



TEST.

MK Analogue MM-PH-AMP and SUT-1L

13.12.2024 // Dirk Sommer

For Markus Wierl, who calls his company – or himself? – Audio-Freak and has been dealing with audiophile music reproduction for many years, providing his customers with wide-ranging advice before making a sale is of primary importance, as can be seen from his website and his YouTube channel. Furthermore, he is much more open-minded than the author when it comes to the field of high-end.

He is not much into being deterred by home cinema systems with up to seven channels and four subwoofers, and as an avowed analogue enthusiast, he nevertheless relies on digital room correction in the – as I have to admit – excellent sounding listening room in his living room studio. He is also firmly convinced that a high-quality transformer with an equally high-quality phono stage for moving-coil cartridges is at least on a par with an MC phono equalizer, if not superior. That is why he decided to start the distribution in Germany and Switzerland of the two transformers, the MM phono stage, a Denon DL-103 variant in which the generator is integrated into an aluminum/wooden housing that also takes on the function of the headshell with its SME connection, as well as various affordable phono cables from the Slovenian manufacturer MK Analogue. A speciality of the transformers is that they feature a balanced circuitry, equipped with XLR inputs and outputs. Surprisingly, Markus Wierl and I agree on the subject of symmetry – and not only when it comes to the processing of delicate phono signals. Unfortunately, the MK Analogue device outputs the signal in an unbalanced fashion after the transformer: there is – still? – no balanced MM phono stage available. However, the signal is significantly stronger after the transformer and therefore less susceptible to interference on its further path. After I was completely thrilled by the tube phono stage from E.A.T., in which Moving Coil signals are pre-amplified by a transformer, I was quite enthusiastic about trying out the MK Analogue combo – whereby, as a playing partner, I naturally had one or two SPUs from Ortofon in mind.



To be seen next to the MM phono stage is its external power supply, on top of it the transformer

When planning the review, Markus Wierl immediately asked me about the cartridges that I used to work with the most. He promptly made suggestions as to which of the two MK Analogue transformers, which settings and which terminating plugs I could use to get the best sound out of Lyra's Etna and Olympus SL, as well as the Transrotor Tamino, which is being manufactured by MySonicLab. And at first, that was not what I had in mind: Even though I liked the E.A.T. transformer solution, I still believe that phono stages with an MC input are the amplifiers of choice for high-quality moving coil pickups – apart from all the SPU variants. But more on that later.

The first two letters of MK Analogue are the initials of the company's founder, Matej Kelc, who, by his own account, built his first transformer in 1982 as a teenager. During the first years of his professional career, he worked in the hi-fi and pro-audio industry. He started out as a salesman but quickly became a developer. In 2000, he returned to Slovenia, where he had spent the first five years of his life, and five years later he founded a metal processing company, which soon expanded into plastic injection moulding and wood processing. However, his passion remained music and audio technology, which is why he launched MK Analogue, drawing on his network of suppliers in Slovenia, Austria and Germany. The new company's first two products were, as you would expect, two transformers: the SUT-1L for cartridges with low impedance and the SUT-1M for those with medium internal impedance. The former is intended for systems with up to 10 ohms of impedance, while the latter is recommended for cartridges from Denon, EMT, Audio Technica and Benz Micro, among others.

What distinguishes the Step Up Transformer – or SUP – from MK Analogue from the not really many other representatives of its genre that I have dealt with in more detail are its balanced outputs and inputs. Each channel offers no fewer than two of them: one with a 24-decibel boost and a 1-to-16 transfer ratio and one with a 30-decibel boost and a 1-to-32 ratio. Using two inputs per channel instead of one plus a switch reduces the number of solder joints between the cartridge and the windings and is supposed to improve sound quality. In addition to the six XLR jacks on the back of the SUT-1L, there are two RCA jacks that can accept resistor plugs to adjust the termination impedance. The resistors are in parallel with the transformer's primary windings, so they are merely reducing the load on which the cartridge is operating. Since the current generated by the cartridge no longer runs through the transformer, the volume of the analogue chain is slightly reduced by using the plugs. On the material of the transformer windings and the core, Matej Kelc does not provide any information on his website.

Matej Kelc places great emphasis on consistently shielding the transformer against electromagnetic interference, resonances and direct sound radiation. The transformer itself is located in a MU metal capsule, which is surrounded by a brass body lined with bitumen mats. The entire aluminum housing is not only lined with addi-



The transformer shows up with RCA plugs for impedance matching. Per channel, two inputs for signal amplification of 24 and 30 decibels respectively are designed as XLR sockets, as are the outputs

tional bitumen mats, but its base plate is also connected to a stainless-steel plate: the sandwich construction serves to further optimize the resonance behaviour. Sorbothane feet decouple the SUT-1L from the ground.

The matching MK Analogue phono stage goes by the self-explanatory name MM-PH-AMP and is therefore designed exclusively for amplifying signals of those strengths provided by moving magnet, moving iron or high-output moving coil pickups and MC transformers. The MM-PH-AMP features a dual-mono design and is powered by an external power supply, which, however, is not designed with separate channels. To achieve the greatest possible homogeneity of the channels, Matej Kelc relies on a common filtering of the voltage, partly performed in the external power supply and partly on the common main board. The total capacity is twice 23,500 microfarads. The passive circuitry comes up with four filter stages and also fulfils the function of an inrush current limiter. Separate voltage regulation for each amplifier section with high damping as close as possible to the load minimizes interference and enhances dynamics.

RIAA equalization is performed purely passively. Ultra-fast MKP film capacitors coated on both sides are used to guarantee extremely high resolution and dynamics. The amplification is assumed by operational amplifiers with a rise time of 150 volts per microsecond and a high bandwidth. The output stage is a class A power amplifier that, with appropriate cooling, is even capable of driving loudspeakers. Longer cables between the MM-PH-AMP and the preamplifier should therefore not pose a problem. Matej Kelc's goal in developing the phono stage was to achieve phase linearity in the audible frequency range. On his website, he explains this decision as follows: 'The timely correct reproduction of all frequencies in the audible range determines whether a recording is perceived as lively, natural, dynamic, finely resolved, spatial and simply real. If this is the case, we not only listen to the music, we feel it, it moves us emotionally.'

If you want to achieve a linear phase response in the frequency range from 20 hertz to 20 kilohertz, you need a linear frequency response of five octaves above 20 kilohertz, i.e. up to 640 kilohertz. The MM-PH-AMP therefore operates linearly up to 800 kilo- or 1 megahertz, depending on the set amplification factor. Since the same naturally applies to frequencies below 20 hertz, Matej Kelc does without a subsonic filter and lets the phono equalizer work linearly down to a cut-off frequency of 3.2 hertz. Incidentally, the darTZeel developer Hervé Delétraz argues in a very similar way in the first part of the interview that I conducted with him back in July of this year.



The phono stage works unbalanced and therefore only has RCA sockets

Matej Kelc achieves the desired linear phase response with the MM-PH-AMP by using op-amps before and after the passive equalization, which only have to provide an amplification of 30 decibels, therefore being able to operate over a very wide bandwidth. MK Analogue's phono stage offers a selectable gain of 40, 43 or 46 decibels. In addition to the usual 47 kilohms, it also offers the terminating impedances 33, 68 and 100 kilohms and four different termination capacities between 50 and 470 picofarads. For operation with the SUT-1L, 150 or 250 picofarads and the highest possible gain setting are recommended.

In my experience, all Ortofon SPUs sound better when their signals run through the silver windings of an Ortofon SPU-T100 connected to the MM input of a phono preamp instead of being processed in a phono pre-pre with an MC input. So I installed my SPU Century to the Ortofon AS-309R and used it to burn-in the MK Analogue combo. On the advice of Markus Wierl, I had equipped the two RCA jacks on the SUT-1L with the yellow-ringed RCA plugs to set the optimal termination impedance for the Century. Between the tonearm and the transformer and between the transformer and the MM-PH-AMP, I used cables from MK Analogue, which are really affordable at prices below 250 euros for a length of 90 centimeters. But before doing so, I had rummaged around in a compartment of the record rack where LPs I had bought years ago and not yet listened to were gathering dust. Among other titles, I found Wild Percussion And Horns A'Plenty (Living Stereo LSP-2289) by Dick Schory's New Percussion Ensemble, cleaned it in the record washer and put it on shortly afterwards.

The album was recorded in Chicago's Orchestra Hall, as was Bang, Barroom And Harp before it, and is characterized by an impressive spatial imaging – at least when the SPU-T100 is used on the MK Analogue MM-PH-AMP. The abundance of instruments and the witty arrangement of 'Stumbling' are simply a lot of fun. The brass sections and the timpani coming from the depths of the room pack a punch: It is simply impossible to remain unmoved and uninvolved in the listening chair. As expected, this is no different with the SUT-1L. The track appeals to you emotionally just as intense as before. What I hadn't reckoned with, though, is that now, in addition to the equally gripping groove, some hi-fi aspects are coming into focus again: With the best will in the world, you can't help but notice that the recording space suddenly seems to have grown in all dimensions and the multitude of actors is a little further away from each other and surrounded by more air. I also like the following tracks better when listened through the SUT-1L than through the SPU-T100. Well, it could be an advantage that the two MK Analogue devices and the inexpensive cables from the same company simply harmonize better with each other. Nevertheless, I had also created a suitable environment for Ortofon's silver transformer: I connected it to the tonearm via the Ortofon TSW-5000-Silver and to the MM phono stage via the AC-5000-Silver. However, it does sound better through the SUT-1L!

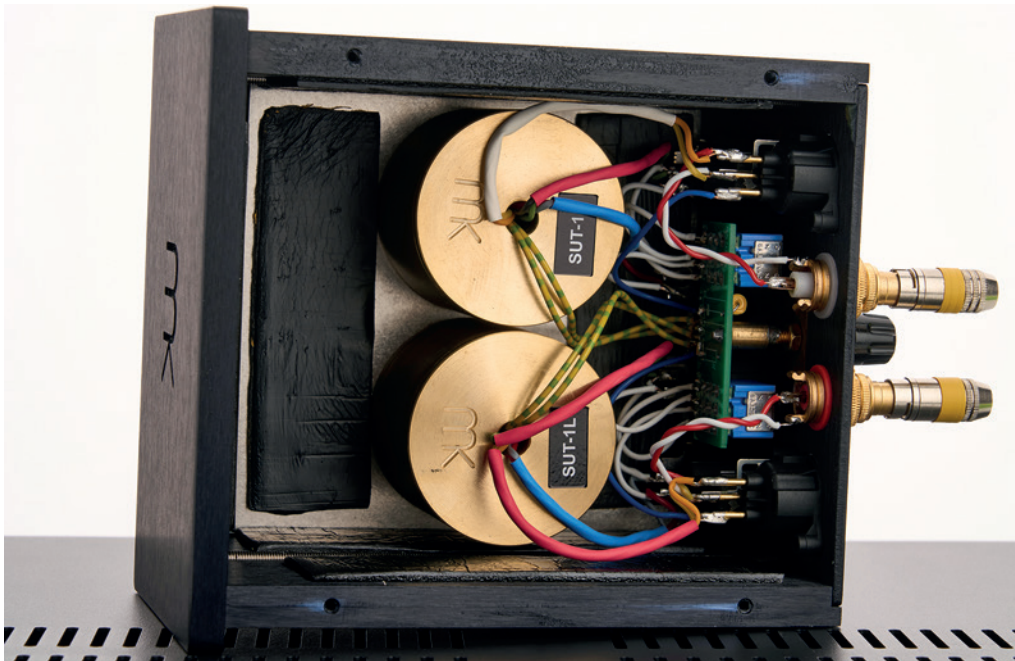


The MM phono stage not only allows to select the load capacity for the cartridge and the amplification factor, but also the input impedance

But wait, let's give the SPU-T100 another chance: Having Pictures at an Exhibition as interpreted by the Chicago Symphony Orchestra conducted by Carlo Maria Giulini lying on the platter of the LaGrange, 'The Hut of Baba Yaga' and 'The Great Gates of Kiev' sound as dynamic and airy as ever through the silver transformer. After switching to the SUT-1L, the recording space appears to be a little larger and the musicians a bit more engaged. Despite a touch more of dynamics and openness, there is not even a hint of roughness or sharpness in the MK Analogue's rendition, unlike the Ortofon. The SUT-1L pampers with a smoother musical flow and a more coherent tonality. Very impressive, indeed!

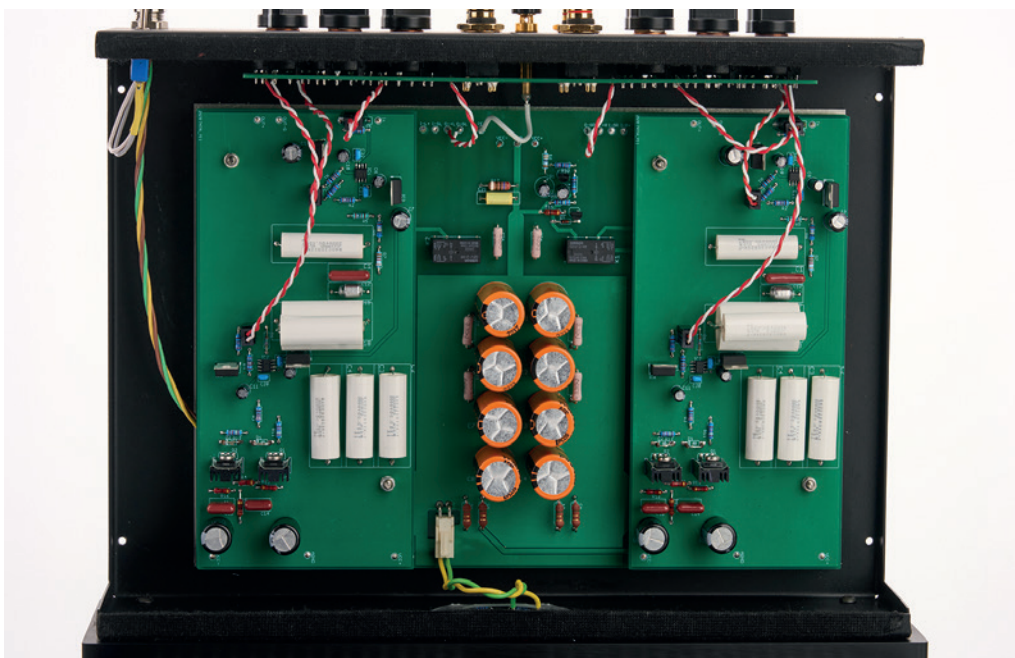
Some cartridge manufacturers specify the DC resistance a transformer suitable for their system should have, others only state the required load impedance for MC inputs. Markus Wierl uses this information as a guide, but also takes into account the impedance of the MM input and the transformation ratio of the transformer. On one of his advice pages, he also provides interested readers with calculators for the matching resistors that may be necessary. I have to admit that, as a lover of MC phono stages, I have not familiarized myself with the subject and have relied on the recommendations of Audio-Freak. However, I once removed the resistor plugs for the SPU to have better access to the ground terminal, but forgot to plug them back in: At first, my co-listener, who is also a hi-fi enthusiast, and I were impressed by the sudden increase in volume and the slightly greater immediacy of the reproduction. After two or three re-plugs, we agreed – after some disagreement in the meantime – that the sonic outcome with the plugs was tonally more balanced and offered more spatial information despite the somewhat more muted high-frequency range. Therefore, I will continue to rely on Markus Wierl's tips.

With rather mixed feelings, I then connected the tonearm cable of the Thales Simplicity II, in which the Lyra Olympos SL was mounted, to the inputs of the SUT-1L. My friend had again chosen Carla Bley's 'Life Goes On' to assess the capabilities of the MK Analogue gear. To our great surprise, we were reminded of the extremely positive experiences with this track when played through the darTZeel NHB-108: The grand piano's notes had weight and seemed to be more intensely related to each other than usual on this familiar record. The airiness, dynamics and energy of Steve Swallow's special electric bass drew us irresistibly into their spell. Had we perhaps listened to the record as a file at the time and was much of our enthusiasm related to the vinyl and the Olympos SL? Not at all, unfortunately – at least for me – the track lost some of its fascination when Einstein's The Turntable's Choice took over the equalization and preamplification tasks. The sound was now less rich, the notes no longer stood in the room as if carved in stone and seemed somehow lighter. Nevertheless, the recording room did not seem any larger than the one suggested by the MK Analogue combo.

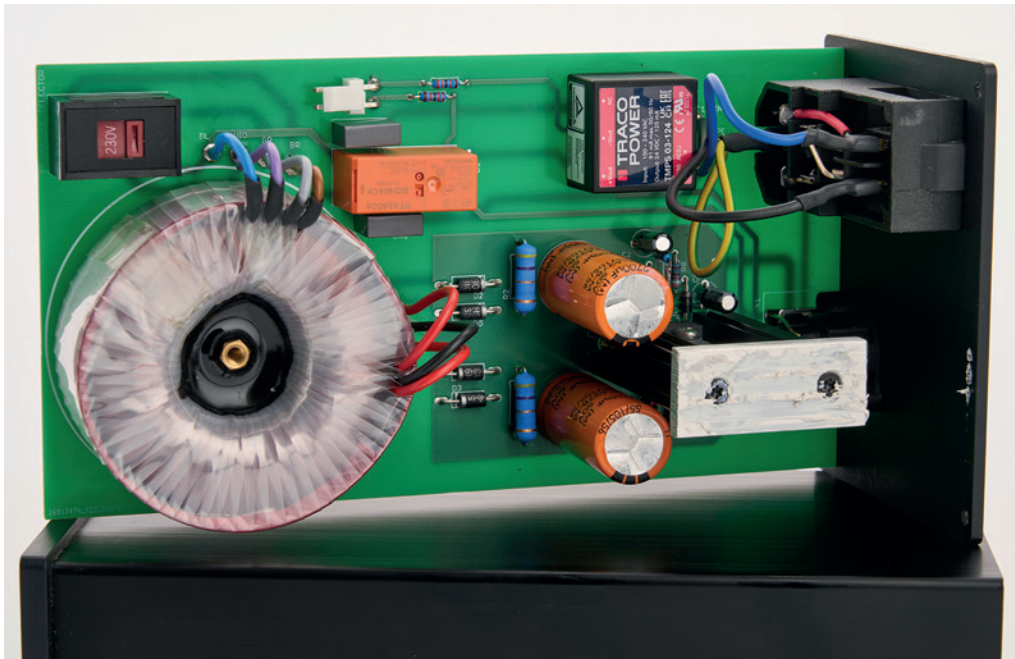


The transformers are located in MU metal capsules, which surround a brass housing. The inside of the housing is damped with bitumen plates

Since I had never missed the slightest thing with the Einstein equalizer, even when testing much more expensive phono stages, I suspected that the Slovenian duo might have been operating on the slightly euphonic side with a little more richness in the low-frequencies. But the slight opulence of the timbres masked neither subtle spatial information nor the most delicate details. I still couldn't find a starting point for any criticism. But since a powerful bass often makes the rendered music seem a touch more sedate, I set out to try Jonas Hellborg's Elegant Punk: The MK Analogue duo delivered a powerful low-frequency range, as I know it from the best purely electronic phono pre-pres. At first, I thought I was missing a touch of attack, but after turning the volume control slightly to the right, this proved to be a false impression. The MK combination offered at least as much infor-



In the phono stage, the PCBs with the audio circuits are located to the right and left of the power supply PCB



Part of the filtering capacity is accommodated in the external power supply, the other part near the signal-carrying circuits

mation about the virtual space as Einstein's counterpart. There was not the slightest hint of nervousness in the sound, despite the excessive use of this record having increased the level of background noise over the years. I got the impression that the tones here build up more solidity than with the Einstein. With 'It's The Pits, Slight Return', the MK Analogue combo impresses with plenty of speed and excellent transparency. The almost monolithic, precisely defined sound shows not the slightest shred of unwanted lingering. The MK duo combines power, attack and great clarity in the finest way. Further attempts to carve out a weakness in the performance of SUT-1L and MM-PH-AMP proved to be unsuccessful as well. Whether I like it or not, the MK Analogue gear is toppling my previous undisputed reference, which has been unchallenged for years.

After the thoroughly successful presentation of the pre-release version of the Wilson Benesch Tessellate Ti-S , I decide to swap the Transrotor Tamino against it, playing then the second side of Zakir Hussain's ECM album Making Music: John McLaughlin's acoustic guitar impresses on 'Anisa' with pressure and unbridled transients, but Jan Garbarek's saxophone is a little too much of a good thing regarding attack and high-frequency energy. That's why I'm paying a visit to the Audio-Freak website again, which had already told me that I have to select the 24-decibel input for the Tessellate if I want to reach the recommended range of 100 to 300 ohms. Even though the value then drops a little below 100 ohms, I try the 33 kiloohm load impedance on the MM-PH-AMP. The saxophone still has enough attack, but seems a little more restrained. The guitar and the tablas are bursting with energy and the – virtual? – space in the Rainbow Studio seems bigger than ever. This is extremely stimulating to listen to along one side of the record, but it still isn't going to seduce you into hours of musical enjoyment. Increasing the load capacity for the transformer at the phono stage from 150 to 250 picofarads provides remedy: The dynamics, openness and spatial imaging continue to fascinate, but tonally everything is now hunky-dory. Even in a comprehensive test such as this one, it is impossible to explore all the possibilities the MK Analogue SUT-1L and the MM-PH-AMP have to offer. But I am sure that these two MK Analogue products will reward their owner for all his efforts.

STATEMENT

The SUT-1L and the MM-PH-AMP have thoroughly dispelled my prejudice against transformers for moving coil systems: The combination of this step-up transformer and this MM phono stage can easily compete with any high-end MC preamplifier. With the abundance of customization options, it's nevertheless a good idea to follow the recommendations of the distributor or dealer – even if it seems extremely tempting to experiment a little yourself. It's been a long time since components surprised me as positively as these two MK Analogue devices!

LISTENED WITH

Turntable	Brinkmann LaGrange with tube power supply
Tonearms	Thales Symplicity II, Einstein The Tonearm 9", Ortofon AS-309R
Cartridges	Lyra Olympos and Etna, Ortofon SPU Century, Wilson Benesch Tessellate Ti-S
Transformer	Ortofon SPU-T100
Phono preamp	Einstein The Turntable's Choice (balanced)
Pre amp	WestminsterLab Quest
Power amp	Einstein The Poweramp
Loudspeaker	Børresen 05 SSE
Cables	Goebel High End Lacorde Statement, Audioquest Dragon HC and Tornado (HC), Dragon XLR, Ansuz Speakz D-TC Supreme, Digitalz D-TC Gold Signature and Mainz D2, Ortofon TSW and AC-5000 Silver
Accessories	AHP sound module IV G, Audioquest Niagara 5000 and 1200, Synergistic Research Active Ground Block SE, HMS wall sockets, Blockaudio C-Lock Lite, Acoustic System Resonators, Artesania Audio Exoteryc, SSC Big Magic Base, finite elemente Carbofibre° HD, Harmonix Room Tuning Disks, Ansuz Sparkz, Darkz Z2S, various Sortz, PowerBox D-TC SUPREME

MANUFACTURER'S SPECIFICATIONS

MK Analogue MM-PH-AMP

Cartridge compatibility	High Output MC, MM, MI; all Low Output MC via step-up transformer
Input impedances	33k Ω , 47k Ω , 68k Ω , 100k Ω
Gain values	40dB, 43dB, 46dB
Capacity values	50pF, 150pF, 250pF, 470pF
Overdrive capability	+19dB (5mV, 4 k Ω)
Signal-to-noise-ratio	- 89dB (unweighted, 47k Ω , 430 Ω termination), - 93dB (C-weighted, 47k Ω , 430 Ω termination)
Frequency response	3,5Hz bis 800.000Hz (- 3dB; 46dB)
Phase linearity	Up to 31.000Hz
Power consumption	8 watts (preamp switched on; recommended!), 2 watts (only power supply switched on)
Mains cable length	1,2 meters (between MM-PH-AMP and PSU)
Feet	Vibration-damping Sorbolution (Sorbothane) feet tailored to the weight (on both preamp and power supply)
Colour	Black

Dimensions (W/H/D)	34 × 9,3 × 26,5 cm (preamp), 11,5/9,3/21 cm (PSU)
Weight	5kg (preamp), 1,7kg (PSU)
Retail price	4,900 euros
Warranty	5 years

MANUFACTURER'S SPECIFICATIONS

MK Analogue SUT-1L

Input and transformer ratios	XLR balanced (2x), 24dB (1:16) and 30dB (1:32)
Output	XLR balanced
Termination impedance	30dB: 45Ω, 24dB: 175Ω, with resistor plugs: 100Ω (red), 11,5Ω (yellow, optimized for SPUs); other plug variants available upon request
Frequency response	24dB: 10Hz - 65kHz (-3dB), 30dB: 10Hz - 35 kHz (-3dB)
Signal-to-noise-ratio	115dB (-10dB V)
Distortion	K3 < 0,01% (f = 40Hz, -40dB V)
Output impedance	400Ω
DC resistance	10,2Ω at 1:16; 2,6Ω at 1:32
Dimensions (W/H/D)	145/86/160mm
Weight	2,75kg
Colours	Black, Silver
Retail price	3,200 euros
Cables	Optionally available from 150 euros, RCA>XLR 80 euros

DISTRIBUTION

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