

FREE DOWNLOAD! STEREO-MAGAZINE.COM

STEREO

THE GERMAN HIFI MAGAZINE

ISSUE #18 2018

> HIFI OR GIMMICK?

MAG-LEV ML1



**> ON VACATION
AMERICAN
TUBE
POWER**



**REVIEWS: CAMBRIDGE AUDIO SOLO & DUO +++ CANTON REFERENCE 8K +++ CD-DRIVES +++
PROGRESSIVE AUDIO EXTREME 1 ACTIVE +++ HMS CABLE +++ AUDIONET SAM 20 SE +++
PIEGA T MICRO 60 AMT +++ SERVICE: STREAMING-NETWORKS +++ REPORT: VINYL PRESS**

...to celebrate our 40th birthday, we're offering something a little bit different. Introducing our Westphalian capacitor man (\$9,000 individually signed). Buy one and get an R-series Multi-Source Player free of charge! These guys won't be around long so be quick, as this offer is only available during our celebrations.

0
Vierzig Jahre T+A



NOW WHO NEEDS ALL THE HIFI SHOWS?



Visit us at:

facebook.com/stereo.hifi.magazine



Every autumn, the great trade fair hype breaks out all over the world, and it doesn't stop until February, after the ISE in Amsterdam, before reaching its climax in May with the Munich HighEnd. The export- and development managers or CEOs are hardly to be found in their companies for months. They jet from exhibition to exhibition, from continent to continent, always in the hope for numerous visitors, many new business contacts and as positive a coverage as possible in the hifi press. Latter guarantees that those who stayed at home also get an insight into individual manufacturer's current state of development and the industry in general. These internationally oriented trade fairs are complemented by a wealth of regional events, some of which are organized by dealers and replace traditional in-house fairs in many places.

All these give you as a customer the opportunity to get to know and, most importantly, hear a great variety of products in a very short time, notwithstanding the often

imperfect conditions for demonstrations. Extremely expensive products that hardly any retailer can afford to present in his shop make a visit for many customers particularly worthwhile. Also people who prefer the anonymity granted by the number of visitors over having direct sales contact in a shop appreciate the exhibitions.

However, as always in life, there is also a downside: the effort required for such shows devours time and money. Hence, it is necessary to ask the question as to whether this large number of shows is really needed or whether a cutback would be useful. Latter might help to bring product development and the price/performance ratio of some products back into balance.

Michael Lang

editor@stereo-magazine.com

All prices listed in this magazine are German retail prices incl. VAT valid at the time of evaluation.

VAC SIGMA 170I IQ

Due to its patented bias circuitry, the 170I IQ is guaranteed to always deliver optimum sound, while, also, significantly increasing the tubes' lifespan.



CANTON REFERENCE 8 K

In the several hours lasting listening session, the 8 K proved to be capable of some serious volumes. However, it performed just as great at lower levels.



MAG-LEV ML1

After all, turntables are all the same... If that's your opinion, the MAG-LEV ML 1 is certainly going to challenge it!

PROGRESSIVE AUDIO EXTREME 1 AKTIV

Clever engineering and uncompromising dedication make the Extreme 1 Aktiv a versatile, living room-friendly, but very capable speaker – even beyond its price range.



CAMBRIDGE AUDIO PHONO PREAMPS

The "Solo" and slightly more expensive "Duo" make a very good first impression to the touch. Can they equally satisfy in the listening room?



REVIEW CD-DRIVES

Although the tested devices lack a DAC and are therefore nothing else then pure bit-suppliers, they, surprisingly, have a remarkable impact on the sound.

STREAMING NETWORKS BASICS

Although for many audiophiles network streaming is a topic of interest, a lot of us are alienated by the complicated and often obscure technology behind it. Here, we clarify the most important basics.



PIEGA TMICRO 60 AMT

Unfortunately, no manufacturer has yet managed to build entirely invisible loudspeakers. The compact and elegant Piega TMicro 60 AMT is, however, the closest you can get.

REPORT: NEW VINYL PRESSES

The majority of vinyl is, to this day, printed on machines from the 50s to 70s. German company "Newbilt" are now building and selling new presses for the first time in over 30 years.



AUDIONET SAM 20 SE

The "SAM" integrated amps are around for ages and have repeatedly served us as references. Celebrating SAM's birthday, Audionet launched a strictly limited special edition – and it's even better than the original.



HMS SUPREMA

The new flagship of Leverkusen-based company HMS is certainly the opposite of cheap. But can its performance justify the price?





FLOATING APPEAL

The MAG-LEV's platter levitates above any „bad vibrations“ on its magnetic cushion. This way, it is supposed to lift listeners into higher audiophile spheres. Can the ML1 do this or is it just a fancy gag?

What an awe and wonder it was during the Munich HighEnd show in 2017: at a small booth in hall 2 a rather inconspicuous record player was surrounded like a huge sensation. In fact, that is exactly what it was. As if held by ethereal hands, the turntable floated above its base, with its luminous orange ring ensuring that everyone noticed it.

It was the ML1 of the Slovenian newcomer MAG-LEV Audio. This started as a crowd funding project with the goal of not only developing but also building a record player with “magnetic levitation”-technology, which also gave MAG-LEV Audio their name. The idea is not new, as, e.g., the famous train “Transrapid” works according to the same principle. The aim is to lift up and then control an object provided with magnets, via an electrically generated magnetic field. In the case of the Transrapid, several tons have to be handled, while in the ML1, it’s “only” the 2.2-kilo turntable. However, even this is a real challenge.

It only likes MM-pickups

The technicalities are to blame. There have long been ideas for a magnetic levitation record player, which would be immune to rumbling, because of the omitted plate bearings, while being perfectly decoupled from vibrations of the base at the same

time. However, the implementation is so complicated that almost everyone kept their hands off it. With the exception of analog-grandmaster van den Hul, who presented the well-functioning prototype of a drive with magnetically supported plate in 2015, but had to cancel the



▲ The only control is a knob to select „Off“ and the two speeds, the values of which flash during start-up and only light up continuously after the selected speed has been reached.



▲ As an alternative to the OM10 (left), the ML-1 is also available with pre-mounted Ortofon-MM 2M Blue, which is clearly superior in sound quality.

project for various reasons. One of them was that inductive interactions of the powerful magnets of MC pickups, for which van den Hul is famous, with the magnetic field of the turntable occurred, which irritated the controls.

It is no different with the ML1, despite the shielding steel plate implemented in the platter. It can, therefore, only be used with MM-cartridges. Also “Moving Iron” scanners (MI) are not recommended, and even among the “Moving Magnet” (MM) types, which are in general suitable due to their small magnets, there are models the Slovenian is not compatible with. In that case it would reduce the speed and finally lift off the tone arm after a short playing time, to signal the problem with a red flashing speed display.

For this reason, the manufacturer, who had to overcome numerous technical hurdles on the way to serial production and continued to postpone the launch of the ML1, is equipping it with Ortofon's unproblematic entry-level MM OM10 at a total price of near to 2,500 euros. However, since this hardly satisfies more than the most basic sound requirements, the MAG-LEV-turner can also be obtained for 150 Euro surcharge with the Danes' much more appropriate 2M Blue, which is also the one we used in the test.

Turned off, four support rods are driven out of the chassis with a rattling noise and keep the plate away from the base and in the same height even without the magnetic cushions. ▼



▲ With the ML1, MAG-LEV audio developer Tadej Doles achieved a real coup

What lasts long...

This one had some, let's say, start-up problems. A first device, which found its way into our listening room in mid May after the HighEnd, was afflicted by a slight wobble of the plate. Comment from the producer: software error. This could even lead to a failure of the turntable's normally stable lateral guides and the platter slipping off sideways. An absolute no-go! At that point we had our doubts the hovering technology would ever function reliably. However, the second device taken from the first regular batch ran stable, although one has to take into account some of the ML1's peculiarities.

Using it demands quite a lot of patience from the listener. The initial position is that the platter lies on four plastic rods when the unit is switched off. Turning the knob on the left side of the chassis one step to the right to “33” and pushing the height-adjustable tone arm, Pro-Ject's proven 9cc with low-resonance carbon fiber tube, over the record, the bars are lowered into the frame under buzzing noises, and the plate hovers freely. It will then gradually pick up speed, while the orange “33” flashes. This takes a while, during which you can safely lower the arm lift and go to the listening position, as the MAG-LEV only places the needle on the vinyl after the target speed has been reached, at which point it also switches from flashing to continuous light. A full 45 seconds pass by from pressing the button to the first sound.

Quickly listening to a few freshly purchased thrift store records might turn out to be an ordeal, as every change of record is accompanied by the same process first in reverse and then again from the top. The arm moves into its holding, the button moves to “Off”, whereupon the plate decelerates veery slowly; the bars move up and the turner switches off. Although experienced users with nimble fingers can succeed in quickly fishing the disc from the rotating plate, it then often tumbles so badly that the device switches to “tilt” like a pinball machine that has been pushed too hard, so that nothing works anymore at all. Then what has to be done is to briefly disconnect the external power supply in order to reboot the control CPU. Don't worry, the plate does not just fall onto the base. A buffer maintains the energy until it safely lies on the support pins again.

...can do pretty well

It is time to devote ourselves to the complex technology of the ML1: in fact, a powerful ARM chip runs all processes and guides the plate by precisely regulating the ten coils inserted in the chassis, which are controlled alternately and thus, according to the principle of the linear motor, keep the plate, held at a distance by magnets, rotating. The 21 neodymium magnets in the plate serve as “counterparts”. The control registers its movements and speed via an optical system by means of nine small mirrors inserted into the underside of the plate. As a result, the



Slovenian manages to maintain speeds quite precisely, with a slight plus at 33.33 and a tiny minus at 45. Hardly worth mentioning!

Before using the MAG-LEV, we took off our mechanical watches, as they generally don't like magnetic fields. The operating instructions also recommend that pacemaker users should maintain at least one meter of distance from the turntable so that it can't irritate the device's pace. Sounds dangerous, but better to be safe than sorry!

And what does the revolutionary MAG-LEV turntable sound like? This is not an easy question to answer, because the result depends even more than usual on the environment. The ML1 requires a straight, largely vibration-free base. A board screwed to a solid wall would be ideal. Wobbly little shelves on a rocking wooden floor do not work at all. Even a draft of air can cause the plate to tumble. And then, of course, that's it with smooth running, constancy and inner order of sound images.

On top of that, the frame is quite sensitive to footstep noise. We asked ourselves, what the benefit of such extreme effort as applied for the floating plate is, if vibrations creep in anyway via the still firmly connected to the base tonearm? MAG-LEV owners have to simply accept

this contradiction and it is yet another compelling argument for a positioning that is as free as possible from disturbances.

However, the magic of the platter, floating almost four centimeters above the base, which is available in various decors, makes up for any inconvenience and limitations. No other turntable can offer this kind of fascination when the platter rotates weightlessly in the air.

Okay, after running up the plate wobbles unsteadily back and forth for a few seconds, which is no problem with normal pop music. If, on the other hand, a piano record is played, the first bars come across slightly howling and somehow out of tune. Also, the Slovenians cannot simply conjure away the axiomatic analog law that the connection between plate and tonearm must be as rigid as possible. Logically, movements of these parts relative to each other must lead to blurring and inaccuracies. Especially in the inner grooves, where the radius is small and the offset, hence, relatively large.

Timing is in the flow

If nothing disturbs its circuits, the ML1 spreads good mood. James Taylor's "Her Town Too", with its punchy, dry bass, was depicted with vehemence and power. The large orchestra in Chadwick's "Jubilee" was spacious and cleanly staggered in depths. It may be that the Slovenian did not focus quite as much on edge sharpness as the nitpickers from the record player's cookie-cutter fraction, but it was far from diffuse- or even uncleanliness.

A powerful neodymium magnet in the center of the plate carries the „main load“. Nine narrow mirrors ensure the controlling. ▼



When it comes to timing, the turner offers a soft "flow" with a little rounded corners and edges. A crisp low frequency appears somewhat softened on it, while voices that are strikingly offset from the background seem to be more integrated into the overall picture. This is the "analog" character of the ML1, and we like it. Though the MAG-LEV doesn't rise into the analog heaven, it certainly is more than just a gag with show effect. And at home all your hi-fi friends are guaranteed to crowd around it with open mouths.

Matthias Boede

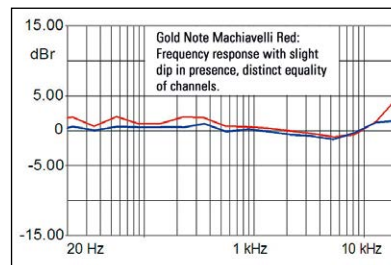
MAG-LEV AUDIO ML1



from 2500 €
(with MM-scanner Ortofon OM10, with Ortofon 2M Red for 2650 €)
Dimensions: 48 x 19 x 36 cm (WxHxD)
Warranty: 2 years
Contact: MAG-LEV Audio
www.maglevaudio.com

The phenomenal thing about the ML1 is the fact that it works at all. Clever, sophisticated technology makes it possible to guide the turntable in a controlled magnetic field. The MAG-LEV proves that it is not a gag, featuring appealing sound images, especially with the Ortofon 2M Blue, which is subject to an extra charge.

MEASUREMENT RESULTS



FEATURES

External power supply, RCA connectors, semi-automatic (the arm is lifted up at the end of one disc side, shortly afterwards the platter halts), good quality phono cable

STEREO-TEST

SOUND QUALITY 67%

PRICE/PERFORMANCE

★★★★☆
VERY GOOD

A SOLO FOR THE CAMBRIDGE-DUO

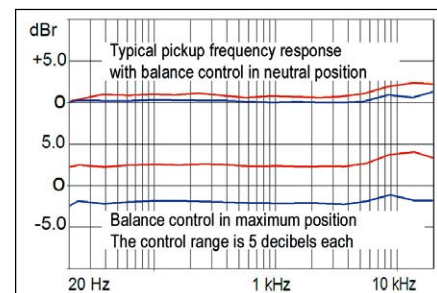
Cambridge Audio includes two entry-level phono preamps into its portfolio. Both have a balance control, and the larger one even a headphone-jack. How much more could we ask for?

Wow, do they look good! When unpacking the two new small phono preamps from the English company Cambridge Audio, the first impressions suggest significantly higher prices than the just 175 Euro required for the “Solo” and the almost 300 Euro that the larger “Duo” should cost. The devices with the titanium-colored front panels have an elegant and flawless finish. Their names derive from the fact that the Solo only amplifies MM pickups, while the Duo also manages MC.

Operation is simple. There are no options regarding input resistance, capacitance or gain and they needn’t be, because the British have fixed practical values: 39 decibels MM-gain plus 59 dB for MC on the Duo at 100 Ohm terminating impedance, which is optimal for most inexpensive MCs. With 47 kilohm and 100 picofarad for MMs, the flat amps behave, so to speak, “standard-compliant”.

Is there nothing else special apart from the noble appearance? You bet: both phono preamps have a balance control with center detent on their rear side,

◀ Since the balance control is no longer used after having been set, it is located on the phono amps’ back. The control range is a good four decibels in each direction (graph below, lower curves), which is usually more than enough to compensate for pickup errors. The front level control of the Duo affects the jack of the headphone output.



◀ The Cambridge pre’s connectors are conveniently double labeled so that they are easier to identify when leaning over the device from above.



which compensates for any channel differences of the connected pickup. These occur especially with inexpensive cartridges, for which the devices are predestined.

The important question is how an untrained person can recognize them. Of



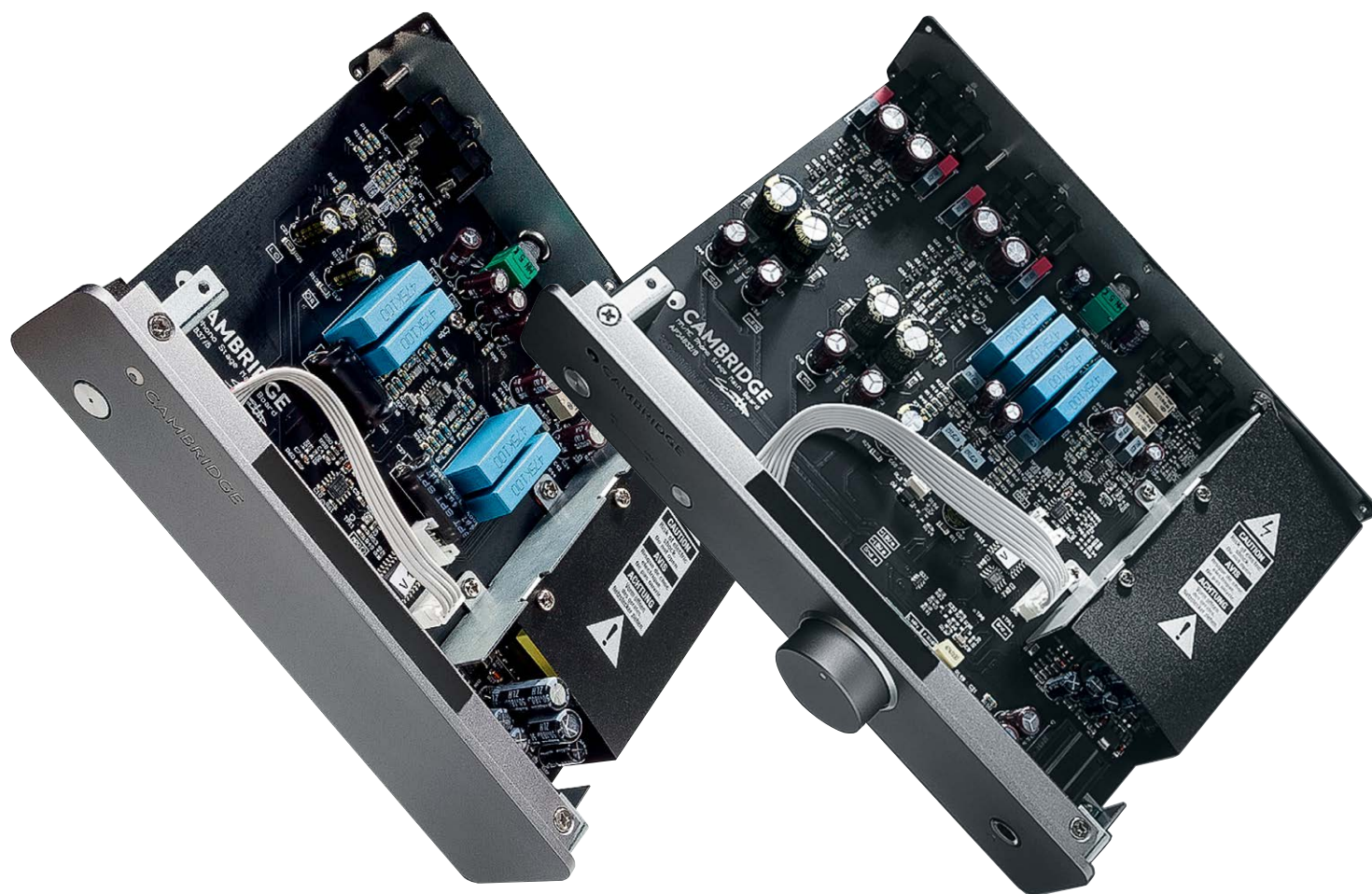
▲ The balance control on the rear panel only needs to be set once to match the used pickup and can then be forgotten. Its control range is completely sufficient.

course one could use the mono level tone of a test record and a previously with tuner noise adjusted VU meter of, for example, a cassette deck or CD recorder. Too complicated? An easier way would be to put on the headphones and play a record with a distinctive, exactly centered voice. If this is perceived to be slightly offset to the right or left, the small balance control button is used to pull the voice exactly into the center, with the control range being around five decibels to each side. This should be sufficient in any case, since already with a deviation of more than three dB, the pickup may be confidently described as defective. Usually a maximum of 1.5 dB is enough.

The large knob on the front of the Duo controls the volume of the headphone jack, by means of which Cambridge Audio is responding to the clear trend towards "private" music enjoyment. The manufacturer recommends types with impedances between 30 and 600 ohms, hence offering the listener a broad selection. We ourselves recommend headphones with

higher efficiency, as the amplifier stage of the Duo does not have endless power reserves, so that especially people with a taste for high volume could otherwise quickly reach limits. In terms of quality, there are no objections to the reproduction. It is natural, spatial and therefore long-term suitable. Bearing in mind that the phono amp in question costs less than 300 Euros, it is hardly worth mentioning that high-quality headphone amplifiers offer even more momentum and power. However, they often cost a multiple of the Duo, which is anyway supposed to, first and foremost, take care of phono matters.

Due to the additional MC-section and headphone amplifier, the component expenditure is higher in the Duo. Discreetly clicking mini relays are located close to the inputs. As in the Solo, a metal plate protects the electronics from possibly interfering radiation from the highly clocked switching power supply. ▼



Brilliantly detached sound

Unlike many other small phono amps, the ones from Cambridge Audio are not powered by an external power supply, but have solid sockets on the back. Internally, an, apparently well-shielded, switching power supply unit controls the electricity. Our initial fears this could harm the delicate input section were proven wrong. Neither our ears nor the laboratory's sensitive measuring instruments could detect disturbing influences. By the way: after about 20 minutes without a music signal, the phono pres go into standby mode. This is bound to come in handy, but especially during the initial warm-up-phase it can also be rather annoying. Fortunately, the automatic shutoff can be deactivated, which shouldn't be a reason for guilty conscience, in view of the idle consumption of just around four watts.

So far, so good. The really remarkable thing about the Cambridge couple is, however, their sound - especially that of the Duo. The weightlessness, spaciousness and dazzling transparency it offered in MM and MC mode is unprecedented in this price-class. Even our 30 times more expensive reference could not do it better. What the hell happened here? Okay, to be honest, the Duo did not even come close to the Brinkmann Edison in terms of color, conciseness and momentum, but with its almost holographic transparency it nevertheless did an outstanding job.

Its reproduction was delicate, lucid and ethereal. The atmospherically arranged titles of Loreena McKennitt's new album "Lost Souls", for example, sounded like they were floating on clouds. On the other hand, it didn't handle The Blues Company's fat bass in "If I Could", from the STEREO Listening Test LP II, quite as comfortably, portraying it, as well as lead singer Toscho's vocals, rather slender than profound and powerful. In combination with a pickup that has a slightly reduced presence range, the tonal balance is perfect and the Duo played at a level that we would hardly have thought possible in this league. There, it had already qualified as a reference anyway.

Contact: Cambridge Audio
Tel.: +44 20 7940 2200
www.cambridgeaudio.com

CAMBRIDGE AUDIO SOLO

Price: around 175 €
Dimensions: 18 x 5 x 14,5 cm (W x H x D)
Warranty: 2 years

A refined phono pre as long as only an MM pickup is used. The Solo can compensate for channel differences and sounds as open as it does structured. Especially recommended with a cartridge that subtly represents higher notes, which is rather common in the lower price-section anyway. Also accounting for the fine workmanship, the small Cambridge Audio is a real bargain!

MEASUREMENT RESULTS

| | |
|---------------------------------------|------------|
| Signal to noise ratio Phono MM (5 mV) | 4 dB(A) |
| Overload resistance MM/MC | 114 mV/— |
| Phono MM: Input resistance | 47 kΩ |
| Output resistance | 46 Ω |
| Maximum output voltage | 10 volts |
| Stereo cross-talk (5mV/1kHz/1kΩ) | 58 dB |
| Distortion factor at 400 mV | 0.01 % |
| Power consumption at standby/idle | <2 W/3.8 W |

LAB COMMENTS

The MM amplification of three decibels above the usual value is absolutely practical. The high signal-to-noise ratio is complemented by effective channel separation, which is important for three-dimensionality, and low distortion. No negative influences of the switching power supply could be detected in the spectrum. There's nothing wrong with the Solo!

FEATURES

One RCA input and output each, balance control, deactivatable automatic switch-off

STEREO-TEST

SOUND QUALITY **78%**

PRICE/PERFORMANCE



OUTSTANDING

CAMBRIDGE AUDIO DUO

Price: around 300 €
Dimensions: 22 x 5 x 18,5 cm (W x H x D)
Warranty: 2 years

Having MM and MC, a useful balance control and a headphone jack onboard, this phono preamp sounds extremely loose and detached. The nimble bass comes slender, sinewy and dry. Overall, the sound is rather present than sonorous. The fine workmanship and rich equipment suggest a significantly higher price.

MEASUREMENT RESULTS

| | |
|---|--------------|
| Signal to noise ratio Phono MM (5 mV) | 75 dB(A) |
| Signal to noise ratio Phono MC (0.5 mV) | 54 dB(A) |
| Phono MM: gain factor | 39 dB |
| Overload resistance MM/MC | 86 mV/2.4 mV |
| Phono MC: gain | 59 dB |
| Output resistance | 46 Ω |
| Maximum output voltage 7 | .6 volts |
| Stereo cross-talk (5mV/1kHz/1kΩ) | 54 dB |
| Distortion factor at 0.03/0.3/1 | V / 0.01 % / |
| Power Consumption Stby./idle (with) | <2 W/4.3 W |

LAB COMMENTS

The Duo offers practical gain factors, low distortion and a high signal-to-noise ratio, at least in the MM branch. For MCs it could be a few decibels more, but there is no audible interference. Effective channel separation.

FEATURES

Separate, relay switched RCA inputs for MM- and MC-scanners, one RCA output, adjustable headphone connection with sufficient level reserves, balance controls, deactivatable automatic switch-off

STEREO-TEST

SOUND QUALITY **83%**

PRICE/PERFORMANCE



OUTSTANDING

Also great as solo

The Solo's performance was also convincing: although the two Britons are very similarly structured in their MM-sections, the cheaper model couldn't quite reach this dissolution of spatial borders and interior dispersion. It tended to sound more compact, with a heavy orientation towards the stage's front edge. However, it also had a nuance more substance and was structurally woven more tightly than its big brother.

Nevertheless, cross-checks with other phono pres, "classmates" as well as representatives of higher price spheres, showed that the Solo basically follows its light muse and focuses on a slim, sinewy bass and transparency. If you prefer such a style, you've come to the right place. Or you go all in and directly reach for the Duo, which hones this approach. Who knows, maybe at some point you'd like to switch to an MC or connect headphones.

Matthias Böde

40 YEARS EXCELLENCE



Loving music

Let's celebrate Jubilee

Unlimited cartridge edition

Cartridge
Jubilee MM



clearaudio Händler

Finden Sie unsere Händler unter:

<http://clearaudio.de/de/dealer/germany.php>

oder scannen Sie den QR Code.



clearaudio electronic GmbH

Spardorfer Straße 150 | D-91054 Erlangen | Fon: +49.9131.40 300 100 | Fax: +49.9131.40 300 119 | info@clearaudio.de | www.clearaudio.de
Made in Germany | Only available from authorized Clearaudio dealers.



BOUND TO LISTEN!

Sometimes the smallest things make the biggest noise – and Canton's new Reference 8 K can certainly not be accused of being closemouthed.

People who are sensitive to esotericism sometimes claim that the soul of a craftsman is reflected in his products, so that one can read his character from them. Opinions on such teachings might vary, but anyone who has ever been able to listen to music with Canton's head developer Frank Göbl - we recently had the pleasure - will soon understand why the speakers, made near Frankfurt in Germany, can do what they do. Nothing better could have happened to us on this rainy April day than to forget the grey dreariness with a listening session lasting several hours at "moderate" 120 decibels.

Mr. Göbl delivered his brand-new Reference 8 K that afternoon, which was presented just in time for the HighEnd. We were given the opportunity to take an exclusive look at them a few weeks before all the trade fair hustle and bustle. Mr. Göbl told us that, exceptionally, the 8K is in a way a product specifically requested by and made for retailers. The models of the Reference series were so well received there that they repeatedly called for a small floorstanding loudspeaker, which is priced between the compact 9 Series (around 2600 Euro) and the 7 K (around 5200 Euro). And voilà: here it is!

Volume...

Of course, the new, almost one meter high column cannot only play breathtakingly loud. The bass and midrange drivers were



refined with tungsten instead of the aluminum typically used by Canton. This allows them to form a huge stage even in whisper-quiet operation, while precisely positioning the instruments, always garnishing them with some creamy and delicate tones. With T+A's PA 1000 E, everything appeared extraordinarily three-dimensional and stimulatingly smooth. But why should we bore you with such details?

The Reference 8K has unmistakably been designed to give its auditorium powerful full-body massages. After working our way through several listening-test CDs to warm up, and having been quiet impressed on the way, we ended up on "N.I.B." from Black Sabbath's debut album - a song that only unfolds its real magic just below the mentioned 120 dB. We fired it in a high bit version using T+A's superb MP 1000 E. Although the 8 K is a proper dwarf compared to the top model 1 K (around 22.000 Euro), it threw the accentuated and impulsive chords of Tony Iommis' Gibson SG incredibly dynamic, lively and with almost brute force to our chest. Its efficiency of an impressive 87 dB on T+A's 220-watt amp probably played a major role in this spectacle.

The solid gold-plated terminal of the 8 K. Note the opening between cabinet and base... ▼



In addition to the exemplary fluent and agile playing style, we were particularly impressed by the superb stability of the low bass reproduction, which reaches down to the 33 Hertz spheres: even at levels near the limit, we could not elicit any sound disturbances, not even secondary noises from the bass reflex ports built into the foot of the 8K. This might be, in large parts, due to the uncompromising design of the cabinet, which was adopted without adjustments from the larger "Refs". Internal struts were used to additionally reinforce the already sturdy sidewalls, while the top and bottom were designed to be extremely robust with a thickness of more than two centimeters. Each of the two faultlessly manufactured beauties receives signals via a generously dimensioned and completely gold-plated bi-wiring terminal and weighs 30 kilograms.

... but classy!

Of course, volume isn't everything. The real fascination of the new "little" Reference lies in its outstanding combination of fine detailing, a perfect sense for rhythm and its unshakably clean reproduction: while Mr. Iommis relentlessly threw his crushingly heavy guitar riffs at us, the 8 K managed with playful ease to draw an incredibly deep and sharply outlined stage into the listening room. Ozzy Osbourne's voice stood irremovably in the center of action, revealing filigree details and that wonderfully warm, spherical echo effect that is characteristic for many of the album's songs. In the soli, the duplicated guitars scattered throughout the panorama seemed to break the boundaries of the stage. No less impressive was the reproduction of electronic material such as the abyssal-low "Within You" of Gus Gus' superb album Arabian Horse, whose intelligently used compression effects made our listening room pump.

If you are looking for a speaker that can make you forget space, time and everything else around you, the 8K is a great choice! And when the neighbors knock on the door with torches and pitchforks, just turn it up a little more - The Reference will thank you!

Carsten Barnbeck

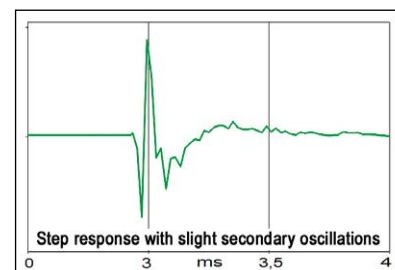
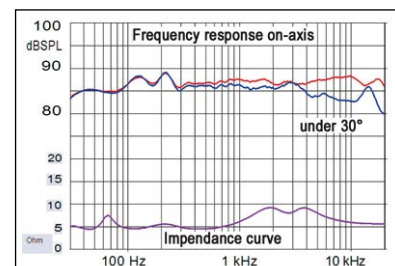
◀... This is part of the airflow concept of the reflective opening in the bottom of the speaker.

CANTON REFERENCE 8K

Around 4000€
Dimensions: 26 x 99 x 36 cm (W x H x D)
Warranty: 5 years
Contact: Canton
Tel.: +49 6083 28730
www.canton.de

Outstanding workmanship, excellent level stability, melodious and round timbres as well as the rhythmical and captivating timing make the smallest Reference floorstanding speaker a superb music companion, that masters entertaining as effortlessly as audiophile detailing.

MEASUREMENT RESULTS



| | |
|------------------------------------|-----------------|
| DC resistance | 4 Ω |
| Minimum impedance | 4,5 Ω at 440 Hz |
| Maximum impedance | 9 Ω at 1900 Hz |
| Sound pressure level (2,83 V/m) | 86,2 dB SPL |
| Power for 94 dB SPL | 14,4 W |
| Lower cut-off frequency (-3dB SPL) | 33 Hz |
| Distortion factor at 63/3k/10k Hz | 1,0/0,3/0,1 % |

LAB COMMENTS

Everything is simply perfect: the impulse response is sharp, while the impedance curve and the largely linear frequency response show no abnormalities. The voluminous speaker reaches down to 33 Hertz and should be positioned with appropriate distance to the wall.

STEREO-TEST

SOUND QUALITY **81 %**

PRICE/PERFORMANCE



OUTSTANDING

Die Endstufe für höchsten audiophilen Genuss

Ausführlicher Test:
STEREO 11/2016



Finest Music Components
Handmade in Germany

www.accusticarts.de – Hotline: (07133) 97477-0

DATA-PACKS

In light of the recent trend towards high-quality DACs for all types of bit suppliers, the demand for pure CD drives has been on the rise again. STEREO has checked purist drives of the compact sort from Cyrus and Pro-Ject.



THE SMALL DIFFERENCE

Of the two Cyrus drives, the manufacturer has „signed“ one.

What difference does it make?

On the first glance, they look like perfect twins. On the front panel of one of the two CD drives, kept in Cyrus' typical brick design, there is, however, a "Signature" badge in the upper right corner, and the price tag shows easily twice the amount of the smaller model, competing without this decoration.

That's all the external differences there are. Both "Transports", as pure disc drives without integrated D/A converters are often called, offer a series of flat buttons and a yellow-green display. Below it is the slot-in drive, which automatically retracts the CD as soon as you insert it slightly beyond the edge. Though a few buzzing noises are audible from the drive while reading in, it behaves quietly during playback. That's the way it's supposed to be!

On the rear side there is one coaxial and one optical digital output as well as two additional sockets for the looping through of control signals in case a set of several Cyrus components is operated. Included upon delivery is an illuminated remote control including a useful numeric keypad for direct selection of titles, while it can also do much more than just direct the CDt or CD Xt signature.

Only equal in the lab

According to the British company, for the Signature the effort for data selection and processing were considerably higher. While both drives supposedly generate their data particularly precisely and unaffected from background interference as part of a process called "Servo Evolution", Cyrus wanted this to be driven to its peak in the Signature, using comprehensive measures for re-clocking. This should ensure the precise chronological sequence of the bits, which are, after all, read out in real time during CD playback, thus reliably avoiding the dreaded data jitter.

A technical hint is given by the toroidal transformer, which is installed in addition to the switching power supply unit and exclusively feeds the clock generator that

is in charge of the re-clocking. Cyrus was one of the first manufacturers to recognize the sound-beneficial effects of a stable and naturally oversized energy source, dedicated to a specific task. The optional "PSX" power supplies for the players and amplifiers have been legendary for decades. In this case the developers have implemented their energy-strategy within the CD Xt Signature.

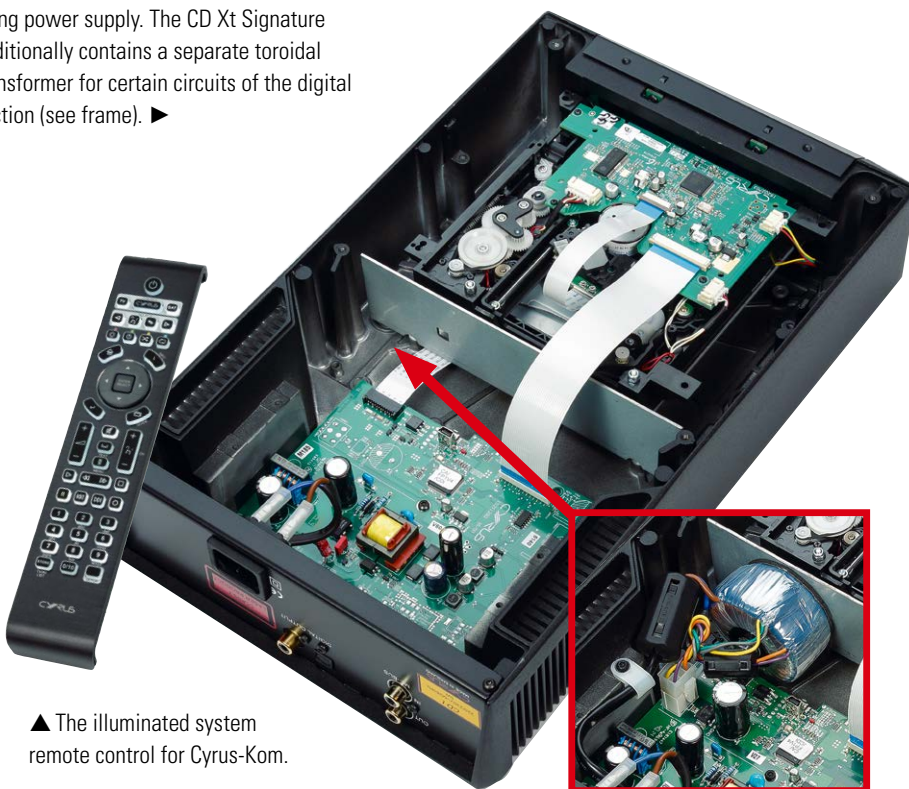
The advantages obviously lie in the optimized internal processes, as in our measurements on the coaxial digital output, both drives performed practically equal, with the bigger model outperforming the, just as excellent, little brother in terms of jitter only on the tiniest scale. The CDt was even slightly ahead in terms of speed deviation, although one to seven "parts per million" deviation from the set speed truly are peanuts!

Cyrus' CDt gets its energy from a small switching power supply. The CD Xt Signature additionally contains a separate toroidal transformer for certain circuits of the digital section (see frame). ►



▲ On the outside, the CD Xt Signature can only be recognized by its emblem in the upper right-hand corner – and by the price tag of course.

So that was getting us nowhere. The showdown had to take place in the listening room, where our warmed-up reference DAC Brinkmann Nyquist was waiting for the confusingly similar test objects. On this, but also on less high-class DACs, the distinction was no problem at all, as the signature easily stood out. It was, however, rather interesting how it managed to do that. In fact, the difference is only incompletely described with the term "increased resolution", because the CDt sounded almost as spacious and detailed as the CD Xt



▲ The illuminated system remote control for Cyrus-Kom.

Signature. However, there were two significant differences, as the latter defined voices and instruments more precisely from their acoustic environment, sharpened the edges around them and also provided a more precise front/back relation within orchestras. Thus the CD Xt Signature achieved more clarity and conciseness, while the CDt, in direct comparison, was hardly narrower, but somewhat more diffusely depicted, while e.g. guitars were not quite as physically and three-dimensionally outlined. In the high-frequency range, the signature offered a more precise definition, and the CDt almost seemed a bit over-polished.

The "Signature"-statement

However, the most striking advantage of the high-priced Signature was its more pronounced tonal intensity and denseness, which was expressed in more opulent colors and a sturdier fundamental tone, which thus more effectively supported the upper frequencies. Whereas the CDt painted with watercolors, the larger drive, though not quiet using oil, at least paints with opaque gouache pens. In "Secret O' Life" James Taylor, therefore, not only had the more sonorous but also a more intimate touch and an emotionally superior appeal to it.

Liza Minelli's lively, attacking "Old Friends", which tends to be slightly squeaky and intrusive, moved away further from the "danger zone" if read by the Signature, while also offering more substance. Having heard it for an extended period of time and then changing to the CDt under otherwise identical conditions, one misses some expression, energy and subliminal "feeling".

Of course Cyrus' CDt is a really good CD drive that works brilliantly in many systems, but the Xt Signature goes beyond that, sounds more high-end and more mature - for a big extra charge, of course.



▲ The identical looking back of the Cyrus drives offers only a few connections.

CAMBRIDGE AUDIO BUILDS A WIDE ONE

In order to have a quality reference device for our four CD drives, the almost 530 Euro costing CXC from Cambridge Audio was included. The CD drive with a 43 width features the S3 servo control system, which has been optimized for audio purposes by the manufacturer. Cyrus' equivalent is called "Servo Evolution Technology" and Pro-Ject called it "Blue Tiger".

Available in black or silver, the CXC impresses with its spaciousness, lightness and transparency. With its rather soft bass it doesn't quite reach the contouring quality of other devices, which are, however, also often much more expensive. The offered tenderness in voices makes it a surprisingly musical recommendation.



CYRUS CD T



around 1100 €
Dimensions: 22 x8 x36 cm (WxHxD)
Warranty: 2 years
Contact: Cyrus audio
+44 1480 410 900
www.cyrusaudio.com

Owners of a high-quality D/A converter or a good DAC in the amplifier can confidently entrust the „CD data collection“ to the smaller of the two Cyrus „transports“. The CDt makes the music sound three-dimensionally and homogeneously. We recommend not to save on the digital cable.

MEASUREMENT RESULTS

| | |
|-------------------------------------|------------|
| Jitter | 2.5 ns |
| Deviation from fs | -1 ppm |
| Amplitude of the data stream | 420 mV |
| Read-in time | 7 s |
| Information track disturbances | 0.5 mm |
| Surface disturbances | 0.6 mm |
| Power Consumption Stby./idle (with) | <2 W/3.3 W |

LAB COMMENT

The Cyrus CD t provides best values for sampling rate and jitter at the digital output. The scanning reliability could be better. The error correction seems to be designed weakly.

FEATURES

One coaxial and one optical digital output each; automatic repeat, program functions and switchable time displays via the illuminated remote control

STEREO-TEST

| | |
|--------------------|-----|
| SOUND QUALITY | 75% |
| PRICE/PERFORMANCE | |
| ★★★★☆ VERY GOOD | |

CYRUS CD T SIGNATURE



around 2100 €
Dimensions: 22 x8 x36 cm (WxHxD)
Warranty: 2 years
Contact: Cyrus audio
+44 1480 410 900
www.cyrusaudio.com

A CD drive made with expertise and finesse in all digital matters. Thanks to the efforts, the „Signature“ version of the simpler Cyrus drive is, although the measurements could lead to a different conclusion, clearly superior in sound quality which justifies the extra charge.

MEASUREMENT RESULTS

| | |
|-------------------------------------|------------|
| Jitter | 1.8 ns |
| Deviation from fs | -7.7 ppm |
| Amplitude of the data stream | 410 mV |
| Read-in time | 7 s |
| Information track disturbances | 0.5 mm |
| Surface disturbances | 0.6 mm |
| Power Consumption Stby./idle (with) | <2 W/3.7 W |

LAB COMMENT

The „target speed“ is maintained exactly, resulting in a very small deviation from the specified scanning frequency. Pleasingly low jitter.

FEATURES

One coaxial and one optical digital output each; automatic repeat, program functions and switchable time displays via the illuminated remote control

STEREO-TEST

| | |
|--------------------|-----|
| SOUND QUALITY | 82% |
| PRICE/PERFORMANCE | |
| ★★★★☆ VERY GOOD | |

ONE PUTS A LID ON TOP

The two CD drives offered by Pro-Ject are entirely different on all levels: technically, in price and also in sound.



The Austrian manufacturer Pro-Ject is known for its unique and clever components in compact design. Convincing sound like from high-quality technology, but without expansive cabinets is the goal. The trend towards central D/A converters, either as stand-alone devices or as part of pre- or integrated amplifiers, is being pursued very consistently. Consequently, Pro-ject makes, additionally to “streaming”, “media” and “Bluetooth boxes”, two purist CD drives for all the silver disc fans out there – and they could hardly be any more different.

The entry is the new CD-Drive DS2T, which costs nearly 580 Euro in black or silver. If you wish, you can give the “data package” a more homely appearance by means of wooden side panels available in three versions (walnut, eucalyptus, rosewood), costing 100 euros each. The DS2T pulls the discs through a narrow gap into its slot-in drive and displays the number of titles as well as the running times in large, illuminated dot matrix letters, which are easy to read, even from a distance.

“Trigger” inputs and outputs for the transmission of control signals are

▲ Pro-Ject’s CD-Drive DS2T is also available without wooden side panels, then costing 580 Euro.

available for seamless integration into complete Pro-Ject chains. With regard to the digital outputs, the DS2T offers, additionally to the usual coaxial and optical ones, an AES/EBU socket for balanced data transmission, which is rare in this price range.

This socket is of course also part of the interface-arsenal of the larger CD Box RS.



◀ After inserting the disc into the CD Box RS, it is fixed with a puck. Then the heavy lid comes on top.

For connection to Pro-Ject components having the corresponding feature, there is also a high-precision I2S interface built via LAN cable. The CD Box RS also has a text display that can be switched in the background color and repeat and shuffle functions that the smaller model lacks. The highlight, however, is the CD port of the top loader which is closed by a solid metal lid. After inserting and fixing the disc with a small, magnetically held puck, the CD Box RS, which is btw. also available in black, is closed like a pot.

The Austrians are particularly proud to point out that in their CD Box RS they have used a thoroughbred CD drive from the specialist Stream Unlimited to additionally promote its performance, instead of a multimedia/DVD drive, which is often used at this point.

Different in character

To achieve the best possible sound, it is absolutely necessary to connect the out-sourced power supply of the CD Box RS to the power outlet in the correct phase. This fact also plays a minor role for the DS2T, but a decisive one for the larger model. If the Euro plug is placed the wrong way round, it lacks some of the finesse and serenity that the CD Box RS is capable of.

TEST-COMPONENTS

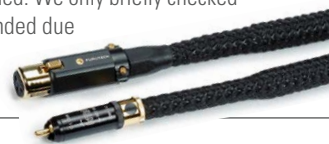
MULTIPLAYER/DAC: T+A MP3100HV
D/A CONVERTER: Brinkmann Nyquist,
MBL 1511F, T+A DAC 8 DSD
INTEGRATED AMPLIFIER: NAD D3020
PRE-/POWER STAGE:
Accuphase C-2450/A-47
SPEAKERS: B&W 800D3, DALI Epicon 6,
Dynaudio Special Forty
CABLE: HMS Suprema
(Coaxial & AES/EBU)

And that would be a pity, because Pro-Ject's "big" mini-drive pleases itself in the role of the precision worker, conveying tiny details, while at the same time keeping an eye on the big picture. In doing so, it relies on a calm, orderly and clear presentation of the musical events. While the DS2T e.g. with DelaDap's "Crazy Swing" bubbles up and spreads a party mood, the CD Box RS shows a more clarified character despite all the joy of playing. It allows the musical events to take a step back, expands the stage of the performances in

RCA OR XLR?

In order to experience the CD drives in top form during the listening tests, we mainly used the new „Suprema“ digital cables from the German specialist HMS, which are sinfully expensive but also devilishly good. We used them as coaxial cinch and XLR versions, the latter leading the data stream symmetrically (1 meter around 990/1090 Euro).

This proofed again what we had already learned from identical cable types from other manufacturers, namely that it is above all the quality of the cable that determines the result and not the type of connection. At least as far as „electrical“ processes are concerned. We only briefly checked the connection with optical cables, as they are less recommended due to their limited bandwidth. In any case, even a high-quality optical strip was clearly inferior to the HMS cables.



PRO-JECT CD BOX DS2T



from 580 €
(available in silver and black, wooden
side panels in three veneers plus 100 €)
Dimensions: 21 x7 x19,5 cm (WxHxD)
Warranty: 2 years
Contact: Pro-Ject Audio Systems
+43 1 544 858 0400
www.project-audio.com

Pro-Ject's small CD-Drive has a very quiet, reliably working drive and lets the music sound agile, crisp and homogeneous. A great partner for dedicated separate DACs or DACs integrated into amplifiers for those who value good CD sound.

MEASUREMENT RESULTS

| | |
|---------------------------------------|------------|
| Jitter | 1.8 ns |
| Deviation from fs | -38 ppm |
| amplitude of the data stream | 650 mV |
| Read-in time | 6 s |
| Interference in the information track | >0.9 mm |
| Surface interference | >0.9 mm |
| Power Consumption Stby./idle (at) | <2 W/2.6 W |

LAB COMMENT

Very low jitter at the digital output and a negligible deviation from the nominal frequency are accompanied by good sampling capability in the event of interference.

FEATURES

Three digital outputs - coaxial, balanced, optical, high-resolution dot-matrix display, external power supply, remote control with numeric keypad.

STEREO-TEST

| | |
|-------------------|-----|
| SOUND QUALITY | 68% |
| PRICE/PERFORMANCE | |
| ★★★★☆ | |
| VERY GOOD | |

PRO-JECT CD BOX RS



around 1050 €
(available in silver or black)
Dimensions: 21 x8 x21 cm (WxHxD)
Warranty: 2 years
Contact: Pro-Ject Audio Systems
+43 1 544 858 0400
www.project-audio.com

Thanks to its proper CD drive and precise data preparation, the top loader makes the music sound spatial, detailed and structured. The fourth star has been given for the rich equipment including a great display and the elaborate workmanship..

MEASUREMENT RESULTS

| | |
|---------------------------------------|------------|
| Jitter | 1.5 ns |
| Deviation from the fs | +49 ppm |
| Amplitude of the data stream | 674 mV |
| Read-in time | 6 s |
| Interference in the information track | >0.9 mm |
| Surface interference | >0.9 mm |
| Power Consumption Stby./idle (with) | <2 W/4.5 W |

LAB COMMENT

Very low jitter at the digital output and a negligible deviation from the nominal frequency are accompanied by good sampling capability in the event of interference.

FEATURES

Three digital outputs in coaxial, balanced and optical technology, bright, color-switchable and CD-text-compatible display, external power supply, mini remote control, repeat and shuffle functions .

STEREO-TEST

| | |
|-------------------|-----|
| SOUND QUALITY | 75% |
| PRICE/PERFORMANCE | |
| ★★★★★ | |
| EXCELLENT | |

every direction and makes music with a much more structured and minimally cooler diction. The DS2T's gripping attack, on the other hand, was highly appealing, but at the same time a little immature. It rendered Brian Flanagan's soulful "Flowers In The Window" pleasantly full-bodied, but after the change to the CD Box RS the stage opened up and there was considerably more air in the performance, which, not least for this reason, appeared more diversified.

Upsampling makes it perfect

And the more expensive data transmitter still has an ace up its sleeve in the form of its switchable sampling rate. Pressing the "Mode" button on the flat remote control, whose numeric keypad means that the toggle switches on the thick metal front panel are rarely going to be used, the Pro-Ject, made as solid a small safe, doubles the 44.1 kilohertz specified by the CD standard, then indicating "88.2 kHz" at the top of the display. Promptly, our D/A converters confirmed the upsampling by also synchronizing to this frequency.

The tonal advantages of this method, in which intermediate values are formed and phase errors are avoided due to later applied filters, were particularly evident in a more relaxed, more homogeneous midrange. Without upsampling, Flanagan's Irish bagpipe sounded overly whiny, indeed having a "pressed" note. This, however, dissolved into pure pleasure by switching to "88.2 kHz", which can even be done while playing.

Give it a try, a push of a button is all it takes. You will, then, certainly also be using the CD Box RS in upsampling mode, which adds the finishing touches



MATTHIAS BOEDE
special tasks

Why buy a complete CD player with integrated D/A-converter and output stage when you are already operating an external DAC for the many bit-providers of the modern media world? Then, all you need is a pure drive that reads the data from the silver discs, which many listeners don't want to miss, even in times of downloads and streaming. There aren't a lot of them out there, but STEREO has found four highly interesting CD drives from Cyrus and Pro-Ject, whose characteristics were sometimes really astonishing.

During the listening tests it was easy to forget that we were not hearing complete players, but pure data suppliers. First of all, every drive revealed its individual audiophile fingerprint, similar to a normal CD player. And secondly, it left its mark on the entire chain of devices that followed. Such results would not necessarily be expected from devices that „only“ read out bits from the CD, process and forward them, i.e. neither are entrusted with digital/analog conversion nor equipped with an analog output stage.

It was beneficial for the comparison that the

to its already skillful performance. Simpler equipment may react even more gratefully to the higher-frequency dataflow than our sophisticated reference devices.

The CD Box DS2T thus qualified as an absolutely capable data supplier for small

CD DRIVES - DATA PACKS WITH EUREKA-EFFECT

music from each drive was always at exactly the same volume, as the connected D/A converter determines the level.

What then came to our attention was definitely worth hearing. And exciting! Who believed that the contest would be fought somewhere in the depths of audiophile perfectionism, as digital data, after all, remains digital data, saw themselves pleasantly disappointed and surprised. While the inexpensive Pro-Ject drive already delivered very good results, that is convincing sound, both its big brother, designed as a top loader, and the simpler of the two Cyrus drives clearly set themselves apart from it. These two fought a battle at eye level, whereby the Pro-Ject was always one step ahead in terms of the offered lightness and fanning out of the sound images. The performances of the Cyrus CDt, on the other hand, always offered a pinch more warmth and emotionality in its expression. This certainly touches on individual taste preferences.

The most expensive CD drive, however, outperformed the others by far. When after a short, slightly faded piano intro in Brian Flanagan's „Whole Lot Of Livin“ the singer suddenly stands strikingly and crystal-clearly outlined between the loudspeakers, no other drive could achieve the stupendous immediacy and physical three-dimensionality with which Cyrus' CD Xt Signature made the bard appear abruptly before the diffuse background.

So the subject of CD drives is not a boring one, but one that captivates the listener. This is also possible without internal DAC and analog stage.

to medium sized hi-fi systems. The more elaborate "RS" version, however, gets audibly more information from the CDs, and is therefore recommended for higher purposes and finishes off the concept sonically.



◀ As a special feature, both CD drives offer a balanced digital output in addition to the standard optical and coaxial ones.



▲ These flat mini remote controls belong to the DS2T (l.) and RS CD boxes.

Brinkmann Audio Marconi Mk II

The New Classic

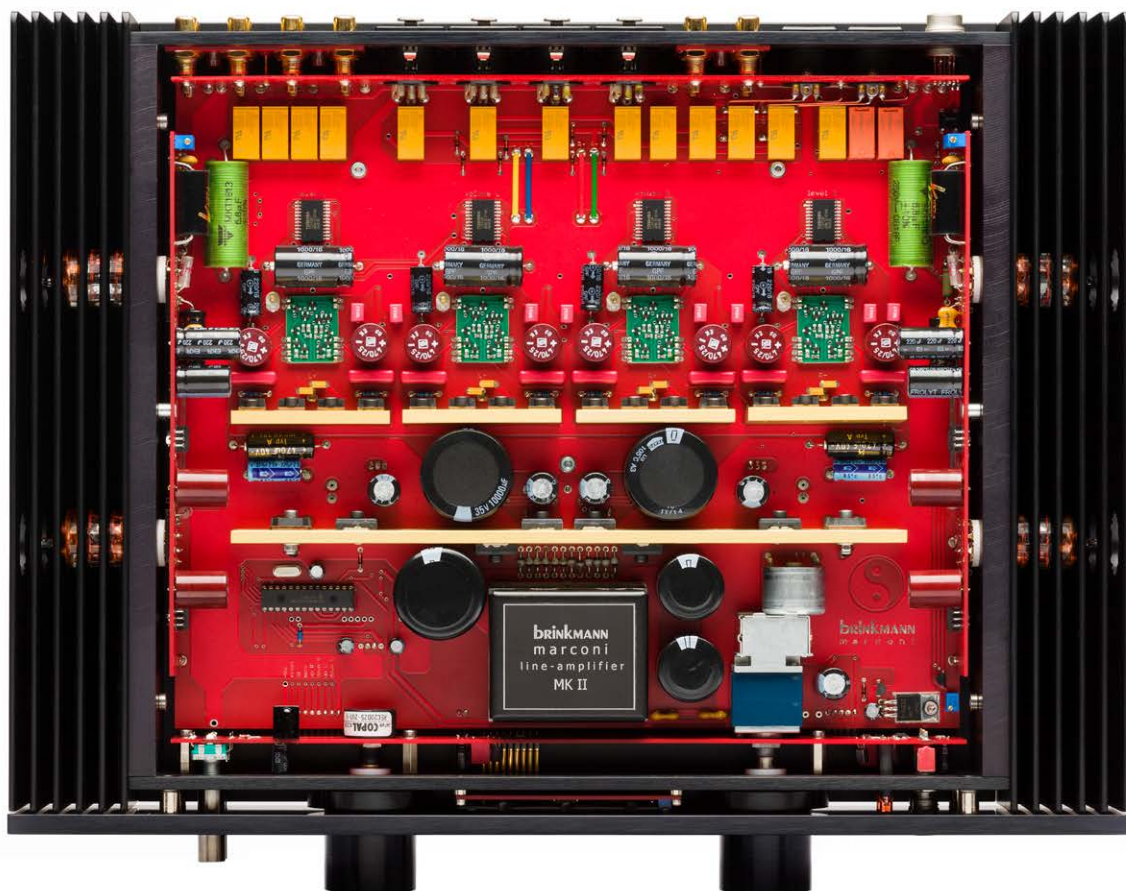


Photo © MichaelRasche.com 2018

In an industry where products often change like fashion, Marconi has defied obsolescence, remaining relevant for more than 15 years and becoming a High End classic. Now, Brinkmann proudly announces Marconi Mk II, destined to define a new standard of sonic excellence.

The “Mk II” redesign required two completely new Printed Circuit Boards and hundreds of hours of painstaking fine-tuning have yielded an instrument that communicates music with greater realism, enabling closer connection between system and listener.

Owners of the original Marconi can upgrade their unit to the Mk II standard.

brinkmann

"The World's Finest Turntables ... and more!"

brinkmann-audio.com

ALREADY THERE





▲ Progressive audio further optimizes the chassis supplied by Seas via active crossovers.



▲ Extremely broadband transformer meets Class-D-Amp – without generation conflict.

Progressive Audio boss Koenen waited patiently until someone could build him a chassis according to his wishes – and then equipped the Extreme 1 Active with it.

Word has got around that Ralf Koenen does not rely on common solutions off the shelf, but likes to tailor his products by hand – with more than considerable success. The new Extreme 1 Active is no exception, but quite the opposite.

From Seas for Progressive

The coaxial chassis, consisting of a large magnesium diaphragm for the mid/low frequency range and a fabric dome tweeter for the treble at its center, is, however simple it may seem at first glance, a small technical masterpiece.

With a series accuracy of 1% exclusively manufactured by Seas for Koenen, the chassis has been fitted a voice coil with an especially long stroke. In addition, the Essen-based craftsman has pimped the already ingenious piece of technology a considerable bit further for the active version.

With his active model, Koenen makes skillful use of the concept's potential by actively equalizing the already good and linear frequency response of the driver, while at the same time successfully fighting residual resonances and reducing the distortion to impressively low values, even on louder-than-usual levels. The dynamic scope is therefore even wider than in the passive version.

As expected, the Extreme 1 Active has, fortunately, not become a disco-speaker. This gem is made to forget the technology and devote oneself entirely to the music. Company director Ralf Koenen promises that a realistic bass and fundamental range will be reproduced even at low

volume levels and that all subtleties will remain audible right up to the limit of the speaker's capacity without compression effects – an assessment that we can confirm without hesitation after days of listening sessions. Naturally, the path to sound enjoyment leads through technology, but it is of no use if the ear isn't granted the final say during development. Let's still take another quick look at what makes good sound possible from a technical perspective: the active crossover was not built up digitally and equipped with DSPs like elsewhere. Koenen rather relies on a purely analog filtering with 18 dB edge steepness and so-called “**Butterworth filter** characteristics”.

The two symmetrically driven class-D-power amplifiers each deliver 100 watts and have a very compact design. If you want to give the high frequency range a little kick, you can slightly increase it by 1 dB using the toggle switch. Should a grounding problem occur, the ground lift switch helps to interrupt the loop without compromising electrical safety. The speaker provides

connection to the sources via RCA or XLR sockets, whereby Koenen uses an extremely high-quality and broadband input transformer from his own production, which is to operate linearly up to 100 kHz. The “current coupling technology with galvanic isolation of the input” should result in a low and even load on the connected sources. Problems such as capacitance, inductance and a constant characteristic impedance, which Koenen believes are widely underestimated for the elimination of reflected and stray currents, are a thing of the past. As a result,

KEYWORD

Butterworth filters:
Filter in which the frequency response has an even (smooth) response in the pass-band as well as in the stopband.

the sound image is to become significantly more precise and “acoustic ghost images” are to be eliminated.

The acrylic cabinet is specially baked and pressed as well as trimmed for low resonance with various struts. The optionally available and fillable stand has gone through the same production process.

Koenen has subordinated everything to the goal of making a loudspeaker which, due to an exact time/impulse behavior, completely fades into the background and lets the music unfold freely but precisely focused in the room. However, two important conditions should absolutely be fulfilled: the cover, which is actually more of a transport guard for the noble chassis, must be removed and an isosceles triangle should be formed between the speakers and the listener. The frequency response suggests a parallel alignment of the speakers for maximum tonal balance, but in practice also angling to the listener was an alternative – just try out what suits your personal preferences, as both variants have their appeal.

The environment

We chose our reference preamplifier from Accustic Arts, which was supplied with music and power symmetrically via Audioquest cables from T+A’s outstanding player 3100. The passing on of the signals was also done by the US cables, while the speakers were powered by cables from Essen. We then built up the little speakers in the 40 m2 listening room and marveled at how elegantly they moved through the test.

The first obstacle was Herb Alpert’s classic “Taste Of Honey”, but the Progressive Audio surmounted the hurdle of spatial representation, attack and tonal neutrality with ease due to its mixture of airiness, power, cleanliness in all frequency ranges and a never annoying, fully natural and warm sounding style. The stereo panorama was wide-ranging, yet all the musicians were finely divided, clearly separated

from each other in the room. Bass runs were easy to hear through and structured, details could be clearly discerned right down to the reverb and the slight humming of a musician in “Tangerine”, whereby the illustration even reached beyond the base width.

Only dainty from the outside

In “Bittersweet Samba” the presentation convinced with the gripping mediation of the finely woven rhythm structures. You have a soft spot for voices? Then I don’t have to say much about Ella Fitzgerald. The live-recorded 68’ album “Sunshine Of Your Love” shows the exceptional artist with an enormous range: orchestra on side 1, where she presents herself in the title song as a real power woman who screams her soul out of her body, full of energy, presumably having been a role model for Janis Joplin’s development of her own style. Fitzgerald’s size and body volume are very well perceivable and are credibly projected into the room, the soul-feeling carries you away.

Mrs. F. then also shows the variability of her voice on side 2, where she plays with the Tommy Flanagan Jazz Trio. In “A House Is Not A Home” she is sometimes airy, sometimes seductive and lascivious, sometimes energetic, then again whispering, here strong, there weak; she shows why she is considered being perhaps the best jazz singer of all times.

With Lincoln Mayorga & Collegues a direct-cut jewel lay on the great Technics turntable. The advantages of this recording technique, such as explosive and immediate dynamics and the live interaction of all musicians, come into their own here. When Jim Keltner works on his drums on “America” from the “West Side Story”, the last bit of pressure from the drums might be missing, but still it is absolutely gripping, because the structure of the reproduction is convincing – like the whole loudspeaker.

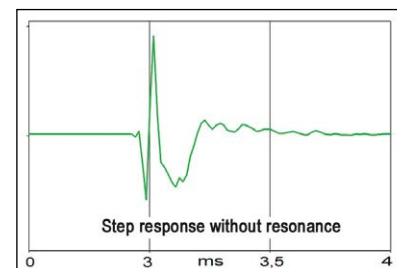
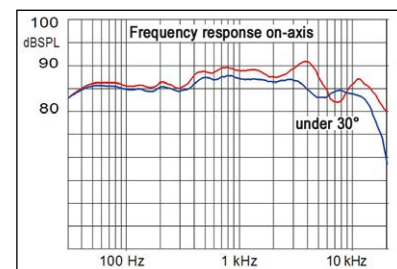
Michael Lang

PROGRESSIVE AUDIO EXTREME 1 ACTIVE

around 6900 €
(stand + 720 €, in black or white available,
other colors on request for an extra charge)
Dimensions: 19 x40 x35 cm (WxHxD)
Warranty: 2 years
Contact: Progressive Audio
Tel.: +49 20 54 9 38 57 93
www.progressiveaudio.de

A cleverly designed active loudspeaker with compact size that plays absolutely convincingly. Versatile and living-room suitable, it depicts every kind of music extremely spatially and emotionally gripping. A highlight far beyond its price range.

MEASUREMENT RESULTS



| | |
|------------------------------------|-------------|
| Lower cut-off frequency (-3dB SPL) | 41 Hz |
| Distortion factor at 63/3k/10k Hz | 1/0.3/0.3 % |
| Power Consumption Stby/empty. | (at) 7.5 W |

LAB COMMENTS

Frequency response balanced below 30°; very deep for the size. Distortion values low. First-class step response. Remove cover during operation! Installation tip: isosceles triangle, slightly angled.

FEATURES

Coax chassis, XLR and RCA connectors; automatic power-on, ground lift switch, tweeter adjustment +1 dB switchable; optional stand

STEREO-TEST

| | |
|--------------------|------|
| SOUND QUALITY | 95 % |
| PRICE/PERFORMANCE | |
| ★★★★☆ EXCELLENT | |

Lebenslänglich



unique high end audio

www.mbl.de



NOT A POSER

It is an archetypical American. So it's all about standing out? Only at first glance, because behind the imposing appearance of the VAC 170iQ hides clever, detailed and in part very filigree technology.

When I met Kevin Hayes, head of development and owner of the American amplifier manufacturer VAC – the abbreviation stands for Valve Amplification Company – at a trade fair in the USA a few years ago, he pleasantly surprised me: in the midst of all the hustle and bazaar-like competition, he was able to impress with quietly, competently and with gentle humor stated remarks about his tube amplifiers. It left me with a slight sadness as I went on, because as high quality and tempting as the amplifiers were, a test was out of the question, due to the lack of a German importer at the time. Fortunately this has changed since this year's HighEnd.

We decided on the entry-level model of the current product range: an integrated amplifier, which will cost around 11,000 euros at your trusted dealer.

This is certainly a price range where most of us have to first take a deep breath

and then ask ourselves whether there is not already a (too) large selection of alternatives in this price segment, and what special features the Sigma 170 iQ has to offer in order to gain a position in competing with the top dogs as well as the exotics. From the outside, a more than solid touch quality and the considerable weight provide a first impression that inspires confidence.

The VAC is not an equipment-miracle, but it is still surprisingly versatile. Four LEDs on the front panel show whether the power tubes are working without problems and whether the "iQ circuit", which is still to be explained, can perform its function of bias control and adjustment. As soon as the bias control recognizes aging tubes, but can still readjust their operating points to such an extent that they work properly, a green LED lights up. Only when nothing works

anymore or a tube is defective, the clever amplifier switches off in order to prevent possible further damage to the device, and signals this with a red LED.

Features and options

On the rear, our VAC has one XLR and three RCA inputs, one of which has been optionally equipped with a switchable phono stage for MM and MC systems. The impedances for the quiet MC systems can be adjusted in three stages at the top of the VAC; switching between MM and MC is done here as well. Additionally, there are outputs for connecting a power amplifier or a subwoofer as well as a loop-through option for home cinema fans on the rear. The feature-package is rounded off by the various taps for speakers. In any case, it is worth experimenting with all three options between four and 16 ohms to get the optimal sound. All sockets are solid and of high

mechanical quality. For the sake of completeness, a mute switch on the front and a plastic remote control for volume and muting are to be mentioned in terms of equipment, as well as the



◀ The plastic remote control is simple in design: loud/quiet, muting – that's it.



◀ A rather wild looking mix of boards and some cables. The quality of the components is consistently high.

fitting their budget and subsequently moving with the result into the measurement lab to have the correctness of their theoretical considerations confirmed. Various inconsistencies on the measuring bench can then be smoothed with manageable effort. Only then the resulting product is heard, and when satisfied, it goes into production. At VAC they don't take the easy route. Once the concept is in place and initial audio samples have been successfully completed, components in some assemblies are selectively replaced. This process is then repeated until they are sure to have achieved the best possible sound within the given limits. A time-consuming process, yes, but assuming that people with trained ears work at VAC, a promising one.

The thing about the bias

The special feature of the VAC bias circuit is that it takes into account the quiescent current in real time even with changing heat conditions of the tubes, varying mains voltage, different volume levels and even aging tubes, i.e. further parameters than just measuring the tube once in idle mode without music. This system was patented by Hayes, who founded his company in 1990. The most attractive effect of this system, besides an always optimal sound, is a significantly longer lifetime of the tubes.

Large caliber

If an amplifier is in the five-digit price range and is not explicitly recommended by the manufacturer for very specific loud-speaker concepts, it must prove itself on

exchangeable power cable – an option that one should consider very seriously in order to be able to fully exploit the sound potential of this amplifier.

One of the points that astonished me again when I met Mr. Hayes this time, was his completely non-dogmatic handling of the way he conceived his amplifiers.

It doesn't have to be a specific tube, and especially not a hyped one like the KT 150. Four Russian KT 88 Gold Lion are used in the iQ 170, which are tested, measured and matched according to various parameters at VAC. He doesn't even think much of the war of faith about the effect of a negative feedback loop; he gives all his creations a low dose of this distortion-reducing medicine. Perhaps you have already heard that point-to-point wiring is supposed to be superior to a PCB-equipped solution? Here, again, Hayes keeps both feet on the ground. Besides some neatly equipped boards there are also various cables inside the 170er, which appear quite random in their course. The American also shows his pragmatic side when it comes to volume

control, using a selected, motor-driven, blue Alps potentiometer. Inspired from his listening experience, it sounds better this way than with any electronic solution he has heard so far. You believe him all the more after realizing that even in his most expensive preamplifiers a potentiometer is used – although it is one that costs him almost 1500 dollars in purchase. Please don't ask me, which amount changes the owner for the complete preamplifier...

Components are heard

There are quite a few developers in the hi-fi world who design their products on a computer, ordering components in the quality

Solid rear panel jacks and separate taps for speakers with four, eight or 16 ohms nominal impedance that can be safely tested. ▶





▲ The Class A phono stage is completely implemented as a triode circuit, sounds excellent and is amplified for MC systems by an extremely high-quality and low-noise transformer by 20 dB.

common, high- or highest quality loudspeakers – in this case, amongst others, on one of our references, the 800 B&W.

After a fitting break-in time of almost 100 hours in the listening room, already the first notes revealed that there was not only someone who knew his trade, but who was a proper sound artist at work here. The lightness with which Johnny Cash's "One" was projected into the room was extraordinary. And because the STEREO Listening Test LP II caressed our ears so fascinatingly via the very low-noise but all the more powerful phono stage, using the Transrotor Rondino Nero with the in-house Figaro pickup, we left aside the digital sources almost entirely.

Those who claim tube amps had no

control over loudspeakers will be taught better with the VAC 170 once more. A damping factor in the three-digit range indicates from lab-sides what is possible in terms of sound. The floating elegance with which even exhausting pieces such as "If I Only Could" by the Blues Company are blasted into the room without sounding either vulgar or unclean, make even experienced and powerful transistor competitors sweat – and the listeners ponder. Doug MacLeod's "Rosa Lee" sounded intense, rhythmically precise and gripping, in the bass with the right mix of punch, accuracy and swing. At outside temperatures of almost 30°, Lyn Stanley's story about "A Summer Place" sounded more comprehensible than ever.

But even in pop and rock the VAC wasn't shaken by anything, even at high levels that the B&W as well as the DALI Epicon 6 are easily capable of. Good pop music, usually not known for ingenious recording techniques, got under your skin e.g. with Eurythmics.

Joe Bonamassa, this time on the road live with interpretations of English blues legends at the "Old Royal Naval College", rushed tirelessly over the guitar strings to underpin his claim to the title of "Speedmaster". The VAC managed to breathe soul into the slightly towards the sterile and technical tilting music and to convey that the audience was completely enthusiastic despite or perhaps precisely because of the current guitar superstar's love of technique. Just like we were of the VAC iQ 170.

Michael Lang

Solid toggle switches for on/off, muting and home cinema function, each indicated by an LED. ▼



VAC SIGMA 170i IQ

from 10990 €

(Phono MM/MC optional, 1590 €; XLR input 890 €; Glass tube cage according to CE standard: 890 €)

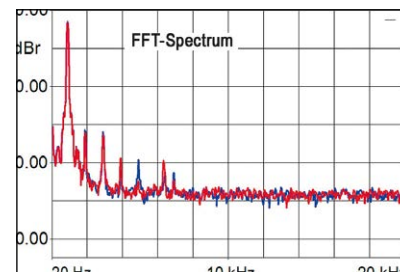
Dimensions: 46 x21 x48 cm (WxHxD)

Warranty: 2 years

Contact: Valve Amplification Company
+1 941 952 9695, www.vac-amps.com

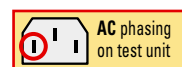
The US tube specialist is celebrating an extremely strong debut on the German market with this outstanding integrated amplifier, which drives even sophisticated loudspeakers without any problems. Excellent optional phono stage.

MEASUREMENTS RESULTS



| | |
|--|--------------------|
| Continuous power (8 Ohm / 4 Ohm) | 64 W/62 W |
| Pulse power 4 Ohm (1kHz) | 80 W |
| THD at 50mW/5W/1dB Pmax | 0.08 %/0.1 %/0.2 % |
| Intermod. 50mW/5W/1dB Pmax | 0.08 %/0.1 %/0.2 % |
| Signal to noise ratio at 50mW/ 5W | 63.7 dB/80.2 dB |
| Intoxicating. Phono MM (5 mV for 5 watts) | 70.1 dB(A) |
| Signal to noise ratio Phono MC (0.5 mV for 5 Watt) | 68.7 dB(A) |
| Attenuation at 4 Ohm (63Hz/1kHz/14kHz) | 66.3/50/142 |
| Upper cut-off frequency (-3dB/40hm) | >80 kHz |
| Crosstalk Line 1 > Line 2 | 70.2 dB |
| Synchronization error Volume at -60dB | 1.2 dB |
| Power Consumption Stby/idle (at) /215 W(223.5 volts) | |

LAB COMMENTS:



Good performance, low distortion, low noise, high bandwidth and an enormous attenuation factor for a tube amplifier.

FEATURES

Four inputs, one with optional Phono-MM/-MC; XLR input at extra charge; Pre-Out, home cinema loop; remote control; fully automatic bias control.

STEREO-TEST

SOUND QUALITY 98%

PRICE/PERFORMANCE

★★★★☆
VERY GOOD

PIEGA
S W I T Z E R L A N D

COAX 711

TOP PICK: »This floorstander from Switzerland boasts one of the most impressive drivers in all of high-end audio: a coaxial ribbon of PIEGA's own design and construction. Mounting a ribbon tweeter inside a ribbon midrange gives this driver perfect coherence no matter what the listening position or height.«

Robert Harley, *The Absolute Sound*,
Buyers Guide to Loudspeakers 2018



GO FOLLOW US:

facebook.com/PiegaSwitzerland 
@piegaswitzerland 

PIEGA SA . Bahnhofstrasse 29, CH-8810 Horgen, Switzerland . mail@piega.ch . phone +41 44 725 90 42 . WWW.PIEGA.CH

PLUG IN... AND READY?



Believing the advertisement of many manufacturers, building a streaming network is easy. In reality it often turns out to be different: abbreviations, sinister TCP/IP addresses and obstinate technology spoil the fun. We explain all the necessary basics and show you how to avoid demotivating pitfalls.

It's been exactly ten years since the streaming age hit us: in August 2008 we presented all Linn network players "en bloc" and, at the same time, had T+A's E-Series with the network-compatible "Music Player" in the editorial office. A shock! Not only because Linns Klimax DS ranked among the best sources we had heard up till then, but also because we were rather clueless for the first days.

Together with their streamers, the Scots brought us a box full of WLAN routers, switches, LAN strips, a "PDA" (the Neolithic ancestor of the tablet) and a small box called "NAS". Many of these were unknown to us, and it took us some time to get a grip on the equipment. Since then, the technology has done some huge evolutionary leaps forward. Sound formats such as DSD and MQA were added (see

page 16), and streaming in the local home network faced competition from web-based subscription services. Many things are smoother nowadays, especially the controls. However, some things have remained the same, as for example that newcomers are faced with a mass of abbreviations and computer terminology. We want to clear up this mess on the following pages.

THE HEART OF THE CHAIN

The central term is “streaming”, which describes all forms of signal transmission. No matter if you are sending binary data across the network or copying image and video files from a USB stick to your computer, these are all variants of the same technology. In a HiFi-environment, the executing device is, of course, the streamer. While the Anglo-Saxons also call it renderer (in the meaning of “translator”), the pseudonym “network player” has become established in Germany. However, this is only partially correct. Of course, the network plays a decisive role, but the streamer is first and foremost a media player that transfers formats such as FLAC, WAV or MP3 into S/PDIF signals that can be processed by the D/A converter. Whether it gets the data from the network, gets it sent via Bluetooth from a smartphone or loads it from a USB stick, doesn’t matter for now...

Either way, the streamer depends on data providers. In order to be able to communicate with them, there must be a universal “language” that all devices understand. It was developed under the name UPnP (Universal Plug and Play) already in the eighties and is valid until today. Just imagine a football coach, who is assigned to train players from all over the world.



▲ A typical streamer: Cambridge Audio’s CXN V2 uses the UPnP network-standard. Other streaming devices recognize it automatically and interaction is possible without the user having to type in cryptic addresses anywhere.

At first he will limit himself to teaching his boys or girls basic terms such as “forward”, “to the left” or “you’re offline, damn it”. UPnP is like this trainer: it’s a set of basic instructions that cover all situations of device interaction. Far too extensive, said a consortium around Sony and Intel in 2003 and restricted the commands to the DLNA standard (Digital Living Network Association). DLNA is therefore nothing else than a multimedia summary of the UPnP instruction set. And it works perfectly: if you only have DLNA devices, the HiFi network often even works a bit faster and more stable.

Thanks to this standardization, all the user actually has to do himself is to plug

all the necessary devices into his router via a LAN cable. The network distributor now briefly takes control, processes each device individually and assigns it a network address that is permitted according to its TCP/IP protocol (see box). If the streamer’s remote control app is then started it should find the network player.

However, you won’t be able to hear any music yet. As it was said above, the streamer depends on a musical data supply. Typically, a NAS (Network Attached Storage) is used, though also Windows, macOS or Linux computers could take over this task. A NAS is, however, permanently dormant in power-saving standby mode, only waking up on request of the streamer, within seconds. Desktop computers are far hungrier for electricity and also slower. NAS drives save further power with their comparatively modest processors, which are still fast enough to provide several network players with music at the same time.

KEYWORD

SWITCH:

A switch expands the network with additional LAN connections. Unlike the router, it cannot assign TCP/IP addresses or perform comparable administrative tasks.

IMPORTANT BASICS: WHAT IS TCP/IP?

The two abbreviations stand for the Transmission Control Protocol (TCP) and the Internet Protocol (IP). Their current foundations date from the seventies and even if you don’t know what the abbreviations mean, you have most likely already seen the corresponding addresses. These protocols assign network participants identification numbers according to the pattern 192.168.xxx.xxx, whereby the first two digits are basically always identical and originate from a nerdy joke. These addresses work like telephone numbers and must be unique in the home network: if you, for example, assign 192.168.0.101 to your NAS, you can enter this sequence into the address bar of a web browser (Chrome, Firefox, etc.) on your computer, to easily access the web control screen of the device. Many network components have this kind of hidden control level.

Fortunately, DHCP (Dynamic Host Configuration Protocol) is part of TCP/IP: this tool enables the router to automatically assign a

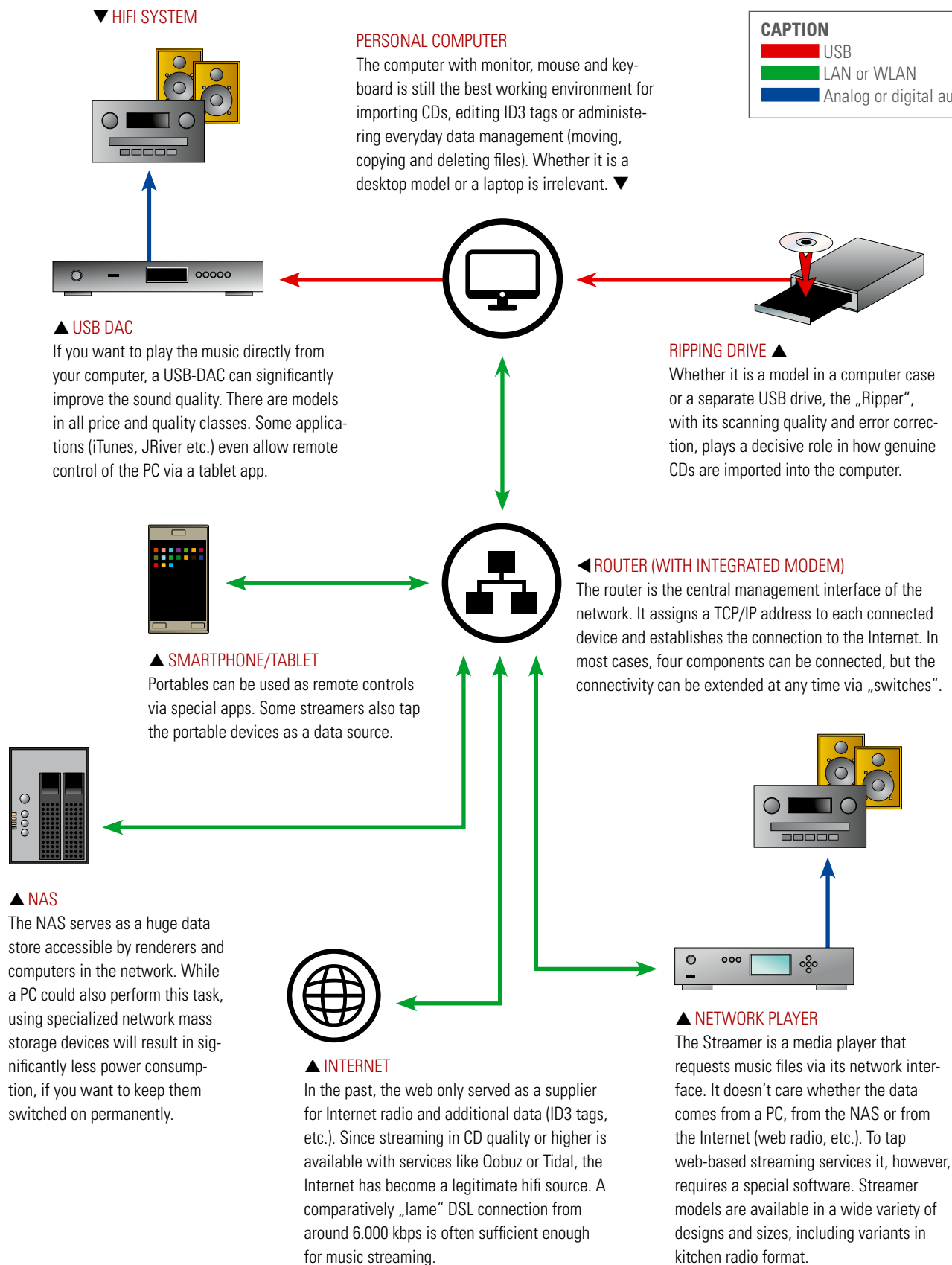
network address to connected devices and to communicate this to all other participants. If DHCP has been activated for all devices (which is nowadays standard in the factory state), the user is off the hook. However, this raises a new problem, because occasionally one needs this important address. There are different ways to find it out: in the menu of many streamers there is a tab called „Network Status“ (or similar) where you can access the sequence of digits. If you open Windows Explorer and select the „Network Environment“ in the navigation column on the left, all active devices are displayed in the main window. Right-clicking on the streamer or the NAS and selecting „Properties“ you get the same address. You can also log into the web mask of the router. There is a DHCP register which lists the addresses of all active participants. Finally, you can also download an app like the free „Fing“ on a smartphone or tablet that sniffs through the network and shows all found participants with their TCP/IP addresses.

WHERE TO PUT THE DATA?

Feeding of sound formats is fairly simple: under Windows, NAS drives can be controlled in the Explorer like directories of the computer. You can find them on the left in the navigation column under “Network”. Apple users must select “Go to > Connect to server” in the Finder bar and enter the address of their NAS. The ripped or purchased music can then be simply copied into the gigantic storage of the multimedia or music directory. The instructions for the mass storage tell you where exactly the data belongs. These are usually available via download from the manufacturer’s homepage.

Special music NAS such as Audiodata’s music server, Naim’s Core or Melco’s

THE TOPOLOGY OF A STREAMING NETWORK



models also offer the possibility of importing CDs directly. Naim and Melco have the additional option of importing large USB mass storages without the detour via your computer. Simply back up your music collection from your desktop PC onto an external hard drive, plug it into the NAS, import everything, and enjoy the fact that you have, at the same time, generated a backup copy.

In terms of sound, too, such special computers often have the edge. The models of the three providers mentioned are specialized to music reproduction. They don't even know features such as web-sharing. Since their operating systems have been reduced to basic functions, they can work stress-free. Standard NAS like those of QNAP or Synology burden their already weak processors with many additional tasks. The investment in a proper HiFi NAS can be worthwhile for audiophile music lovers.

ROUTER REQUIREMENTS

And also for the router applies: the fewer devices are active in a network at the same time, the more relaxed can the central management unit pass around its instructions. You should therefore keep the complexity of your home network to a minimum. Should the rest of the family protest against an impending internet lockout, it is possible to set up a small hi-fi **subnet** using a separate router. Our listening rooms are isolated from the huge publishing house network in the same way. Your local computer shop around the corner should be able to explain to you how the installation works.

Since there are no specialized hi-fi routers, you can otherwise have little influence on this device. We prefer AVM (FritzBox) models, which have proven to be extremely reliable in our listening rooms and amortize their additional costs through longevity, high speed and intelligent features. Another tip are Netgear's large routers, which can also establish stable radio connections over long distances due to their many antennas. We nevertheless do not deviate from the core statement in the "Some Words About Wlan"-box: Wlan is only suitable for audio transmission in absolute emergencies!

Nowadays there is also with Streamers a choice of different versions: standard



▲ A NAS stores huge amounts of music data (often several terabytes) and can make it available to several network players simultaneously via the home network. Models like Audiodata's music server (fig.) or Melco's N1A can even rip CDs themselves. Others are fed from the computer or via USB hard drive.

models such as Cambridge Audios CXN V2 or Yamaha's NP-S303 combine their versatile media players with a D/A converter. Cheaper devices such as Sonos' long-running Connect, Bluesounds formidable Node2 or Elacs Discovery have their own DACs, but are also suitable as an upgrade basis. Accustic Arts Tube DAC II allows a Node2 to play eye-to-eye with devices of the 7000 Euro class. Pure streaming bridges are fully specialized in this area. Auralic's Aries models, for example, have no D/A converters. Instead, they concentrate on their comprehensive knowledge of formats and offer outstanding app controlling – a separate DAC is however mandatory in this case!

PUT IT ON THE INDEX!

Once a new network player is up and running, the first thing it needs to know is which data pool to obtain the music from. If you want to, for example, use a web streaming service, you must enter your account data in the device settings. Typing cryptic passwords is usually much easier with the app. However, if you want to stream music exclusively (or in parallel) from the NAS, there are two basic approaches:

One of the many secrets of Apple's iPod was that it browsed the entire music library and compiled the meta-data of all titles in a quickly retrievable table. It was then able to display the collection alphabetically by artist, album or genre and

KEYWORD

SUBNET:

The name is to be understood literally: a subnet is a small network of its own within a more complex network.

respond quickly to search queries. This analysis of music is called "indexation". Each NAS drive today has at least one musical index service pre-installed. Twonky and Asset are among the more prominent examples. Classic streamers like Linns 2008 DS or Marantz' NA8005 can call upon such UPnP index services (they are displayed as a source in the app) and retrieve the contents tables. The sorting criteria are specified by the index service of the NAS. Usually one can influence the display and the available sorting criteria in the web mask of the minicomputer (enter IP address in the browser).

This method is wonderfully simple, but it has two annoying side effects: music may have been added or deleted since the last connection to the NAS. Therefore, the table must be recalled each time the streamer contacts the NAS, giving the operation, especially with large music collections, a little sluggish touch. In addition, the indexing service may send more table entries than the streamers and app process. This occasionally leads to disconnections. Then you have to go back to the app's source register and select the UPnP index again.

More and more manufacturers therefore prefer to implement their own indexing services in their devices. The classic example of this is the Sonos concept, which has always managed its music collection according to its own gusto. This procedure is usually faster and more

stable, while also allowing for some colorful enrichments: since Naim's streamers also index themselves, they know the contents of the music library, enabling them a comparison with the service provider Rovi, who contributes additional title information (digital booklets, web links or artist photos) via the Internet. At Elacs Discovery, it is the paid service provider Roon that adds highly detailed metadata, biographies and unique sorting options. As grand as it sounds, this contains two of the most treacherous hurdles you can find in a streaming network:

In order for the streamer to scan and analyze the contents of the networked NAS, it must know which directory the music is located at. To do this, one must first define at least one storage location, which is to be permanently monitored, in the settings. This requires the entry of a network address according to the pattern "192.168. xxx.xxx\music" or "QNAP\public\music". We strongly recommend to do this basic setting on your computer. Sonos, Bluesound, Linn and some others have a desktop version of the remote app. If this is missing (e.g. in Auralic), finding the "backslash" ("\") can turn out to be a challenge, especially on Apple portables. In such cases, we have already helped ourselves by writing the necessary input on a PC and subsequently sending it to the portable via e-mail. Everything else can then be done smoothly via "copy and paste".

The second obstacle is that the default directory path must not change. Otherwise the streamer will not find the music. If, for

example, a new router is bought, it automatically assigns new TCP/IP addresses to the found network participants. The same can happen if it is reset for some reason – the directory paths must be checked and re-entered if necessary.

If you are already annoyed by all of this and don't fancy messing with computer directories, network addresses and the like at all, there's an alternative for you: get a music server! Machines like Burmester's 111 or X-odos' "xo|one" combine network player and NAS in one. It's even cheaper with devices like Auralics Aries Mini or the Altair. Both are delivered as bare streamers, but can be extended to servers via an optional hard disk. All you need is a simple WLAN connection for control via tablet or smartphone. The three musical NAS specialists from Audiodata, Naim and Melco mentioned above could also be a simplifying alternative: if they are connected via USB to an optional D/A converter, they can also act as media players and replace the streamer.

It is already becoming apparent that NAS drives will lose importance in the future: more and more streamers are capable of indexing multiple terabytes of music collections directly from connected USB media. We are ourselves increasingly operating media players in this refreshingly uncomplicated way. Cambridge's CXN V2 even combines this with an UPnP service. It makes the music data of "its" USB drive available to other streamers in the network – even across manufacturers. Well, if that isn't good news for the computer opposition!

SOME WORDS ABOUT WLAN

Everything could be so wonderful: in the brochures of many manufacturers, the components of the HiFi chain do their job wirelessly. With streaming, this works via WLAN. All you have to do is select the desired network router from the network player's menu, enter the password (called SSID, usually written on the back of the router) and already you're wirelessly connected. However, this type of connection is fragile. Just a single door between the router and streamer can reduce the radio intensity to such an extent that an audible sound deterioration occurs.

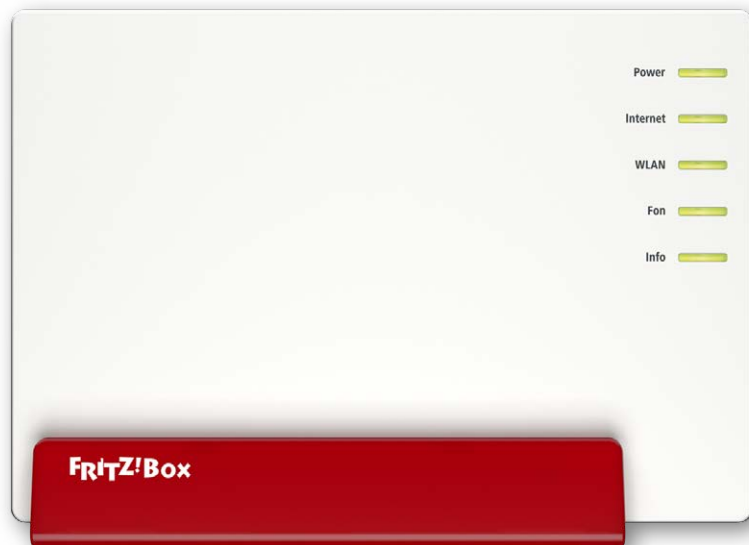
Therefore, for us, the following rule applies: WLAN may be absolutely sufficient, in order to connect a little multiroom-speaker somewhere in the 5th-something side room. For the central HiFi chain, however, LAN is required! If the path from the router to the system is extremely long, also a single high-quality cable can be laid, using a „splitter“ to separate the signals in the listening room. Even inexpensive LAN cables sound better than the most stable WLAN network. If fixed cabling is impossible, PowerLine adapters (network via home power network) are a viable alternative. By the way, it doesn't matter that the tablet for controlling the system is connected via WLAN, as no audio signals flow here.

WHAT IF IT'S JAMMED?

It can always happen that problems appear somewhere. Sometimes a streamer is not recognized by its own app, another time the NAS disappears into digital Nirvana. In that case you should first of all check the settings of both devices. Not only router resets, but in rare cases also updates can cause Streamer or NAS to forget their base settings. Often the clumsiest of all IT wisdoms also helps: "have you tried turning it off and on again?" And don't forget to restart the router. It keeps a table of all networked devices and remembers them for a long time. If you occasionally give your WLAN data to guests (which is not uncommon today), a considerable amount can quickly accumulate. And if the list of its DHCP contacts becomes too long for the router, it will start to become noticeably slower.

DATA COLLECTION

The last big topic to which we must devote ourselves is the acquisition of data or music.



◀ AVM's Fritzboxes define the high-end class of DSL-capable network routers. The devices are excellently manufactured, durable and work extremely reliably.

The best way still is **ripping** your own CDs. This involves importing the optical data carriers into the computer and converting them into one of the common sound formats in the same process. The lossless FLAC has established itself as de facto standard in the hi-fi community and is supported by every streamer. The necessary programs such as “Exact Audio Copy” (Windows) or “XLD” (macOS) are free of charge. The strongest and simplest application is called “dbPoweramp” (Windows/macOS) and costs around 33 euros. However, it also offers the integration of several meta-services,

including the outstanding AMG database. These tagging services are required if you don’t want to manually type in the names of all artists, albums and tracks. Many service providers (including AMG in particular) also supply high-resolution cover images. And if there is a missing entry after the ripping process, one can also manually edit the ID3 tags afterwards. A fast and rather intuitive application for this is MP3tag, which is available free of charge for Windows and macOS. Another tip is

KEYWORD

RIPPING:

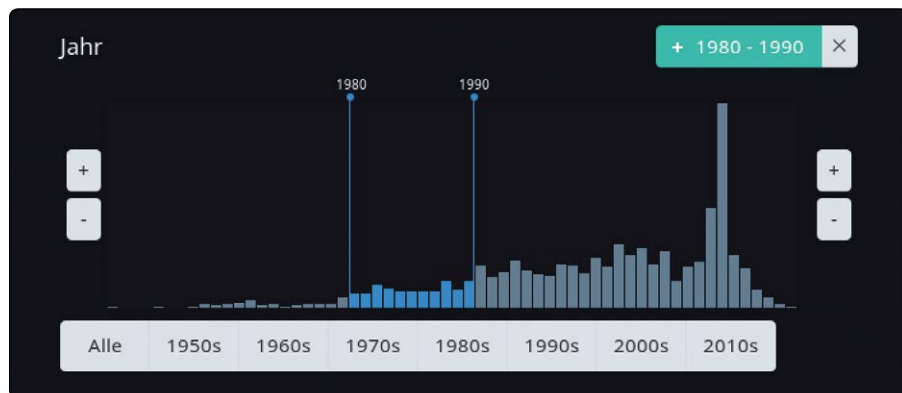
Since the S/PDIF format of the CD cannot be processed directly by the computer, the titles must first be extracted from the medium and converted into a usable sound format (FLAC, MP3, etc.).

Illustrate “PerfectTUNES” (Windows/macOS, around 31 Euro), a collection of small programs, which, among other things, search for missing or faulty tags and covers, compare them with the AMG database and add them to the music files.

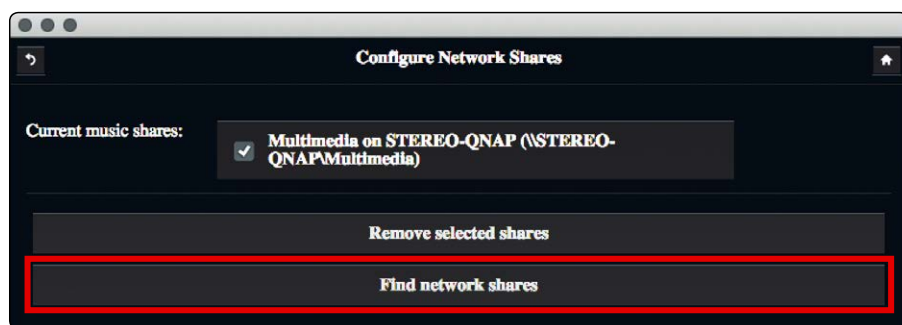
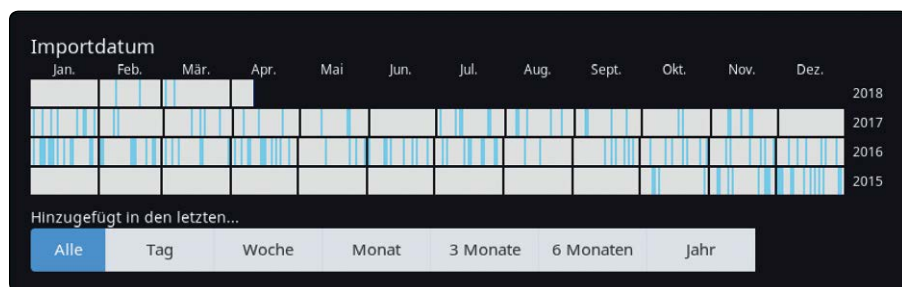
Unfortunately, there do not seem to be ideal prospects for ripping. Already one finds less and less suitable USB drives in the respective shops. Right now we can only recommend the external models of ASUS and Pioneer. These can, however, not compete with the outstanding quality of Plextor’s Premium II series.

In the not too distant future one will therefore have to buy the music digitally on the Internet. This is possible in shops like Qobuz and Highresaudio and even has an advantage: both suppliers have a large selection of high-resolution music in their assortment. After the purchase you download the data onto the computer, move it to the music directory of the NAS, and after a few minutes (after all, the indexing has to be discovered first) the new hires-songs are ready to go. By the way, you are not “limited” to the hires version: for portable and other mobile purposes, it is often possible to download a variant in CD quality and MP3 files in parallel.

Carsten Barnbeck



▲ The strength of indexing by the streamer itself becomes particularly evident in the Roon concept: since it analyses the titles meticulously, it offers not only extensive meta data but also an option for statistical evaluation of the music collection (below) and can filter titles, e.g., by year (above). More companies should take this comfort as an example!



▲ Many newer streamers (here Bluesounds Node2) take care of the music indexing themselves. For this purpose it is necessary to assign the app to the cryptic directory path of the NAS. However, Bluesound also offers an automatic search (frame), which works reliably at least with UPnP standard mass storage devices like those of QNAP.

WHAT ARE ID3 TAGS?

Metadata, i.e. additional information (artist, cover image, web links, etc.) attached to a music file, must adhere to a formal framework so that it is understood by as many media programs and network players as possible. This standard is called ID3 (IDentify MP3), and it was introduced – as its name suggests – together with MP3. However, it is now used for almost all sound formats. Because the multimedia possibilities of MP3 have constantly evolved since the early days of MP3, the ID3 tag also had to be updated in various stages. The current standard v2.4 allows, for example, multiple entries that can assign a single song to different genres. However, streamers often use the outdated (but proven) v1.x variants, which isn’t a problem since ID3 tags are downwards compatible, meaning older players can read current tag versions. They simply ignore the newly added possibilities (such as multiple genre tags). For more information, visit www.id3.org.

GLOSSARY: TECHNICAL TERMS EXPLAINED SIMPLY

Sampling rate: Indicates the frequency with which “samples” are taken from an analog signal during its digitization. The higher the sampling rate, the more precisely the original is digitally reproduced. At 44.1 kHz, i.e. 44,100 samples per second, a 5 kHz oscillation already consists of only eight samples (44,100: 5,000). If the signal is sampled at 96 kHz, on the other hand, it’s 19 samples (96,000: 5,000). Since an oscillation always consists of one positive and one negative half wave, at least two samples are required to display it digitally. The maximum frequency a digital medium can reproduce is consequently half its sampling rate. A CD can therefore play a maximum of 22.5 kHz (44,100: 2), the DVD manages 48 kHz (96,000: 2).

apt-X: A lossy sound format that, unlike MP3, is not based on a computationally intensive spectral analysis, but uses a series of fixed mathematical calculations that reduce the output signal in a fixed 4:1 factor. Due to its fixed operators, the encoders and decoders work very fast, which results in small computational delays. Since it requires little processor power from the devices, the format is also extremely power-saving. Besides the classic aptX, which shrinks a CD audio file from 1411 kbps to 352 kbps, there is the newer aptX HD, which reduces signals from 24/48 (2304 kbps) to 576 kbps.

Bit: (“Binary Digit”) The smallest unit in the binary digit system. Bits are combined to so-called “data words”, whose “word length” determines the set of values that can be mapped: With four bits 16 values can be displayed (0 to 15), with eight bits 256 values (0 to 255). The 16 bits of the audio CD can capture around 6500 dynamic levels.

Byte: The byte is a group of eight bits – a relic from the early days of computer technology. Although computers now work with 32 or 64 bits, the byte with its 256 values that can be mapped is still relevant because many basic units of IT are managed with it. The ASCII character table is based on byte addressing – even

modern high-performance PCs therefore “only” know 256 different characters. The memory sizes are also still in bytes. A computer with one megabyte of memory can manage eight million bits.

Bitrate: Data transfer rate, expressed in bits/second, for example “100 Mbits/s”, i.e. 100 megabits or 100 million bits per second. For further information go to “kbps”.

Bluetooth: A power-efficient radio standard for short transmission distances. Unlike WLAN, it is highly standardized. The devices automatically detect other components and can connect easily.

D/A Converter: Often also referred to as “DAC”. A special device or assembly within a component that converts digital data into electrical voltage. The DAC chip used determines which data formats, bit depths (word widths) and sampling rates the device supports. Almost all common chips process S/PDIF up to 24/192, newer models also accept DSD. In this context, “data format” must not be confused with “sound format”: formats such as FLAC, MP3 or Apple Lossless must first be converted to S/PDIF by the media player before a D/A converter can process them.

DLAN: Also called “Power-LAN” or “Powerline” by some manufacturers. A network connection via the power sockets or the existing electrical installation.

DLNA: (“Digital Living Network Alliance”) An organization for the certification of network devices initiated by manufacturers such as Hewlett Packard, Sony and others. DLNA is based on the UPnP network standard, but limiting its command scope to a more reasonable level. Further, DLNA devices are divided into functional groups. A DLNA network device therefore knows immediately whether its equally certified partner is a streamer or a color printer and offers appropriate options. This purpose-oriented communication makes DLNA networks more stable and less susceptible to conflict than UPnP.

DHCP: (“Dynamic Host Configuration Protocol”) Automatic IP address assignment by the router for fast and uncomplicated identification of devices connected in the network.

Ethernet: The term stands for a wired network (LAN or WAN) and is by far the most common transmission standard for computer networks. Nowadays, most components offer fast Gigabit LAN (transmission of one billion bits per second). However, due to external influences on the signal path as well as a number of switching processes in the computer and router, the real speed exploitation is usually much lower. DLAN is also one of the Ethernet technologies – unlike WLAN, which requires its own constantly evolving standard due to its complex security technology and authentication (password query).

DSP: (“Digital Signal Processor”), occasionally also “Digital Sound Processor”. This is a processor optimized for audio signal processing. Depending on the device, these signal processors are additionally specialized. For example, there are DSPs that only decode sound formats, but also those that calculate complex mathematical room equalizations. Although they are usually clocked much slower, they are superior to many CPUs in audio calculations.

HD: (“High Definition”= high resolution) Meaning a data resolution above the generally agreed standard. For music, this applies to everything above the CD resolution of 16 bit/44.1 kilohertz. Even a file with 24 bits and 44.1 kHz may be marked as “HD” according to this definition. For video data, everything above the PAL television or DVD standard (576 picture lines) is HD.

HDD: (“Hard Disk Drive”). Not to be confused with HD for “High Definition”.

Internet radio: Radio programs from all over the world are transmitted via the Internet. Since the streaming variants of MP3 and the like are used for the transmission, web radio includes the complete

GLOSSARY

tagging concept of modern sound formats. Tens of thousands of available radio stations can be filtered in the receiver according to criteria such as preferred music style, country of origin, language or transmission quality (bit rate or data rate).

Jitter: Clock tremors, meaning slight time errors in the digital signal caused by interferences, electronic component inertia or mechanical influences. It can accumulate over the entire signal processing. To eliminate jitter, many components first collect the data in a cache and then "reclock" it according to their own clock settings.

Kbps: Kilobit per second - a unit specifying the data bandwidth and transmission speed of a digital signal or digital interface. 512 kbps means that 512,000 bits are transferred per second from point A to point B. Multiplying the kbps value of a sound format by the length of the song, you get its effective space requirement on the hard disk. 320 kbps MP3 titles with a playing time of 3:02 min (182 seconds) occupy 58,240,000 bits, which corresponds to about 7.2 megabytes (one byte contains 8 bits). Comparable units are Mbps (megabits per second) or Gbps (gigabits per second).

LAN: ("Local Access Network") A small, local, wired network, such as a company intranet or home network. In contrast, WAN (Wide Area Network) – such as the Internet (see also Ethernet). The wireless (radio) network is called WLAN (Wireless LAN).

NFC: ("Near Field Communication") radio protocol for very short transmission distances. Utilizing this technology, Bluetooth devices can authenticate themselves in a comparatively secure way without entering a PIN.

PCM: ("Pulse Code Modulation") Method for converting analog streams into digital data, which is or has been used with most HiFi media (CD, DAT-recorder etc.). Each sampled analog voltage value is represented by a binary number of at least 16 digits

(16-bit coding). The number of sampled values (i.e. the sampling rate) depends on the given clock pulse. PCM can, by the way, only process integer values. Analog voltages that cannot be "translated" into 16-bit values because they would result in odd binary numbers are rounded off by quantization.

S/PDIF: ("Sony/Philips Digital Interface Format") A digital transmission standard developed for the audio CD by Sony and Philips, which became so widespread due to the still popular optical medium that it is now virtually the industry standard in digital audio signal processing.

SSD: ("Solid State Drive") A flash mass memory that is extremely fast and reliable due to a lack of moving components. To a certain extent the expensive SSD is, so to speak, "overpowered" for storing audio signals, since the hard disk is working much faster than even high-resolution signals require.

SSID: ("Service Set Identifier") The "name" of a WLAN network.

TCP/IP: Internet protocol for packet-by-packet data transmission from one address to another, which does not necessarily have to run in the correct order: the data packets are collected at the destination address and then restored to the correct order.

USB: ("Universal Serial Bus") A bidirectional standard interface for connecting almost any device such as digital cameras, MP3 players or hard disks to a computer. The most common standard today is USB 2.0. The new USB 3.0 is significantly faster and downwards compatible.

WLAN: ("Wireless LAN") Stands for wireless networks. The transmission speed is lower than in cable networks, which is due to the fluctuating radio stability. This depends on the environment (masonry, number of other radios, etc.). Despite its similarity in name, WLAN is technically only partly comparable to LAN.

OVERVIEW: THE MOST IMPORTANT SOUND FORMATS

Our “Who is Who” explains the most important facts and fundamentals of the common sound formats.

AAC, MP3, OGG AND WMA



Format type: lossy sound formats with additional data compression

file extension: .mp4, .mp3, .ogg .wma and others

Historical: MP3 is one of the oldest sound formats. It was developed in 1982 and was supposed to make voice and sound transmission via the, then still young, internet possible in times of lame analogue modems. Like MP3, AAC was developed by the Fraunhofer Institute and was to replace its predecessor. However, through Apple's use of it in the iTunes Store it established itself as a parallel format. OGG is a license-free counter-design by Xiph.org, who also developed FLAC. Fourth to mention is Windows Media Audio (WMA), a compression codec from Microsoft that has never established itself in the hi-fi world.

Max. Data rate: around **320 kilobits** (the multi-channel version of WMA can handle up to **768 kbps**)

File size: different

Sound: below the audio CD

Special features: Since lossy file formats work in a basically comparable way, we generalize here. However, the technologies used differ in some details, which makes them sound different. MP3 has a soft loudness touch, while the related AAC sounds emphatically neutral and open. Overall, it should be noted that the current generations (MP3 and WMA are considered to be at the final state of development) are surprisingly close to the CD at high bit rates. The difference often only becomes apparent in a direct A/B comparison.

MQA (MASTER QUALITY AUTHENTICATED)



Format type: lossy sound format with data compression

file extension: .flac, .mqa.flac

History: The sound format introduced in 2014 removes the lower eight bits of a 16-bit signal (which contain only background noise anyway) and accommodates high-resolution signal components there. Dedicated MQA converters decompile the data and play it as 24-bit files, all other devices play it back as 16-bit audio. Since the compressed FLAC is used as a container, MQA considerably reduces the file size of high bit audio: the 5.6 Mbit of a 24/96 file is broken down to about 500-700 KBit. This corresponds to about one eighth of the original size.

Max. data rate: up to **24 bits** and **96 kilohertz**

File size: not exactly determinable, but the compression is considerable

Sound: like audio CD or better

Special features: The licensor combined its sound format with a certificate to ensure compliance with minimum standards in the studio and on playback devices, while at the same time preventing data stream manipulation in the playback chain. In terms of sound, this makes a lot of sense, but the issuing of certificates for a fee and the compulsion to licensed hardware brought MQA a lot of criticism, whose emotionally charged debates and disputes often present the format worse than it actually is. Since January 2017, thousands of MQA albums are offered with the Tidal HiFi subscription at no extra charge.

FLAC (FREE LOSSLESS AUDIO CODEC)



Format type: lossless sound format with data compression

File extension: .flac

History: Since the year 2000, FLAC was developed by the Xiph. Org-Foundation, which is the same free programmer association that also designed the sound format OGG. In comparison the FLAC encoder works, however, completely lossless. It reduces the file size by bundling the raw audio data in the manner of an archiving program (Zip, Rar). The efficiency of the compression varies, depending on the complexity of the edited titles.

Max. data rate: Up to **655 kilohertz** at a maximum of **32 bits** are currently possible.

File size: Memory requirements are 25 to 70 percent lower than with WAV, AIFF or the original CD. On average, it saves about 50 percent of hard disk space.

Sound: like audio CD or better

Special features: Although basically lossless, FLAC forces the playing device to moderate computing work when unpacking the audio data. It is possible that this “stress” affects the sound of older streamers. We haven't been able to collect any clues yet, but readers occasionally report the format would sounds duller on their device than a comparable WAV file. By the way, FLAC uses the tagging format of RIFF (AIFF and WAV) and thus corresponds to ID3: metadata and cover image can be of any size and are reduced in data volume together with the audio signal.

APPLE LOSSLESS (ALSO CALLED "APPLE LOSSLESS AUDIO CODEC" OR "ALAC")



Format type: lossless sound format with data compression

file extension: .mp4 or .m4a

History: Introduced by Apple in 2004, ALAC is based on the same principle as FLAC. Lossless audio files are compressed into archives like Zip or Rar. However, Apple Lossless works with different algorithms.

Max. data rate: The maximum dynamic range is **32 bits**, there is no limit to the frequency.

File size: The memory requirement is 35 to 60 percent less than with the original CD. The average space gain is 52 percent.

Sound: like audio CD or better

Special features: Since the format was originally bound to Apple's licensing policy, ALAC has no significant popularity outside iOS and macOS. Since the license was released in autumn 2012, device support has increased noticeably, but FLAC still has a huge lead.

WAV (ACTUALLY RIFF WAVE)



Format type: lossless and compression-free container format

file extension: .wav, .wave

Historical: Although the format dates from the late 1980s, Microsoft did not introduce it until 1991 with its Windows 3.1. Before, it wouldn't have made much sense anyway, since the memory requirements of a CD-quality stereo recording of around ten megabytes per minute would have exceeded the capabilities of any hard disk at that time.

Max. data rate: Theoretically, there are no restrictions on bit depth and clock rate.

File size: such as audio CD or above

Sound: like audio CD or better

Special features: WAV handles all registers of the tag management and could even attach videos to the files, since it isn't bound to size restrictions. However, this potential is not exploited by virtually any streamer or software. The support is good: almost any network player, portable and USB host can play WAV.

AIFF (AUDIO INTERCHANGE FILE FORMAT)



Format type: lossless and compression-free container format

File extension: .aif or .aiff

History: AIFF is closely related to WAV, was developed by game-company Electronic Arts and was made a standard by Apple in the early nineties. Due to the widespread use of Apple computers in recording studios, AIFF quickly became the number one music production format. Probably this fact is responsible for its good meta tag integration, as the studio professionals wanted to implement their authorship.

Max. data rate: Theoretically, there are no restrictions on bit depth and clock rate.

File size: such as audio CD or above

Sound: like audio CD or better

Special features: Since AIFF is, like WAV, an open container format for all types of data, the tags can theoretically be as large as you like and also contain foreign file types (videos, web links, etc.).

DSD (DIRECT STREAM DIGITAL)



Format Type: Lossless and compression-free audio format with bitstream structure - DSD data is not "slashed" into samples like PCM audio, but is processed as a continuous data stream.

file extension: .dff (rudimentary format without metadata), .dsf (extended with metadata)

Historical: Originally it is the sound format of the SACD, whose development was stopped by Sony in 2005. In 2013, the licensor finally released DSD as a streamable audio format.

Resolutions: 2.8 MHz (DSD 64) and 5.6 MHz (DSD 128) - there are also significantly higher data rates (DSD 256, DSD 512 etc.), but these are only used for internal signal interpolation (comparable to up- and oversampling).

File Size: Pure HD audio format. The memory requirement is twice to four times that of an audio CD.

Sound: Excellent! With good recordings, DSD is one of the best formats.

Special features: DSD-capable hardware is always required for playback. Due to its special one-bit data structure, the SACD format cannot be directly processed by computers or network players. To overcome this, the "DoP"-trick is applied (DSD over PCM): The DSD data stream is divided into "words" (sequences of 16, 24 or 32 bits) and stored in a form that is interpreted by the processing devices as a PCM audio signal. A streamer can delegate this container to its D/A converter, where it is unpacked again to the DSD bit stream. Although contrary claims are circulating, this process is completely lossless and sound neutral.



IN ADMIRATION OF MUSIC

**“The way we listen to music has been transformed.
But the reason we listen remains the same”**



At DALI, we believe that digital music should deliver convenience and choices without compromise on sound quality. That's why we've re-imagined hi-fi for the 21st century with the CALLISTO Wireless Speaker System.

Stream, beam, and control music from almost any source and enjoy the stunningly detailed, transparent reproduction DALI is celebrated for.



HEAR ME SING!

Anyone who experiences the new „Suprema“ RF cables thinks they'd hear the angels sing and may understand HMS' approach differently in the future.

Of course HMS still stands for Hans M. Strassner, who is the technically proficient owner of the, well known among HiFi fans, Leverkusen cable forge. The portfolio's larger conductors are not only developed there, but also manufactured and assembled by hand in painstaking, meticulous and detailed work.

The processes and the entire, completely "voodoo"-free approach of HMS are subject to a pronounced sobriety, which also forms the basis of the new "Suprema"-NF conductors, but which is completely unsuitable for their tonal

description. On the contrary, there it quickly gets emotional and enthusiastic. We have been listening for years with the Rhineland's thoroughly honest "Gran Finale Jubilee" series. The Supremas not only go beyond them, but also have a different, more touching, if you like, more musical touch to them. This was the case when testing the first Phono-Supremas in December 2017 and is no different with the now following NFs.

Want an example? We had wired our reference system (see test components) completely with HMS, whereby the connections between the source devices and

the preamplifier or between this and the power amplifier were formed alternately by either Gran Finale Jubilee or Suprema. The loudspeaker cable was always HMS' Gran Finale Jubilee in single or bi-wire design - the LS-Suprema is still in the making.

The Suprema's attraction

Having heard Diana Krall's famous "Live In Paris" with the Supremas, afterwards reconnecting the previously praised Gran Finale Jubilees, had an almost "sobering" effect. Not only did the performance suddenly lack something of the expansive spatial dimension and suppleness, it audibly lost grandeur, because now the fine details clumped together slightly, leaving a coarser, less refined impression of the event. With the Supremas the degree of organization was even higher, without thereby taking any analytical perspective. On the contrary, the entire



▲ Foils and braided shields made of silver-plated copper strands keep out electromagnetic and electrostatic fields. In addition, there are ferrite rings against high-frequency interference (not shown).

performance, which spread out in front of the listener, seemed more natural, pleasing and diversified.

This became very clear when we played Vivaldi violin concertos from the Tacet label. Their often dense sound structures, some of which have a glistening presence in the strings, not only were more subtle under the control of the Supremas, which was shown, for example, by the fact that the accompanying harpsichord could be followed more clearly, but also offered a more homogeneous, holistic and relaxed reproduction. With the Gran Finale Jubilee, the upper frequencies became narrower, more brittle, yes, sometimes even somewhat metallic.

Are these reservations at a very high level? Of course! But when you have enjoyed an entire page of this Tacet LP with the Supremas and then switch to the equally high-priced but still much cheaper Gran Finale Jubilees and start again at the same volume, the distance between them becomes immediately evident. There had before been a freer, more graceful and musical ambience with a more pronounced "attraction" to it.

LENGTHS & PRICES

HMS Suprema (Cinch)

Stereo set with WBT NextGen plugs assembled in 1/1.25/1.5/1.75/2 and 3 meters length around 1980/2190/2400/2610/2820 as well as 3660 €, other lengths are possible on request, each additional stereometer plus 840 €.

HMS Suprema SR (XLR)

Stereo set only as „Top Match“ version including impedance adjustment with carbon/stainless steel plugs from Furutech assembled in 1/1.25/1.5/1.75/2 and 3 meters length around 2880/3250/3620/3990/4360 and 5840 €, other lengths are possible, each additional stereometer plus 1480 €.

The "Top Match" impedance adjustment is reserved for the XLR Suprema. It creates subtle sound differences. ►

Brains & Effort

This was all the more surprising as it is usually the Gran Finale Jubilees that outclass their competitors. In order to set the Supremas apart from their previous top product, Hans M. Strassner had to go to great lengths. In the cinch version, for example, the 32 individually coated pure copper strands of the supply and return conductors are passed separately through small Teflon sleeves, so that 95 percent of them are surrounded by air, which is the best insulator after a vacuum. The individual strands are guided in such a way that they constantly change their position within the cable. This way, HMS wants to prevent skin-effects which, due to the magnetic field around the entire conductor, would push primarily higher-frequency signals into its outer areas.

Further there are two shields made of silver-plated copper braiding underneath the soft outer braiding against electrostatic fields. A magnetic foil in the form of a layer of Teflon plus a whole number of ferrite cores of different types then act against magnetic fields in order to achieve the widest possible broadband attenuation of RF interference. Hardly could any more be done!

In the XLR version of the Supremas, HMS relies on a mix of materials. There, conductors of silver-plated copper wire run on a hollow core between the connection pieces designed as above. An "anti-microphonic film" protects the construction from vibrations. The XLR

◀ In the cinch version of the Suprema, the supply and return conductors are guided through hollow Teflon sleeves.



TEST-COMPONENTS

PLAYER: Transrotor Rondino nero/5009/ Figaro

PHONO-PRE: Brinkmann Edison

MULTIPLAYER: T+A MP3100HV

PRE-/ POWER AMP: Accustic Arts Tube Preamp II MK2/Amp II-MK3

LOUDSPEAKER: B&W 800D3, Dynaudio Contour 60

CABLE: HMS Suprema (Phono), Cardas Clear, HMS Gran Finale Jubilee, In-Acoustics NF 2404 (NF), HMS Gran Finale Jubilee (LS)

version is only available with the 10-stage adjustable impedance matching "Top Match", which marginally increases the current flow via a slightly higher load on the output of the source device, this way supposedly having a positive effect on the distortion behavior.

Despite these differences, the super cables sounded almost identical and were equally impressive in Cinch and XLR, due to their serenity, grace and breathing sound images on the highest level. The musicality of the Supremas suggests a whole new interpretation of the HMS abbreviation: "Hear Me Sing!"

Matthias Boede

Contact: HMS Elektronik
Tel.: +49 2171/734006
www.hmselektronik.com

Pure legacy. Next-gen attitude.



**We've taken care of the tech.
You take care of the music.**



The new Dynaudio Xeo wireless stereo speakers: all the performance of high-end hi-fi with none of the hassle. Just plug them into the mains and plug in your sources – or stream with high-quality aptX Bluetooth. It's as simple as that.



DYNAUDIO
Xeo 10 / 20 / 30

dynaudio.com

FUTURE-PROOF

Vinyl is booming, but the capacities of the pressing plants are limited. Now a German company is offering new press machines for the first time in a good three decades.

When the CD began its triumphant rise, it meant the beginning of the end for vinyl – at least that was what people thought in the mid-1980s. At that time, Toolex Alpha, the Swedish world market leader for press machines, ceased production.

Even today, pressing plants work almost exclusively with machines from the 1950s to 70s. If parts break, they are often removed from decommissioned ones, the keyword being cannibalization, because many parts can only be rebuilt with great effort.

Now “Newbilt” has developed new record presses. Behind the company from Alsdorf near Aachen are the partners Detlef Seiffert (Consulting), Kees De Jonge (Sales) and Erwin Neubauer (Managing Director). Seiffert started in vinyl

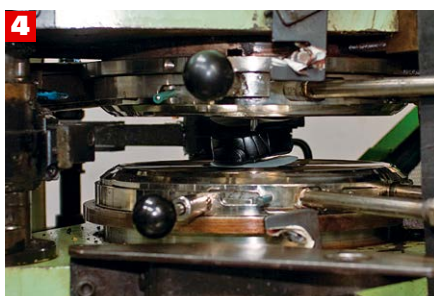
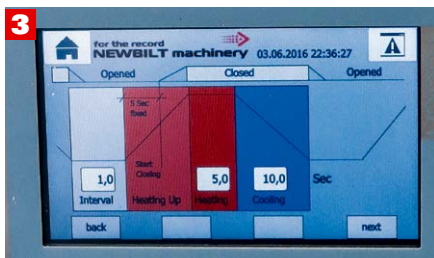
production and was for a long time head of CD production at Record Service, later Warner Music Manufacturing Europe and today’s Cinram. There he met Neubauer in 1986.

Just a few corners away from Cinram there is an inconspicuous building. “I rented it in 2010,” says Neubauer, “to overhaul used systems for CD and DVD production and then sell them again across the globe”. In 2014 he met Seiffert again, who was, at the time, in charge of a vinyl project: “A customer from Singapore had bought two scrap-ready Finebilt systems from the 1950s and 1960s and wanted them to be revised. Detlef turned to me because I had the hall at my disposal. It was then that we realized for the first time that press machines could be a market

again.” Although the customer finally bailed out because his financiers broke away, Seiffert and Neubauer did not give up the renovation. “But at some point we said to ourselves: it doesn’t pay off. It makes more sense to develop it newly from scratch.” Within one year, the project was accomplished: based on the Finebilt, the – nomen est omen – Newbilt was created.

Time to have a closer look at the machine. A semi-automatic “Newbilt Duplex”-set consists of two presses, an extruder and hydraulics. Granulate is filled into the funnel of the extruder, which is then compressed more and more until the “biscuit” comes out at the end, which is placed in the press. To start the computer-controlled printing process, an employee simultaneously presses two red buttons. The two matrix-plates move into the actual press and are closed. The vinyl “biscuit” is first heated to 180 degrees Celsius, using steam, then pressed by hydraulics at a pressure of over 100 tons and finally cooled to 25 degrees by applying water. It takes 40 seconds until the matrix-plates are extended again and present the finished record to the viewer. Since a set has two





asynchronous presses, an average of three records can be produced per minute.

Although the equipment is based on the historical design of the Finebilt, it has been modernized with new control systems. For example, inserting the

1 The vinyl granulate is compressed (under the yellow cover) until the „biscuit“ comes out at the end. **2** The biscuit is placed in a press and the pressing process is initiated (picture without matrices). Since a set consists of two presses, it is possible to work in parallel. **3** The equipment of the Newbilt is based on a historical design, but has been modernized. Electronically controlled displays provide information on temperature and other important data. **4** Unlike the Newbilt, the Toolex Alpha is a fully automatic press machine. Despite historical technology, it is used worldwide in the production of large quantities. **5** Vinyl granulate is the material of which the „black gold“ is made. **6** The funnel of the extruder is filled with vinyl granulate.

matrix-plates before the pressing process, prevents the operator from being tempted to place the biscuit differently, possibly pinching his hand in the process. Electronically controlled displays provide information on temperature and other relevant data. Also the mechanics have been improved: „in the past, 120-gram and 140-gram presses were standard. Printers of those days, which are still in use today, are not designed for the 180-gram records that are now fashionable. Because for those you need not only more vinyl, but also higher pressure.“ That is why Neubauer&Co. have equipped the new Finebilt Duplex with a hydraulic piston of 330 millimeters in diameter, which is 60 mm more than the Toolex Alpha. The insider explains: „The larger the piston, the lower the hydraulic pressure required. This allows us to run a 180 gram pressing with 40 bar less than usual. So we still have some capacities left.“

Andreas Kunz

“WE ARE THE FIRST”



ERWIN NEUBAUER
Managing Director on the opportunities of the new press in the record industry.

You are the first company in more than three decades to offer newly developed record press machines. What distinguishes your Newbilt Duplex from the classic, the Toolex Alpha?

Our Finebilt Duplex is not a fully automatic but a semi-automatic machine, with the disadvantage that on every set there must be an employee to operate it. One advantage is that our machine can comparatively easily handle almost any format, regardless of whether 7, 10 or 12 inches, „Picture Discs“ – i.e. vinyl with an image – or so-called splashes – color-striped vinyl. It also makes loading easier than with fully automatic machines, because changing the matrix is simpler.

Who are your customers?

You'll be surprised: certainly not the large European printing plants Optimal, Pallas and GZ in the Czech Republic, because they have bought up all the old Toolex presses over the recent decades. But because you can't get any more today and the waiting times at the pressing plants are sometimes half a year for

small music companies, labels and bands are interested. Jack White, for example, bought four sets for his new Detroit plant.

How did the deal come about?

Via Record Products of America, RPA for short, who represent us in the USA. The vinyl market is rather small. If you are in touch with the right people, the rest goes relatively quickly. In addition, forums are used to inform who offers what. And we have the advantage of being the first to introduce new machines to the market.

So founding Newbilt wasn't a risk?

No. We were in the process of reorientation anyway, because CD and DVD no longer work. The prices for the corresponding production lines are so broken that you can no longer make any money with them. Vinyl sales, on the other hand, increased in recent years always between 30 and 45 percent. This is enormous, and the still intact old machines are already working at their limit. I don't think the boom will fade quickly, especially since our industry is still quite small.

How long does it take for your Newbilt Duplex to pay off for the customer?

That depends. If you have enough orders, the machines run 24 hours a day and the „Return of Invest“ is less than one year. A set consisting of two presses, an extruder and the hydraulics costs around 160,000 euros. We have already sold eleven sets, a new order from China is imminent.

R

Raidho Acoustics

TD-4.8

"Even though our "Cutting Edge Diamond Technology" represents groundbreaking performance and technology it is never a question to stop the quest for further improvements. Always striving to improve our technology is simply a part of the Raidho DNA. With the new Tantalum Diamond Technology, we have managed to improve our class leading diamond cones to the extraordinary. Raidho is always on the move!"

Meet us on facebook

de distribution:

www.alexgiese.de

www.hifi-bamberg.de

www.life-like.de

www.my-sound.net

www.schoene-musik.de





THE BEST SAM YET

Audionet celebrates the birthday of its “evergreen” with a strictly limited special edition, elevating the potential of the integrated amplifier to a whole new level.

Audionet’s SAM is one of only a few integrated amplifiers that have established themselves to be fixed values in the editorial team’s collective memory. This is, of course, also due to the fact that we have come across it time and again over the past two decades. In 1999 we tested the early V2 version, in 2011 it was the turn of the Generation 2 (SAM G2, currently around 4490 Euro). In between both had spent several years as faithful test references in our listening rooms.

What makes the amp, whose manufacturer has migrated from Bochum to Berlin, so extraordinary is, inter alia, its external appearance, as there are not many integrated amplifiers that dare to cut out the volume control. Audionet sacrificed this most distinctive control-feature of any amp due to a simple, logical consideration:

Unimpeded signal flow

If aiming at the most efficient signal paths, the detour via a front potentiometer is, at

best, a compromise. After all, the inputs and thus the ideal location for pre-amplification are located at the opposite end of the cabinet. In fact, the SAM has a level control, and even an extremely high-quality one from Alps. However, its developers put it in the middle of the preamplifier circuit. The front buttons serve as control access to this remote-controlled motor potentiometer. Therefore, the control is, contrary to modern expectations, completely analogous. Sometimes the giant amp is criticized because the volume has to be selected via pushing the, haptically excellent, ball buttons, thus having to push through all levels in between – step by step. Also, the fact that even its input selection is operated via a rather slim device-menu is not appreciated by everyone. However, our many years of experience have taught us that such thoughts should not be bothered at all: 99.9 percent of the time one would anyway use the enclosed all-aluminum remote control.

Furthermore, the consistent shortening

of the signal routes leads us directly to the next point. In all its incarnations the amp sounded stunning and could always stand up to any potential competitors – sometimes even beyond the boundaries of its own class. Its unbelievable stage representation, a pithy dynamic spiced with lightning-fast attacks and the finely analytical but not in the least sober sound make Good Ol’ SAM the epitome of a thoroughly audiophile amplifier, which inspires outrageous fun when really going for the limits. With qualities of such versatility, one can go a long way.

On occasion of their super machine’s twentieth anniversary, the company decided to launch an exclusive, strictly limited to 200 units, special edition called SAM 20 SE. Externally, the solid aluminum block looks exactly like its model, the small copper plaque on the back, which identifies our device as number ten of the possible 200, being the only difference. On the inside, the basic circuit logic has been retained as well.

Audionet’s solid remote is produced for the 20 SE in an engraved special edition. ►



However, during the development of the SE all modules and individual parts were carefully reevaluated and many, sometimes even whole functional blocks, replaced by higher quality substitutes. This upgrade offensive was, of course, based on newer amplifier models, as for example the amazing “WATT” (around 12,500 Euro), from which, e.g., the low-resistance power transistors were borrowed. Further, the entire internal wiring was replaced by pure gold and silver cables, while, wherever relevant to the sound, high-quality mica capacitors were implemented.

A lot more than just fine-tuning has been done at the phono board. This is offered on the SAM G2 as an option with extra charge (around 500 Euro), but is fitted as standard on the SE. It is also a completely revised version of the board, which has as well been equipped with an armada of mica capacitors and improved operational amplifiers. Out of the box our test sample was prepared for MM-operation. Using a total of four jumper banks, the equalizer can, however, also be adapted filigree and separately to the impedance and gain factor of any MC system.

Phono included

To emphasize the anniversary model's exclusivity, its front panel and remote control were not simply imprinted but engraved. The rest is the same as on the original: it has six gold-plated analog inputs, one of which is balanced and another reserved for phono. Amplified

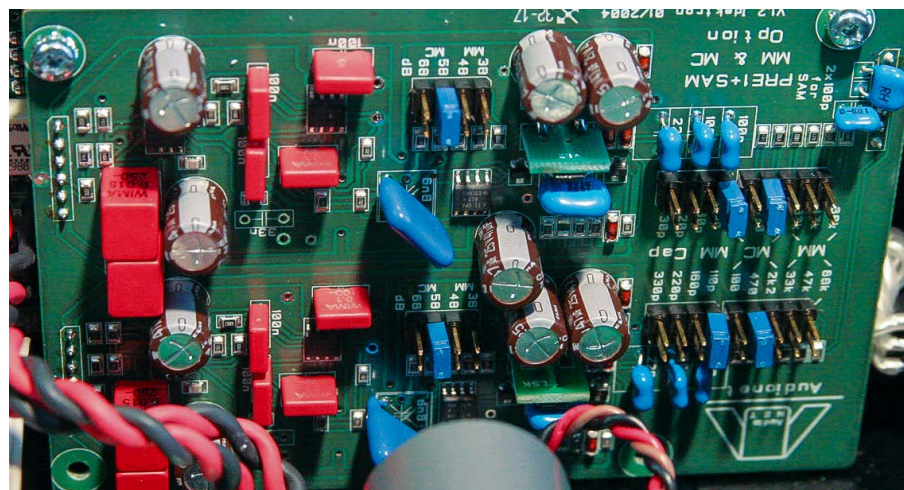
signals are sent out via elegant loudspeaker terminals from Furutech. A recorder, subwoofer or power amp can be connected via pre- and line-out. If there appears to be no signal after connection there is no need to panic, as the outputs are deactivated by default. The fixed indication of the mains phase deserves praise, while opinions on the headphone jack might be divided: hidden on the rear, directly underneath the LS terminals, the large output socket is not located very accessibly.

As expected, soundwise the 20 SE is in a class of its own. Transparent, crisp and spatially extremely resolved, it lets loudspeakers and walls literally disappear. It depicts voices and instruments with sharp, almost sculptural contours on a huge stage. It, therefore, becomes a breathtaking experience to listen to Black Sabbath's “Warning” from their debut album. The guitar soli were well distributed over the panorama and formed a contrast to the otherwise rather dryly mixed song with its short delays and room reverberation. On B&W's 800 D3, the SAM brings them to life so vividly and three-dimensionally that you think you can reach into the strings.

However, the amplifier also throws even earth-shaking bass impulses cleanly and drawn with superb detail into the listening room. Just under 180 watts into four ohms and pulses of up to 232 watts ensure that it never runs out of breath and give energy and flow to its exemplary orderly, always clear and tonally balanced style. The 20

KEYWORD

Mica capacitor: „mica“ is a term describing layered mineral crystals that have already been used as dielectrics in capacitors since the 1920s.



▲ The equipped-as-standard phono board was revised for the 20 SE and differs in many details from the optional board that can be retrofitted in the SAM G2 for about 500 Euro.

SE deliberately drives the strengths of the serial model to perfection and thus shows the potential that was hidden in the SAM G2 circuits — but only for a limited time.

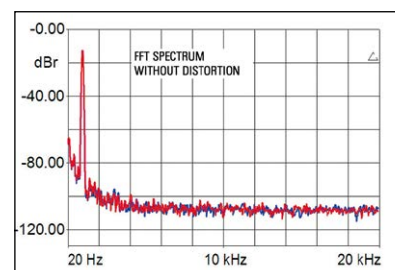
Carsten Barnbeck

AUDIONET SAM 20 SE

around 6990 €
Dimensions: 43 x11 x39 cm (WxHxD)
Warranty: 2 years
Contact: Idektron
+49 30 2332421 0
www.audionet.de

The limited-edition anniversary model builds on proven strengths and does the SAM credit: spatially, orderly and incredibly dynamic, it combines audiophile virtues with an unbelievably joyful musicality. It is almost a bit sad that it will be limited to 200 copies.

LAB MEASUREMENTS



| | |
|--|-------------------------|
| Continuous power (8 Ohm / 40hm) | 103 W/179 W |
| Pulse power 4 Ohm (1kHz) | 232 W |
| THD at 50mW/5W/1dB Pmax | 0.003 %/0.001 %/0.002 % |
| Intermod. 50mW/5W/1dB Pmax | 0.005 %/0.002 %/0.04 % |
| Signal to noise ratio at 50mW/ 5W | 86.8 dB/106.5 dB |
| Signal to noise ratio Phono MM (5 mV for 5W) | 79.4 dB(A) |
| Attenuation at 4 Ohm (63Hz/1kHz/14kHz) | 142/149/200 |
| Upper cut-off frequency (-3dB/40hm) | >80 kHz |
| Crosstalk Line 1 > Line | 2 93.4 dB |
| Stereo channel separation at 10kHz | 75.3 dB |

LAB COMMENTS: The measured values are consistently impeccable. Interestingly, the SAM defends itself against wrong power connection. If the mains phase is incorrectly connected to the cable, the amp indicates this on the display.



FEATURES

One balanced XLR input, one phono input (MM/MC), four asymmetrical RCA inputs, one record and one pre-out each, one pair of Furutech LS terminals, remote control, English manual

STEREO-TEST

SOUND QUALITY **94%**

PRICE/PERFORMANCE



EXCELLENT

QUIETER AND STRONGER



In many audiophile circles, it is commonly believed that power conditioners and various other power-line accessories often do more harm than good, robbing the music of its vitality, color, and that oh-so-important, wildly intangible "boogie factor."

AudioQuest's **Niagara Low-Z Power Noise-Dissipation Systems** are designed to do the exact opposite. Niagara kills the noise while *honoring* the music, so that the listening experience can be exactly as it should be: compelling, immersive, *fun*.

"The difference was huge. AudioQuest's Niagara 1000 not only cleaned up the power, it did everything that is the *opposite* of killing the boogie.... It was as if my system had gotten a heart-shot of adrenaline."

— Herb Reichert,
Stereophile,
April 2017



audioquest®



MISS TWIGGY

Listening to music properly without having to subordinate the entire living room to this purpose? The Piega TMicro 60 AMT is supposed to master this balancing act. We have taken the liberty of comparing claim and reality.

Few manufacturers know how to match optical elegance and top sound performance as well as the Swiss manufactory Piega, which is located directly on the shores of Lake Zurich. The only 14 centimeter wide, 106 cm high and 17 cm deep, low-resonance aluminum enclosure, without any right angles, is not only attractive in form, but also the reason the compact dimensions with the profoundness and at the same time high and even for tube amplifiers suitable efficiency is possible at all. If wood had been used instead of aluminum, the cabinet would have to be much more voluminous, obviously significantly reducing the much quoted “women acceptance factor”.

It also works without ribbons

The living room-friendly exterior is, however, just one thing, the technical prerequisites for good sound are another. In any case, the implemented drivers are promising: the HF-range is, here, not handled by a ribbon-tweeter as is otherwise typical for Piega loudspeakers, after all, giving them their name, but by a lower-cost AMT tweeter, which is supposed to be close to the outstanding resolution and minimal distortion level of the Piega ribbons. To ensure optimal coupling of the mids to the ultra-fast tweeter, starting at around 4000 Hertz, one of the three 12-centimeter drivers is responsible as a midrange driver for everything between 200 and 4000 Hertz via an 18 dB crossover, while the two other, long-stroke drivers process the lowest frequencies down to around 45 Hertz in parallel. The internal cabling is done by 2.5 mm high-purity copper strands. The quality of the crossover components does not make a highly audiophile, but still very decent impression. The aluminum cabinet

is impeccable and seems to be finished carefully and on a high qualitative level.

The Piega then had to pass the final exam in our listening room, and right from the start it could score points, as it was able to disappear acoustically, while simultaneously drawing Tracy Chapman vividly into the room. There were no annoying tonal traits, with the high-frequency reproduction being mild and skillfully tuned on the NAD 316 as well as on the Audionet SAM 20 SE or the Symphonic Line RG 9, which is not a matter of course with jet tweeters. With Steven Wilson’s “Refuge”, like Joni Mitchell’s “Court And Spark”, the TMicro showed astonishing dynamic abilities and did not stumble even at high levels, although it could not hide some small acoustic obesity in the upper bass range. In view of the price also Freddie Hubbard with Billy Joel’s “Zanzibar” was very convincing. A great voice was undoubtedly Fritz Wunderlich. Anyone who has ever heard him in Böhm’s “Magic Flute” knows what I’m talking about. Here, too, the smart balance between attention to detail and long-term suitability was appreciated. The Piega also mastered Massive Attack’s “One Love” almost effortlessly and without being guilty of weakness; on the contrary, it did quite well without being able to reproduce an excessive thunderstorm of bass. Martha Argerich on the grand piano and Izhak Perlman on the violin also certified the naturalness: Beethoven’s violin sonatas were a real experience. We then concluded with a final audition using guitar music of all kinds: from Paco de Lucia and Al di Meola to “The Wind Cries Mary” by Hendrix - a sound journey that the Piega mastered more confidently than its optical appearance would suggest.

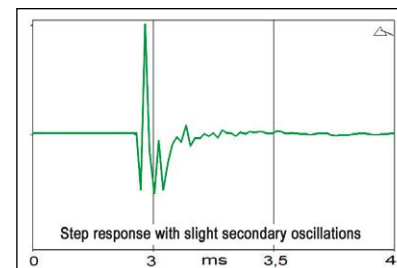
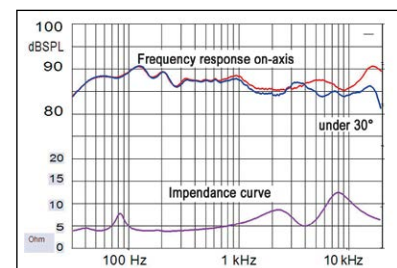
Michael Lang

PIEGA TMICRO 60 AMT

around 2000 €
Dimensions: 19 x 107 x 22 cm (WxHxD)
Warranty: 6 years
Contact: PIEGA SA
Tel.: +41 44 725 90 42, www.piega.ch

Very slim 2.5-way bass-reflex loudspeaker in a high-quality aluminum cabinet. Soundwise spatially and tonally balanced, dynamical and blessed with astonishing level stability. The cover is fixed.

MEASUREMENT RESULTS



| | |
|------------------------------------|-------------------|
| DC resistance | 4 Ω |
| Minimum impedance | 4 Ω at 55 Hz |
| Maximum impedance | 12.5 Ω at 7900 Hz |
| Sound pressure level (2.83 V/m) | 83.2 dB SPL |
| Power for 94 dB SPL | 72.3 W |
| Lower cut-off frequency (-3dB SPL) | 42 Hz |
| Distortion factor at 63/3k/10k Hz | 1.0/0.3/0.1 % |

LAB COMMENTS

Discreet with frequency response and step response; impedance goes down to about two Ohm at 55 Hertz; efficiency about 83 dB – stable amplifiers recommended. The distortions are pleasingly low.

FEATURES

Available in aluminum silver, black anodized or white lacquered finish; base plate for increased stability; single-wiring terminal for banana-connectors, cable lugs or bare cables; no spikes included

STEREO-TEST

| | |
|-------------------|-----------|
| SOUND QUALITY | 65% |
| PRICE/PERFORMANCE | |
| ★★★★☆ | EXCELLENT |

Linn Selekt DSM

Why do many people long for the good old record again? Because with digital media they miss the haptic! In the long run, they find it unsatisfactory just to swipe and type on touchscreens. That's why Linn's new network player „Selekt DSM“ is based on touch quality: with a „jewel-like“ turn/push button made of polished glass that begins to glow when you approach it, and customizable keys that, according to the press release, „remind you of piano keys with their feel“. The large button can be used not only to adjust the volume, but also to start or stop streaming, select from a playlist or a list of radio stations, or switch to another



source. The buttons can be assigned to a playlist, genre, artist, streaming service such as Tidal or Qobuz, or to a radio station or local source. Connections are available for an MM and MC pickup, a high level source, two optical and two electrical S/PDIF sources each, a PC via USB (PCM up to 192 kHz) and a TV via the HDMI ARC input. Outputs are available on Cinch and XLR sockets as well as on 2 „Exakt Link“ ports. The network connection is established via LAN. In the basic version the Selekt DSM costs 4760 Euro, with integrated 2x100 Watt Class D amplifier 6350 Euro. The device can be extended with Linns DAC architecture „Katalyst“. It will be available from October - at the same time the Linn DS will be removed from the range.

Pioneer's flagship multi-purpose player

Following the recent launch of the UDP-LX500, Pioneer is presenting a new top model in its universal disc player range in October. The UDP-LX800 (2300 Euro) plays all disc formats from CD to SACD, DVD-Audio to UltraHD-Blu-ray. All components are



housed in separate chambers, and extra-thick honeycomb embossed sheets provide electrical and acoustic shielding. The cabinet is designed without cooling slits and has double aluminium side walls – making it dustproof and soundproof – so that no running noise can penetrate to

the outside at the speeds of up to 5000 rpm that occur with the UHD Blu-ray. A separate linear power supply unit supplies the audio board, which is equipped with two ES 9026 PRO D/A converter chips. In conjunction with Pioneer receivers, the PQLS system, in which the receiver sets the clock, ensures a stable audio data clock for HDMI transmission. The player provides analogue sound signals via Cinch and XLR.

Marantz updates multi-channel flagships

IMAX Enhanced is one of the new features of the Marantz AV receiver SR 7013, which will be available in black and silver for 1800 Euro in October. This allows digitally processed 4K HDR content to be combined with DTS audio technology using the IMAX process. IMAX Enhanced is expected to be available via a free firmware update from January 2019. The SR 7013 accommodates an 11.2-channel preamplifier and 9 200-watt output stages. It has 8 HDMI inputs and 3 HDMI outputs, decodes the 3D sound formats Auro 3D, Dolby Atmos and DTS:X/Virtual:X, converts analog video signals to 4k, can process DSD streams up to 5.6 MHz via LAN and WLAN and offers access to Deezer, Spotify Connect, Amazon Music, Tidal and Internet radio. Also on board: Bluetooth reception, Alexa voice control via HEOS-Skill, Apple Airplay 2, App operation – and even a Phono-MM input. If you operate external power amplifiers or active speakers, there is also the AV preamplifier AV 7705 (2100 Euro, in black).



Harman opens flagship store

After Shanghai, Tokyo and New York, Harman International has now opened its first flagship store in Europe - in Munich. However, it is not primarily used for shopping, but to experience the products, which is why Harman calls it the „Experience Store“. Headphones, portable loudspeakers, sound bars, voice-controlled loudspeakers and much more from JBL, Harman Kardon and AKG as well as selected products from the automotive sector can be experienced. The rooms are flexibly



designed so that they can also be used for lectures, small concerts or parties. By the end of the year, a luxury audio studio is to be opened in an adjacent room, where Harman will present its high-end brands Lexicon, Mark Levinson, and Revel. There will also be a cinema room with Dolby Atmos. The Experience Store will be open from Monday to Saturday from 10 a.m. to 7 p.m. from today, 26 September, onwards.

300€ Denon all-in-one system

My first Denon is what they want to call it: Denon's new D-T1 mini-all-in-one system is ideal for young people entering the world of hi-fi. Perfect as a birthday present, for confirmation or for Christmas. After all, it not only reads CDs and receives FM radio, but also plays music from a smart-phone via Bluetooth and has an additional aux and optical digital input. Headphones can also be connected. Complete with two-way loudspeakers, each driven with up to 15 watts, the system costs 300 euros. It is now available in black or grey.



Acoustic Energy AE 100 – white and limited

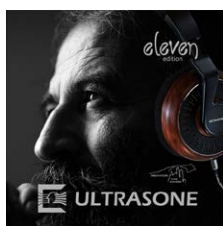
White speakers are becoming more and more popular, which is why Acoustic Energy is also launching a white version of its low-priced AE 100 compact speakers (pair price 350 euros) in October. The special edition is limited to 500 pairs (for Germany, Austria and Luxembourg). The bass reflex speakers are equipped with a 10 cm bass-midrange driver and a 28 mm fabric tweeter with „Wise



Dispersion Technology" and have a cabinet made of 18 mm thick MDF panels.

Open design and limited numbers – Ultrasone Edition eleven

At Ultrasone, the added term „Edition" always stands for „Made in Germany", and so too the new „Edition eleven" is manufactured in Wielenbach, Bavaria. They are open headphones with ear cups made of solid walnut, an all-aluminum headband and exchangeable ear cushions with velour cover. The 4-wire cable is also interchangeable. Dynamic transducers with 40 mm diaphragms made of a bio-cell fibre composite are in charge of producing the music. As is common at Ultrasone, they are mounted diagonally so that the sound hits the ear cups from the front. The scope of delivery includes an adapter from small to large jack, a headphone stand and a transport bag. The „Edition eleven" is limited to 1111 copies and will be available in October for 1000 euros.



DARC-SERIES 60 | 80 | 100 | 200 | 250

„THE BEST WE HEARD – EVER!"

WOLFGANG TUNZE,
FRANKFURTER ALLGEMEINE ZEITUNG

Did you ever think of stacking massive aluminum ribs with dampers in between one over the other thus creating a perfect loudspeaker cabinet? We did! And we integrated symmetric crossovers with slopes of 60 dB/octave using ceramic and diamond drivers. Interested? Call us: +497159920161, more information: gauderakustik.com

GAUDER
AKUSTIK

Gauder Akustik · Steinbeisstr. 24 - 26 · 71272 Renningen · GERMANY

Tube Amp for 170,000 Euro

The „Valve Amplification Company“ (VAC) from Florida is launching a new member of its „Statement“ family at the beginning of October: the integrated amplifier „Statement 450i iQ“. The special thing about it is not only the price of 169,000 Euro, but also the vertical construction as a tower. It is designed to allow optimal placement of the components



and as direct a signal flow as possible. The integrated amplifier contains the power amplifiers of the Statement 450 S as well as the line and phono preamplifiers of the Statement family. Each of these modules is supplied via its own power transformer, separately for left and right channel, making a total of 6 power transformers. The operating point of the KT88 end tubes is automatically adjusted and the approaching end of their service life is displayed.

Marantz-Combi in limited edition

For the 40th anniversary of Marantz' brand ambassador Ken Ishiwata, the company launches a SACD/CD player and integrated amplifier in the „Ruby“ edition, which is limited to 1000 copies. „SA-KI Ruby“ and „PM-KI Ruby“ are characterized by the laser engraved signature of Ishiwata and the embedded ruby on top of the front panel. The devices will be available

from October in numbered units (500 in black and 500 in gold) with the corresponding certificate of authenticity. They cost 4000 Euro each. Ken Ishiwata joined the company in 1978 and under his leadership, their engineers produced some of Marantz's most award-winning products.

Wireless subwoofer from Electrocompaniet

The Norwegian high-end forge Electrocompaniet has added a wireless subwoofer to its „EC Living“ wireless speaker system. The „SIRA L-1“ (1050 Euro) works together with streaming components such as TANA SL or RENA and automatically integrates into the sound image of all existing „EC Living“ speakers. Two 7-inch woofers driven by a 200-watt Class D power amplifier and a 7-inch passive radiator are housed in a metal cabinet with an edge length of almost 30 cm. The loudspeaker grills are exchangeable. Another novelty at Electrocompaniet concerns the ECG-1 turntable: it is now equipped with a new 3-phase motor and a larger power supply.



Network-compatible all-in-one system from Sonoro

A „tabletop radio“ that can also play CDs and make contact with the home network: The Sonoro „Prestige“ receives FM and DAB+, offers access via LAN or WLAN to web radio, Spotify Connect and music from the home network via UPnP, receives music



via Bluetooth with aptX and sends the signals via Bluetooth to wireless headphones. Also, up to 5 devices in different rooms can be connected to a multi-room system. Two line inputs (1x mini jack, 1x cinch) and an optical S/PDIF port are available for local sources. Output signals can be picked up via the headphone jack and the line-out. The Prestige is equipped with two coaxial tweeters and midrange drivers and a 10cm subwoofer, which are fired with a total of 120 watts. The unit is housed in a wooden cabinet with a surface of silver, black or white piano lacquer. Complete with remote control it costs 800 Euro.

EU Parliament passes copyright reform

In its second attempt, the EU Parliament adopted the - revised - draft of its legal committee on copyright reform by a large majority. According to the draft, platform operators such as Youtube are liable if their users upload copyrighted works, such as music. However, uploading to online encyclopedias such as Wikipedia is excluded, as well as small businesses. The result of the vote was criticized by the IT association Bitkom as „backwards“, but welcomed by the Federal Association of the Music Industry as „very good news for Europe’s creative people and their partners“. The record companies, on the other hand, are not going to like one of the bill’s passages: It grants artists the right to demand additional payment from labels if the originally agreed remuneration is disproportionately low compared to the later income from the exploitation of the works or performances. This means that artists can demand a fair share of the effervescent streaming revenues from the labels, even if the original contract does not provide for this.



Compact CD Receiver from Magnat

It’s just 28 cm wide and houses a CD drive, a FM/DAB+ tuner and an integrated amplifier with 2x35 sine: the new MC 100 CD receiver from Magnat. Via its optical and the coaxial S/PDIF input it accepts PCM signals up to 24 bit / 192 kHz, and not only the D/A converter supports this resolution, but also the power amplifier transmits frequencies up to 80 kHz according to the data sheet. Analog sources can be connected via two cinch and one mini jack input on the front panel. In addition to the loudspeaker outputs, a tape-out, a sub-woofer-out and a large headphone jack socket are also available. The MC 100 can also receive Bluetooth signals with aptX. The electronics are housed in a full metal cabinet with an aluminum front and are powered by a toroidal transformer. The device is now available for 650 Euro, complete with remote control.



Introducing

Selekt DSM

Hi-fi with the human touch

Remember when music was something you could touch? Selekt DSM makes listening to digital music a tactile and beautiful experience. It’s better in every sense. And it’ll make you fall in love with music all over again.

We can’t wait for you to hear it. Book a demo now.

www.linn.co.uk



Melco entry-level server

The Japanese server specialist Melco launches its new N100 model at the end of September for just under 2000 Euros, which is one size smaller than the N1A and N1Z series. It offers the same functions as the N1A and N1Z series,



but has a smaller and simpler housing and is powered by an external switching power supply. It is equipped with a selected 2 TB hard disk. Another novelty is the N10 (7500 Euro, scheduled for the end of October) with a more elaborate motherboard compared to the N100, a solid aluminum case and a linear power supply in a separate case. Both innovations were on display for the first time at the Süddeutsche HiFi-Tage in Stuttgart on September 8 and 9.

Lighter turntable weights from bfly

Not every turntable gets along well with a heavy record weight. Especially for models with subchassis, for example from Linn, Thorens or Dual, bfly now offers the „PG1“ in a „Light“ version. The weight has been reduced from 350 to 200 grams, but, according to the manufacturer, without sacrificing effective damping. For the body of the „PG1 Light“ bfly uses the special plastic polyoxymethylene instead of aluminum and equips it, like the „heavy“ PG1 MK2, with 6 absorber inserts, each of which consists of 3 layers of sorbothane, mineral powder (pressed) and natural rubber. The PG1 Light costs 129 Euro. The slimmed down version „PG0“ is now as well available as „PG0 Light“ for 79 Euro.



KEF updates R-series

KEF has made no fewer than 1043 individual modifications to the new R-series. Its heart is KEF's „Uni-Q“ coax chassis, which is now entering its 12th generation with a newly designed drive system. KEF has also completely revised the woofer: it now creates even greater deflections and has a new,



stiffer diaphragm. Internal struts are connected to the cabinet via damping interfaces to eliminate unwanted vibrations. Finally, KEF has equipped the bass reflex tube with flexible walls to prevent axial resonance. The front panels are covered with suede-like microfibre material, which only becomes a sound-permeable grille above the respective chassis. The new R series consists of the floorstanding loudspeakers R11, R7 and R5 (pair prices 5000, 3200 and 2400 Euro respectively), the bookshelf loudspeaker R3 (1600 Euro/pair), the center loudspeaker R2c (1000 Euro) and the Dolby Atmos compatible loudspeaker R8a (960 Euro/pair). They will be available from November in high-gloss black, high-gloss white and walnut.

Visit us on
FACEBOOK
and don't miss
any **NEWS**
from the hifi
industry!



facebook.com/
stereo.hifi.magazine



STEREO®

STEREO-MAGAZINE.COM

REINER H. NITSCHKE Verlags-GmbH

Eifelring 28, 53879 Euskirchen

Telefon: +49 2251 65046 0

Telefax: +49 2251 65046 49

Herausgeber:

REINER H. NITSCHKE

Chefredakteur:

VOLKER PIGORS

Sonderaufgaben:

MATTHIAS BÖDE

Geschäftsführender Redakteur:

MICHAEL LANG

Redaktion:

CARSTEN BARNBECK, ANDREAS KUNZ,
TOM FRANTZEN, Dipl.-Ing. ULRICH WIENFORTH

Übersetzung:

JULIAN KIENZLE

STEREO-Messlabor:

Dipl.-Ing. ULRICH APEL

STEREO-Fotostudio:

JOACHIM ZELL

Grafische Gestaltung:

DANIEL SCHIEPE

Anzeigenleitung:

ILHAMI DÜZGÜN

Telefon: +49 2251 65046 20

Telefax: +49 2251 65046 29

email: marketing@stereo-magazine.com

Anzeigenabwicklung:

ANDREA ENGELS

Telefon: +49 2251 65046 22

Telefax: +49 2251 65046 29

email: andrea.engels@nitschke-verlag.de

Mediadaten:

Media-STEREO-Magazine-2017/2018_EN

Media-STEREO-Magazine-2017/2018_DE

**Copyright für alle Beiträge, Messdaten, Diagramme
und Fotos bei der REINER H. NITSCHKE Verlags-GmbH.**

Das Magazin und alle in ihm enthaltenen Beiträge, Messdiagramme und Abbildungen sind urheberrechtlich geschützt.

Mit Ausnahme der gesetzlich zugelassenen Fälle ist eine

Verwertung ohne schriftliche Einwilligung des Verlags

strafbar. Für unverlangte Einsendungen keine Gewähr.

Namentlich gezeichnete Beiträge unserer Mitarbeiter stellen nicht unbedingt die Meinung der Redaktion dar.

Weitere Verlagsobjekte:

In der Reiner H. Nitschke Verlags-GmbH erscheinen die Zeitschriften STEREO, FONO FORUM, drums & percussion, TOURENFAHRER, MotorradABENTEUER und Motorradfahrer

STEREO ist
exklusives
deutsches
Mitglied im
Audio-Panel
der EISA

