a tiny amplifier circuit board, which is so small that it fits into a tonearm tube or even into a headshell. And it is incorporated right there on the cartridge at the analog playback source. As is *not* visible on this actual example. This is where Absolute Phono can really work its magic. (Roland Kraft will detail technical background information later in this article.)
We can state the following as fact - Absolute Phono is a two-part MC phono-stage, whose "outside operator" makes a difference right at source and gives record

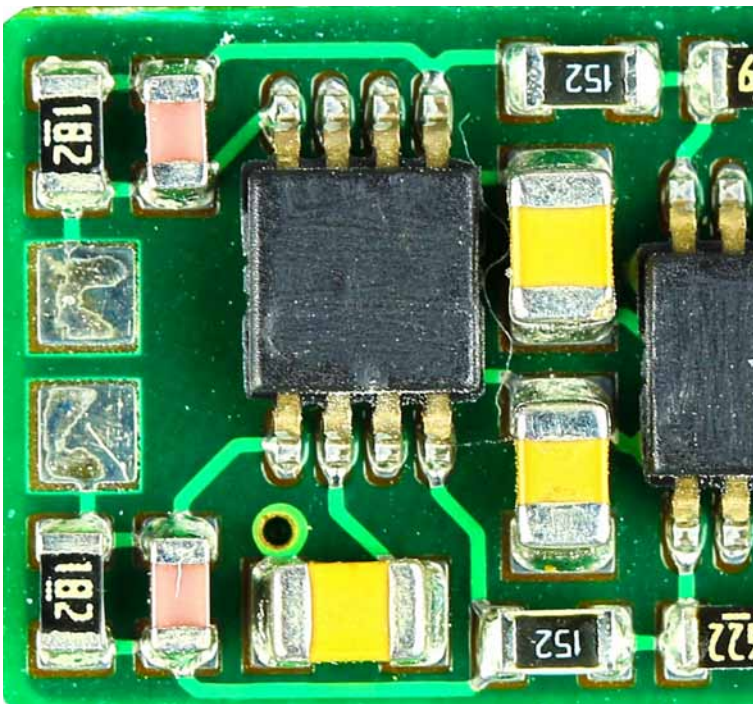
Clearaudio's analog ensemble looks fabulous, but you can barely spot the Absolute Phono detail in this picture.

On the **pivot tonearm** the amplifier is located forward in the arm's tube – here a montage.



Original size: SMD midget measures just 9 x 21 millimeters.

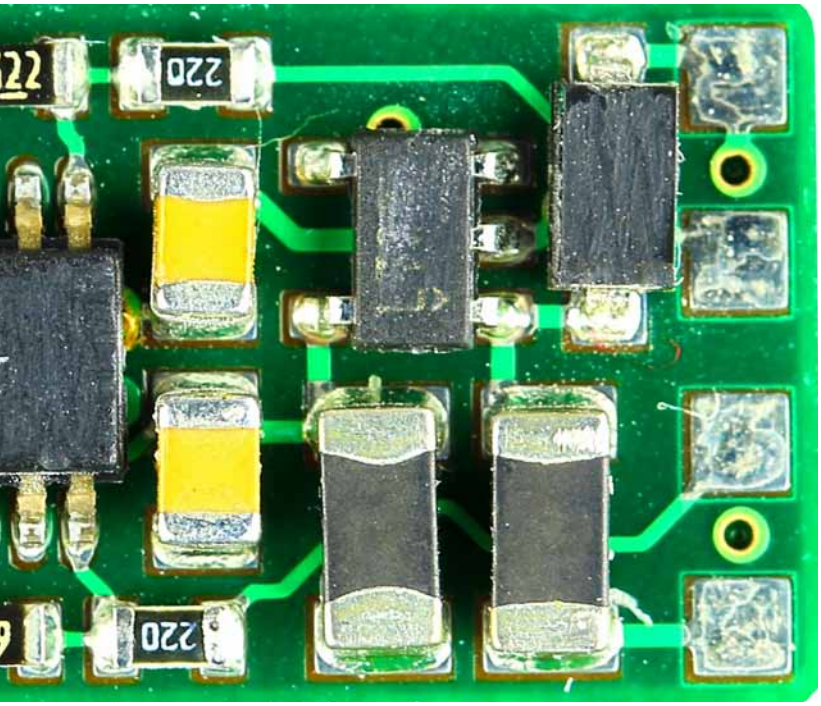




playback a(nother) decisive edge. So you can definitely say that this duo represents a quantum leap in analog playback quality. And those who feel like it, can engineer their own personal analog revolution. The fact that Absolute Phono is presumably the first phono-stage to come with its own tonearm seems radical enough. Or put another way – this phono-stage does not work without a tonearm (more accurately, without a Clearaudio tonearm). But that is the only guideline that you have to accept when using Absolute Phono. For you can use other manufacturers' moving coil systems and turntables – they are fairly relaxed about that in Erlangen. On hearing this statement, Roland Kraft and I briefly consider whether we should insert a Denon DL-103, but then reject this idea as soon as we hear the first sounds generated by the proprietary Da Vinci cartridge. On the one hand that is down to the ultra-transparent performance of the MCs, which make you sit up and take notice straightaway. On the other hand there is the not inconsiderable amount you have to pay for Absolute Phono. You have to add the required tonearm to the almost five-digit Euro figure – you can't purchase a state-of-the-art product at a bargain basement price!

In our case a total of two tonearms is required – the Universal pivot tonearm and the tangential TT-II. In order to compare them, we need only swap the special Sub-D jacks, which lead from both "absoluted" arms to the equalizer module – a 30-second job.

Incidentally listening to records is an equally simple pleasure if you combine Absolute Phono with other turntables and MC cartridges. Since the required arm already features a factory-fitted mini circuit board and special cable, not only is installing the required MC system in the arm but also fitting the arm to a turntable is no more fiddly than usual. On the headshell the standard four wires are linked to the system's connector pins, whilst at the other end of this analog chain the equalizer module provides a complete, equalized and highly amplified line signal via XLR or RCA phono sockets. It's as simple as that. There are also no mechanical limitations whatsoever; you can only spot an



"Absolute" arm because it features a connecting cable with Sub-D jack.

Noise? What noise?

Peter Suchy regards Absolute Phono as the fulfillment of an age-old pipe dream, yes almost an analog vision. Yet the boss of Clearaudio is not just proud of the fact that the technology works. He has also brought a small case full of LPs with him and starts to put on a couple of selected records. In my own stock I myself still have two other versions of one of the vinyl disks he brought with him– which now sound completely different to what I can remember. It is almost unbelievable – this ensemble, featuring Absolute Phono, delivers such a crystal-clear sound that it almost takes your breath away, well at least makes you hold your breath during quiet passages.

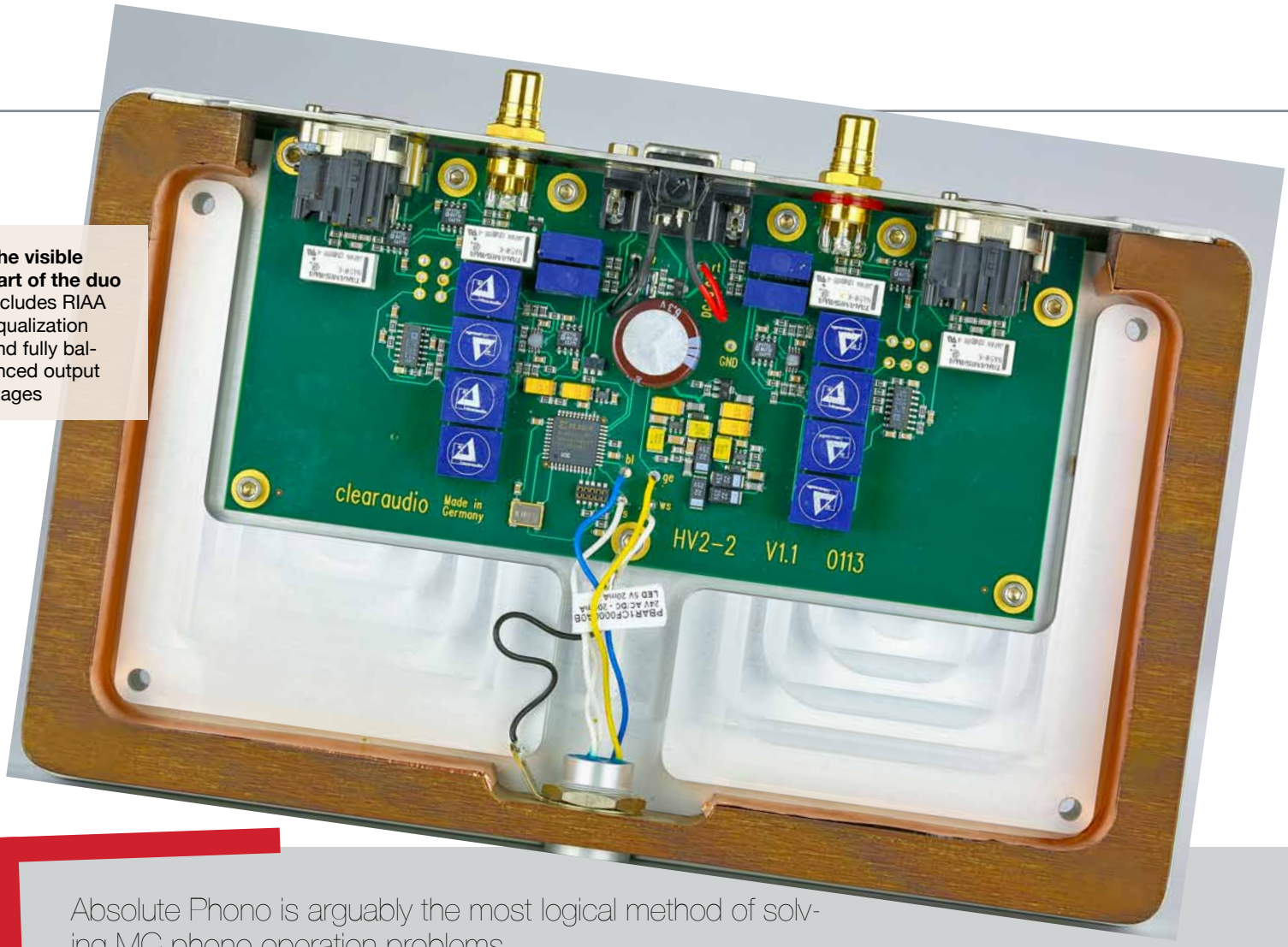
Precision dynamics, a love of fine detail and spatial transparency plainly set benchmarks, a direct consequence of the really amazing signal-to-noise ratio that this no-compromise phono device delivers. If pressing quality is up to scratch, you should take a closer look at the fader,

Platter unit: the aluminum housing turns out to be absolutely sound

before things then start to "really hot up" on the vinyl. Groove noise and other audio defects de facto hardly have an impact any more. Even on essentially well-worn old vinyl chestnuts, such as Joe Jackson's immensely popular album, Jumpin' Jive played hundreds of times over, I discovered details I had previously missed. Whilst Absolute Phono reveals production quality to be rather mediocre, at the same time I am still so "close" to or even "engrossed" in the music, that I sit there spellbound until the Da Vinci reaches the fade-out zone. There is no doubt that this analog ensemble possesses genuinely stunning monitor qualities coupled with unerring drive, which conveys an overall impression of superior capability. But which pressing is the better one? Where was the sound editor careless? What is Tom Waits' percussionist actually doing there backstage to the left, 30 centimeters behind the grand piano? And, hang on a moment, isn't somebody just in the process of furtively sidling off the stage? Absolute Phono makes the answers more than obvious – the integrative display of all information is totally a matter of course for this ambitious analog project. The listener is drawn into a 3D sound experience without any unnecessary distractions.

My vinyl heaven

Even the differences between tangential and pivot tonearms are worth noting. Whilst the TT-II knows how to convert its concept-related advantage into crystal-clear openness and unerring directness, particularly towards the middle of the record, I sometimes even prefer the less complicated style of the Universal arm and its occasionally "more rounded" performance. But we are now really splitting hairs, so to be on the safe side we should take a look at the bigger picture. Oh yes, this really is vinyl heaven... Put in hi-fi terms, this fantastic inner and outer tranquility that the Absolute Phono triumvirate conveys is expressed within the hi-fi system by a previously unheard-of musical vigor. Ranging from previously undetected "black" details to an explosive display of dynamics, from the expressive colors of a solo instrument to the complex chaos of a Zappa number – Absolute Phono simply deciphers everything! ■ *Cai Brockmann*

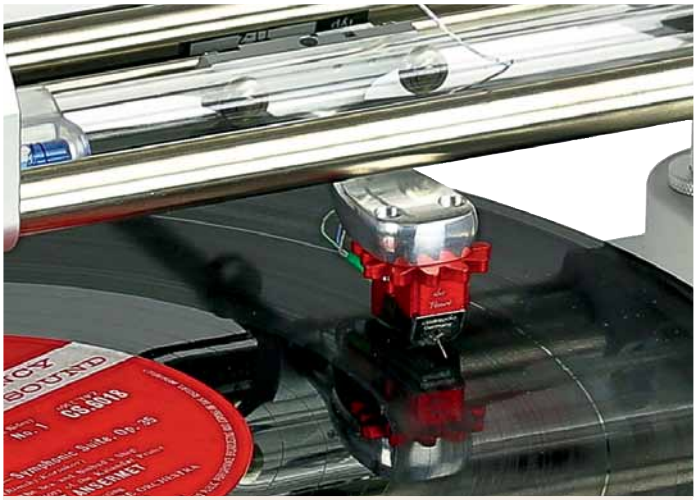


The visible part of the duo includes RIAA equalization and fully balanced output stages

Absolute Phono is arguably the most logical method of solving MC phono operation problems

Let's turn the fader to the "one o'clock" position with the tonearm raised and in MC phono mode. What can we hear? Noise. Often there is a residual humming sound too. That is exactly the problem. Normal MC cartridges deliver roughly 1 millivolt (thousandth of a volt) of output voltage. Compared to the other sound levels that a hi-fi system works with, this is arguably the greatest challenge that an amplifier has to master. Great pick-ups would be capable of delivering a dynamic range of some 80 decibels (or more). In theory a precision-made record should be capable of 60 dB dynamic range, although in truth the actual value is nearer 40 dB, whereby the smallest voltages that need to be handled should be considered in terms of microvolts. The useful dynamic range lies between the overshoot limit and the interference voltage level. If you are able to reduce the interference voltage level (amplifier noise, pick-up noise, broad-band interspersion), the dynamic range increases automatically.

Given that useful signals are so miniscule, it is almost a miracle that any sound is delivered at all, if it has to pass through one or two plug/socket connections on the cartridge, 20-30cm tonearm length, two more plug/socket connections on the tonearm and on the amplifier plus a meter of wiring. Joking aside, poor plug/socket connections and cables with inadequate electromagnetic shielding are the kiss of death under these circumstances, as are – and here's the sad reality – non- or inadequately protective tonearms, let alone "strange", non-tightly twisted inner tonearm wiring. Depending on location (a concrete basement is shielded whilst an attic in the country literally encour-



You can't get much closer to the (MC) cartridge ...
On Clearaudio's short TT-II tangential tonearm the Absolute Phono amplifier circuit board is positioned in the bulky headshell

ages interspersion), interference levels caused just by interspersion need to be detected down to millivolt level. When measured against requirements (what complicates matters are the intrinsically unfit-for-purpose cinch connectors), 50% of all standard phono cables are conservatively estimated to have inadequate electromagnetic shielding.

The only really logical solution is to ramp up the sound level substantially at source, i.e. directly on the MC cartridge and thus radically improve the signal-to-noise ratio. Weight and space issues forward on the tonearm necessitate an ultra-lightweight, miniscule amplifier solution, which Clearaudio has provided in the form of an extremely small SMD amplifier, which is also fully DC-coupled, i.e. does not require any bulky coupling capacitors and is positioned in a bulked-up headshell (!) or at the front of the tonearm tube. This (SMD)OpAmps-based amplifier is linear, i.e. it amplifies by 50 decibels; indispensable – and

The Absolute Phono duo's equalizer module dovetails **look-and-feel-wise** with the Innovation turntable

space-consuming – RIAA equalization takes place after that. The connecting cables from the tonearm onwards are therefore responsible for the signal enhanced to a very largely non-sensitive level as well as for the power supply to the mini amplifier. For this purpose eight ultra-thin solid core silver wires are used, which ultimately end up in a Sub-D plug/socket connection on the external RIAA equalizer-amplifier.
The MC cartridge's generator represents a balanced power source and is therefore best suited to working in tandem with true-balanced power amplifier input. Where voltage is adjusted, the source is higher-impedance than the input, whilst the very low-impedance power input also does not require any of the usual cartridge terminal resistances occurring during voltage input. An OpAmp is at least theoretically (impressive discretely structured solutions already exist) ideal for such extremely low signals, and at the same time offers the benefit of its transistor functions' superior thermal coupling. Even age progression plays a more minor role in OpAmps.
The OpAmps primarily used in the Absolute Phono system are subject to a rigorous Clearaudio selection process that involves a proprietary measuring system. In order to really exploit the benefits of balanced signal processing in relation to low interference voltage, the amplifier section, incorporating partly passive and partly active RIAA equalization, operates entirely in balanced signal processing mode. Logically both XLR output jacks of the wall-wart-supplied system represent the ideal opportunity to operate high-level input. Incidentally the RIAA equalizer, which is positioned in a solid, milled aluminum housing, also features precision components, such as mica capacitors, custom-made for Clearaudio.
On balance Clearaudio's Absolute Phono is likely to be the most logical and well-thought-out solution for this task. Leaving aside purely tonal qualities – which

Clearaudio Absolute Phono

MC-Phono Equalizer, two-part, with external amplifier circuit board

Special features: Two-part design with external miniature amplifier circuit board (integrated in tonearm or headshell); available only in combination with Clearaudio tonearms; only suitable for MC cartridges

Input Equalizer: preamplified phono signal via special cable (Sub-D jack)

Output Equalizer: High-level signal featuring 1 x balanced (XLR) and unbalanced (Cinch)

Dimensions of Amp Circuit Board (W/H/D): 21/4/9 mm

Dimensions of Equalizer (W/H/D): 24/6.3/14.5 cm

Weight of Amp Circuit Board: 4.5 g

Weight of Equalizer: 4 kg

Equalizer Finish: Silver or black aluminum

Warranty period: 10 years

Price: Price: 9900 €

plus Clearaudio tonearm

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are no less impressive – for a moment, this logical and thoroughly worthwhile effort delivers an unbelievably awesome signal-to-noise ratio in phono MC mode as well as simply eliminates any (!) residual humming. The resultant massive improvement in dynamic range – Clearaudio mentions a figure of ten decibels – is immediately audible and comes across as clear as crystal. This raises the bar in future to a level that is unlikely to be bettered.

Roland Kraft