
CD
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TOTAL
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TERNAL
D1.5

SACD-/CD-Player CH Precision D1.5

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Festival of sound and grace

Let's not think about prices for a moment. Instead, let's open the door to a place without limits, a world in which only one thing counts: the result! But can the CD player be rethought?

Throughout the history of the high end, there have always been developers who have stood out from the rest of the trade due to some little wrinkle or other in their brain. When this characteristic is combined with a high degree of visionary thinking unconcerned by seemingly fixed boundaries, it is not uncommon for these very boundaries to be pushed in ways that previously seemed unthinkable. This is precisely the case for the two minds behind the Swiss manufacturer CH Precision, founded in 2005, Florian Cossy and Thierry Heeb.

Heeb and Cossy began their careers in the high end industry at legendary manufacturer Goldmund. While Thierry Heeb specialises in applied mathematics and algorithm programming, Florian Cossy is a proven expert in amplifier circuits and design. Both obviously had a desire for something greater, and so they set up their own OEM company, Anagram, which quickly developed into one of the leading companies in the field of digital audio devices. At the time, the legendary Orpheus Lab Heritage Signature digital-to-analogue converter, which made a huge impact in the digital audio world in the early 2000s, was created in passing. I myself had the opportunity to work with this fabulous device in the course of various CD masterings and will never forget the A/B comparisons with the state-of-the art top-quality D/A converters at the time: it wasn't just a little bit better, it was the dawning of a new digital era!

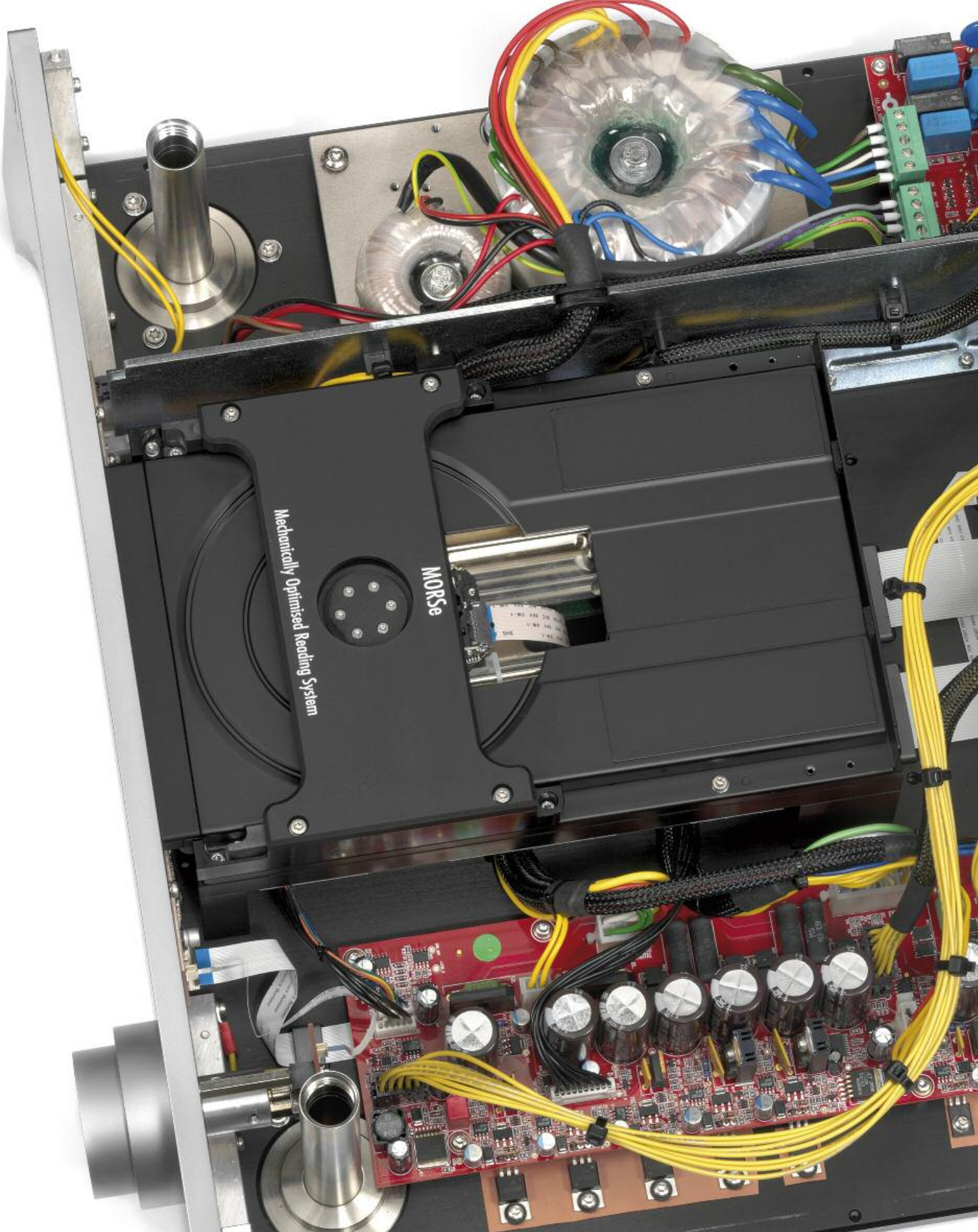
As you may well imagine, I was anything other than cool, calm and collected when the UPS courier heaved the 30-kilo-box containing the CH-Precision D1.5 drive converter system over my threshold with a somewhat distorted face. With slightly shaky hands, I made every effort to open the sturdy packaging as carefully and properly as possible, although I was itching to tear it open as quickly as possible like a kid at Christmas.

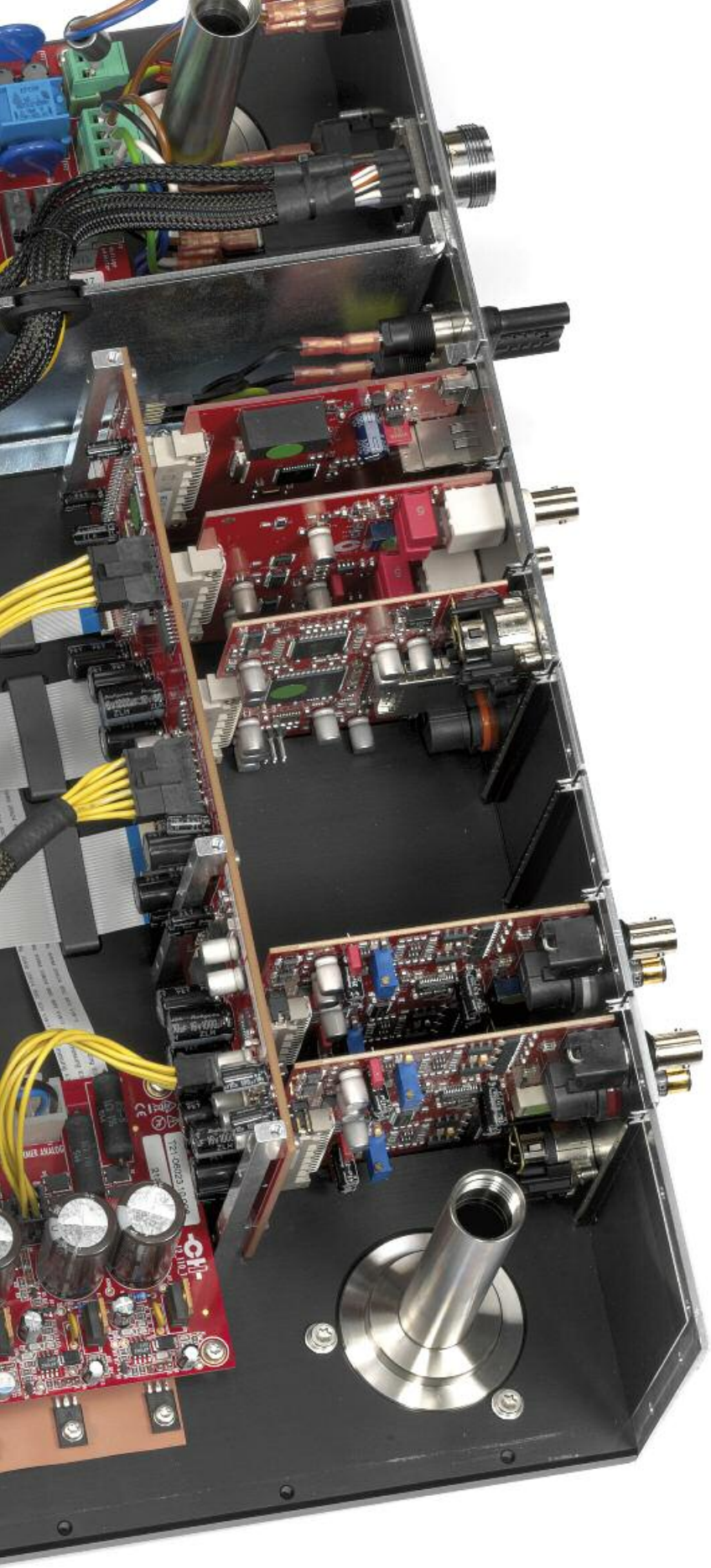
The remote control is milled from a solid billet. It skilfully incorporates into the front panel design and is magnetic on the back so that it can be firmly attached to the side of the housing. A felt strip is inserted to prevent scratches on the housing

However, CH-Precision devices require the polar opposite of childlike anticipation when they are first set up: a great deal of calm and care are the basic prerequisites for setting up the imposing, extremely elaborately crafted D1.5 in such a way that the considerable development effort put into the housing design alone is subsequently reflected in the sound. At first glance, the housing gives the impression of an aluminium block milled from a solid billet, as not a single screw is visible. In fact, it is a frame construction made of solid alloy rails, which are panelled with elegantly finished aluminium. Countless Torx screws, 16 on the rear wall and 14 on the base alone, hold the complex construction firmly together. All this is intended not only to provide optimum protection against vibrations, but also effective shielding against electromagnetic radiation.

Inside, the four corners are fitted with generously dimensioned metal cylinders that lead into the casework's feet. The tapped internal threads on the top are covered by screw-in aluminium discs. This column construction forms the basis of CH Precision's special installation system, which offers the option of stacking several of the manufacturer's devices on top of each other to optimise resonance. To do this, the four spikes supplied, which are made of a material mix of polyacetal Delrin (DuPont) and aluminium, must be screwed into the columns from above so that their conical tips protrude a little from the centres of the device feet in order to couple securely with the base; the tools required for this are supplied of course. The D1.5 also comes with four polymer discs that have a resonance-absorbing effect so that the device can also be used optimally on a hard surface. At the same time, the bolted spikes allow the drive unit to be precisely levelled, which is an essential prerequisite for fully exploiting the sonic potential of the D1.5. The whole thing is incredibly well thought out: all adjustments and installations can be carried out conveniently from above, so you don't have to crawl around under the device.

CH Precision has also put a lot of thought into earthing: there is a jumper on the back of the device, the position of which can be used to either connect


Mechanically Optimised Reading System
MORSe



the signal to the chassis earth or to separate the two so that the preamplifier can ensure that the signal is earthed via its cables. In the latter case, the chassis can also be connected to special earthing systems (e.g. Entreq, Nordost QKORE or Tripoint). This means that every conceivable earthing strategy is taken into account and earth loops are ruled out, even with unbalanced signal routing.

The D1.5 has a modular design and is only the first level of the modular CH-Precision digital system. Yes, you read that correctly - and I can well understand the look of bewilderment on your face considering the price you have to pay for it. A series of connections on the back of the device provide information about what else is possible: configured as a pure drive, the D1.5 can serve as a signal source for the C1.2 Digital to Analogue Controller or even the C1.2 Mono - Dual Mo-

Left: The solid drive block is effectively decoupled from the rest of the player by a subchassis construction, which reduces the resonance frequency to a value below 50 Hz. Sheer mass is only used where it makes sense: the CD clamping mechanism is designed as a lightweight construction to minimise moment of inertia so as not to counteract the constant change in speed during playback

Right: The fully modular design of the D1.5 could hardly be more complex: The individual optional plug-in cards are internally routed to a mechanically stabilised bus system, which means that the user can expand the functionality in a matter of seconds

naural Digital to Analogue Controller. An external clock generator is also available, which goes by the name of T1 10MHz Time Reference. There is also the X1 external power supply, which supplies up to two of the abovementioned components with power at the same time in an ultra-complex way. So you can easily invest the equivalent of a supercar in digital audio playback, which in practice - let's get this out of the way - is beyond my sonic imagination!

So that the D1.5 can be adapted to the various levels, it has several card slots at the rear, which remind me of the cassette technology used in the finest pro audio and measurement equipment. On the one hand, there is the D1.5 as a pure drive with a digital output for use with one of the external converters. There is also the CH-Link plug-in card, which acts as the manufacturer's own digital system for connecting the CH-Precision devices. The Sync plug-in card is responsible for clocking the drive with the T1 10MHz Time Reference. Last but not least, there is of course the integrated converter option with both balanced and unbalanced analogue outputs in dual-mono topology, which also allows the D1.5 to be used as a stand-alone device. If this all seems like Porsche's Weissach package or the holy key that unlocks the top speed of 400 kilometres per hour in a Bugatti Veyron 16.4, you're probably not far wrong. The only difference is that with CH Precision, you are supposed to get a rush of sound instead of speed.

The heart of the D1.5 is undoubtedly the MORSe (Mechanically Optimised Reading System) optical drive, which is just as compatible with audio CDs in 16-bit format as it is with SACDs or MQA CDs. CH Precision uses the top-of-the-range SACD drive from Denon/Marantz for this purpose, although only the laser unit, the drawer mechanism and the logic board remain. Everything else has been so uncompromisingly redesigned by the manufacturer that I can't help but think of a top analogue drive when I look at this block: the read head is mounted on a solid brass base weighing over 1 kilogram, which in turn rests on four alpha-gel isolators. This sub-chassis construction reduces its resonance frequency to below 50 hertz, so that neither mechanical effects due to the mains voltage nor resonances caused by the rotation of the media can influence the reading process. The sub-chassis is mounted in an aluminium frame with a mass of over 2 kilograms, which in turn is screwed to the elaborately mechanically earthed housing. In addition, there is a CD clamping mechanism, which also has a strong damping effect and an extremely low mass, which counteracts energy storage and does not negatively affect the constantly changing speeds of the drive unit through inertia. CH Precision thus pursues an uncompromising decoupling strategy down to the last detail, which ensures that neither vibrations from inside the device can affect the sensitive circuits nor can external influences impair the musical playback.

I couldn't resist putting this wonder drive to the test in the digital measurement technology department of a public broadcaster. My sparring partner was a Koch CD test system with a Philips turntable in a heavily modified Studer CD player. The CH Precision D1.5 caused incredulous amazement, as the Koch reference drive was clearly beaten in every respect. There is no doubt that this is a drive that sets new standards in terms of reading reliability and accuracy, according to the motto: "A read error that is prevented in the first instance does not need to be corrected later."

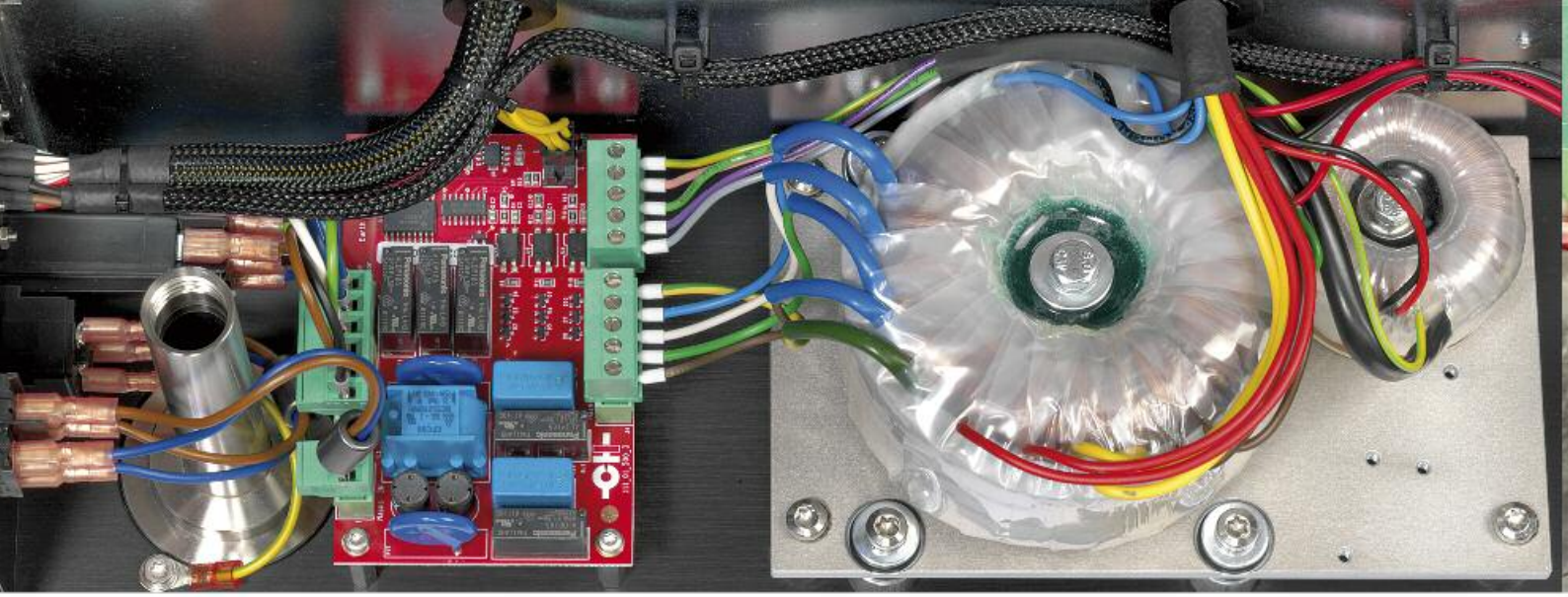
The integrated converter unit, designed in dual-mono topology, utilises the extremely well-reputed Wolfson WM8742 (6-bit) multibit delta-sigma converter components, which also give the developer the freedom to bypass the various built-in reconstruction filters and take action himself - and CH Precision would not be CH Precision if this were not the case here. Basically, there are two options in digital technology: You can construct converters that act on the frequency axis as if drawn with a ruler and accordingly work with extremely steep filters. The consequence of this is errors in the time beha-

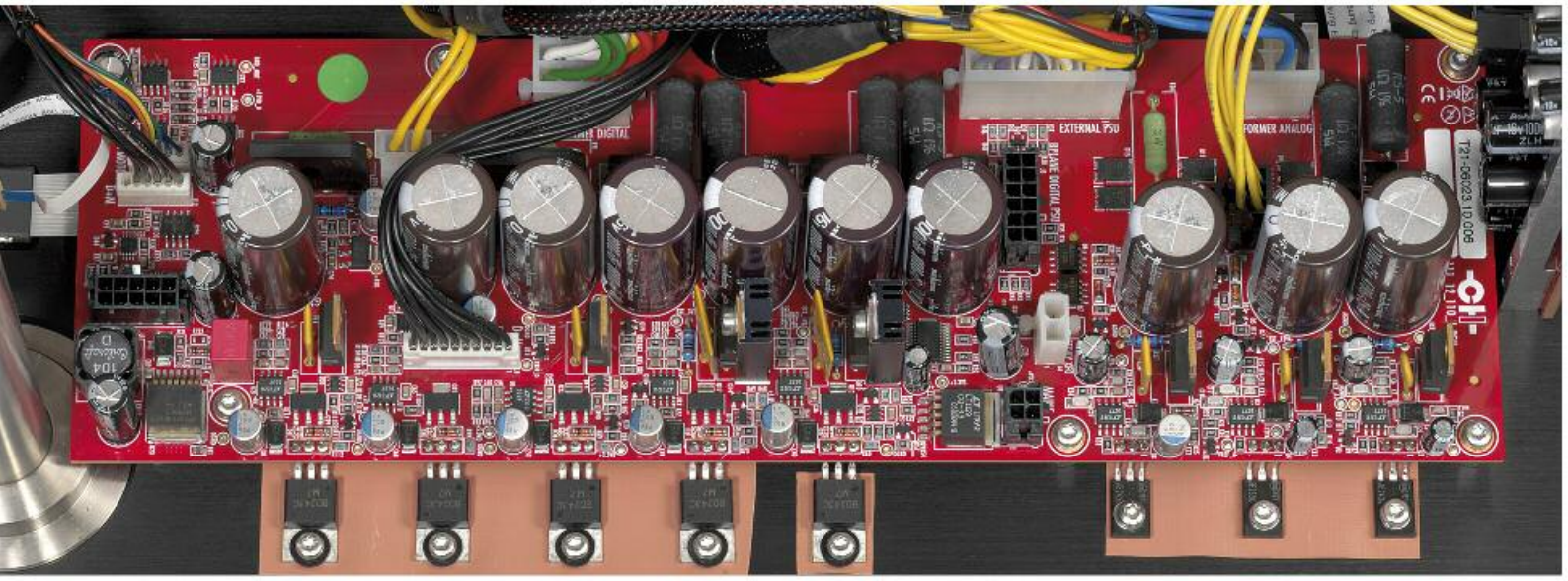
viour in the form of pre- and post-echoes equidistant from the actual signal. The other option is to use flatter filters, which dramatically improve the time response so that the pre-echoes are minimised or completely eliminated. However, this approach is always accompanied by a drop at the high-frequency end of the sound spectrum. As an uncompromising advocate of time-correct reproduction, CH Precision has developed a so-called spline filter, which was programmed using the PEtER algorithm ("Proprietary Polynomial Equations to Enhance Resolution") and enables perhaps the most correct reproduction currently available with regard to the temporal context of a converted digital signal. The use of this filter is also accompanied by a significant drop at 20 kilohertz, but leaves the critical characteristic of the music signal - the intense, loud attack of the sound - in its original form.

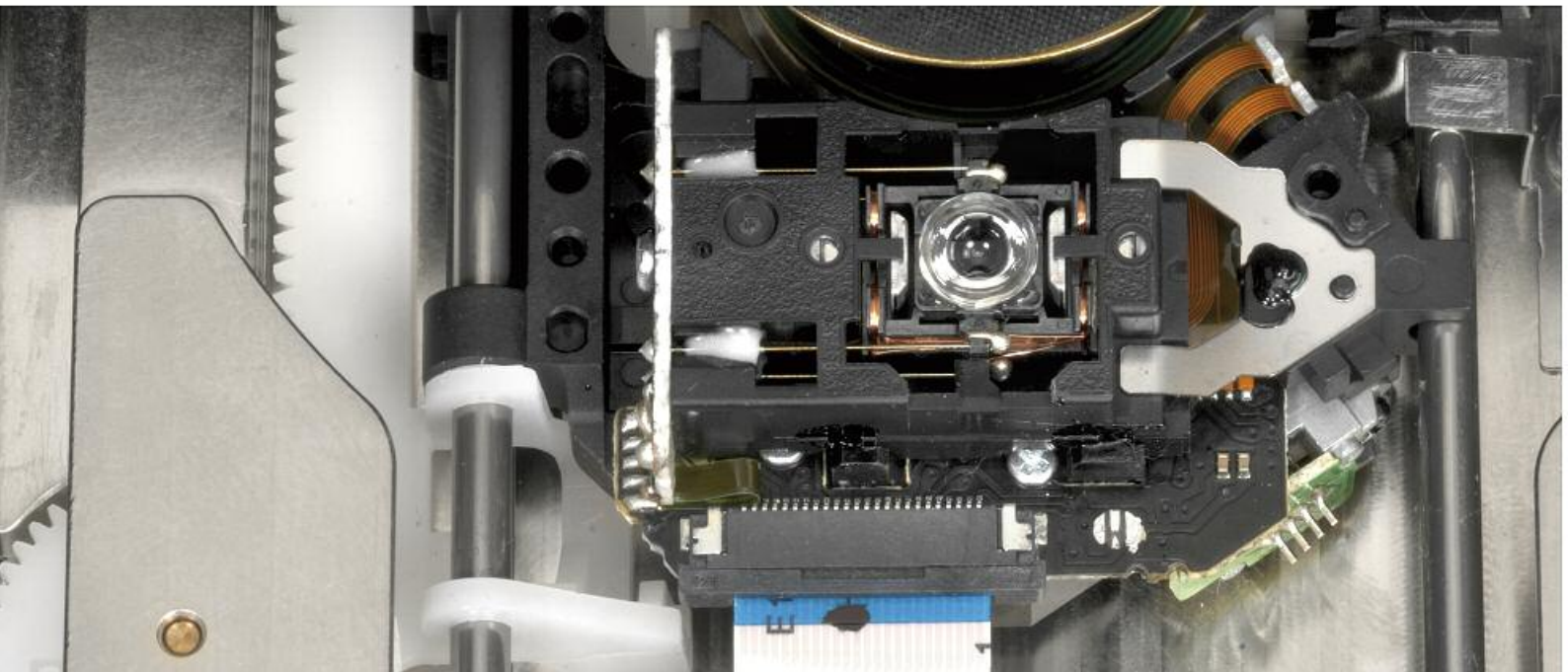
It goes without saying that the highest quality components are used for this drive/converter system. These include a test equipment quality circuit board layout and a power supply unit that supplies the digital and analogue sections of the D1.5 separately with two vibration-damped transformers, including considerable filter capacities. Discrete high-quality voltage regulators and an

Players

Turntables: Bauer dps 3.iT, Immedia RPM-2 **Tonearms:** Schröder Referenz SQ, Schröder CB, Schröder DPS, Immedia RPM-2 **Cartridges:** Jan Allaerts MC1 B, EMT JSD 5, Ikeda Sound Lab Ikeda 9TS, Lyra Etna SL, Lyra Skala, Lyra Helikon Mono, Koetsu Urushi Vermillion, Koetsu Rosewood Signature, Kiseki Purpleheart, Ortofon SPU Royal N, Zyx Fuji XH **Phono preamps:** Air Tight ATE-2, Air Tight ATE-2005, Air Tight ATC-1 HQ, Cello RMM **Step up transformers:** Consolidated Audio 1:20, Air Tight ATH-2A, Air Tight ATH-3, Cotter MK II PP **Tuner:** Marantz 20B, McIntosh MR 73 **CD player:** Marantz CD-94 (modified NOS unit with passive I/V conversion and sound film transformer) **Tape recorder:** Studer A 80 1/4" master machine with Cello input and output cards **Preamplifier:** Air Tight ATC-2 HQ, Air Tight ATC-1 HQ, Air Tight ATC-3 **Power amplifiers:** Air Tight ATM-2, Air Tight ATM-1S, Air Tight ATM-4 **Headphones:** Sennheiser HD 600, Grado GS1000 **Loudspeakers:** Quad ESL-57 (Quad Musikwiedergabe Manfred Stein), Chartwell LS3/5A with 15 Ohm (restored originals), Westlake BBSM-8 studio monitor, Geithain RL 912K active **Cables:** Loudspeaker cables: Stereolab Draco and Diabolo, Black Cat Neo Morpheus, Black Cat Reference, LYRA PhonoPipe, S/PDIF cable: Black Cat DIGIT 75, power cable: Belden 3G2.8 (assembled with IeGo copper fittings) **Accessories:** LS3/5A speaker stands from Music Tools and Celestion SL700 stands




EXTERNAL PSU
TRANSFORMER ANALOG



Above: At CH Precision, it is not enough to simply decouple the drive itself from the rest of the device in an ultra complex manner – the toroidal transformers in the power supply unit are also mounted on vibration dampers

Top right: These metal cylinders and the spikes screwed into them are used to couple the entire player to the surface. When several devices are used, this construction runs through all the stacked enclosures like an internal "decoupling rack"

Top left: Two toroidal transformers, which are electromagnetically separated from the rest of the circuit by a shield plate, supply the digital and analogue sides of the player separately

Centre left: Complex power supply for the individual modules – no integrated solutions are used here, everything is fully discrete

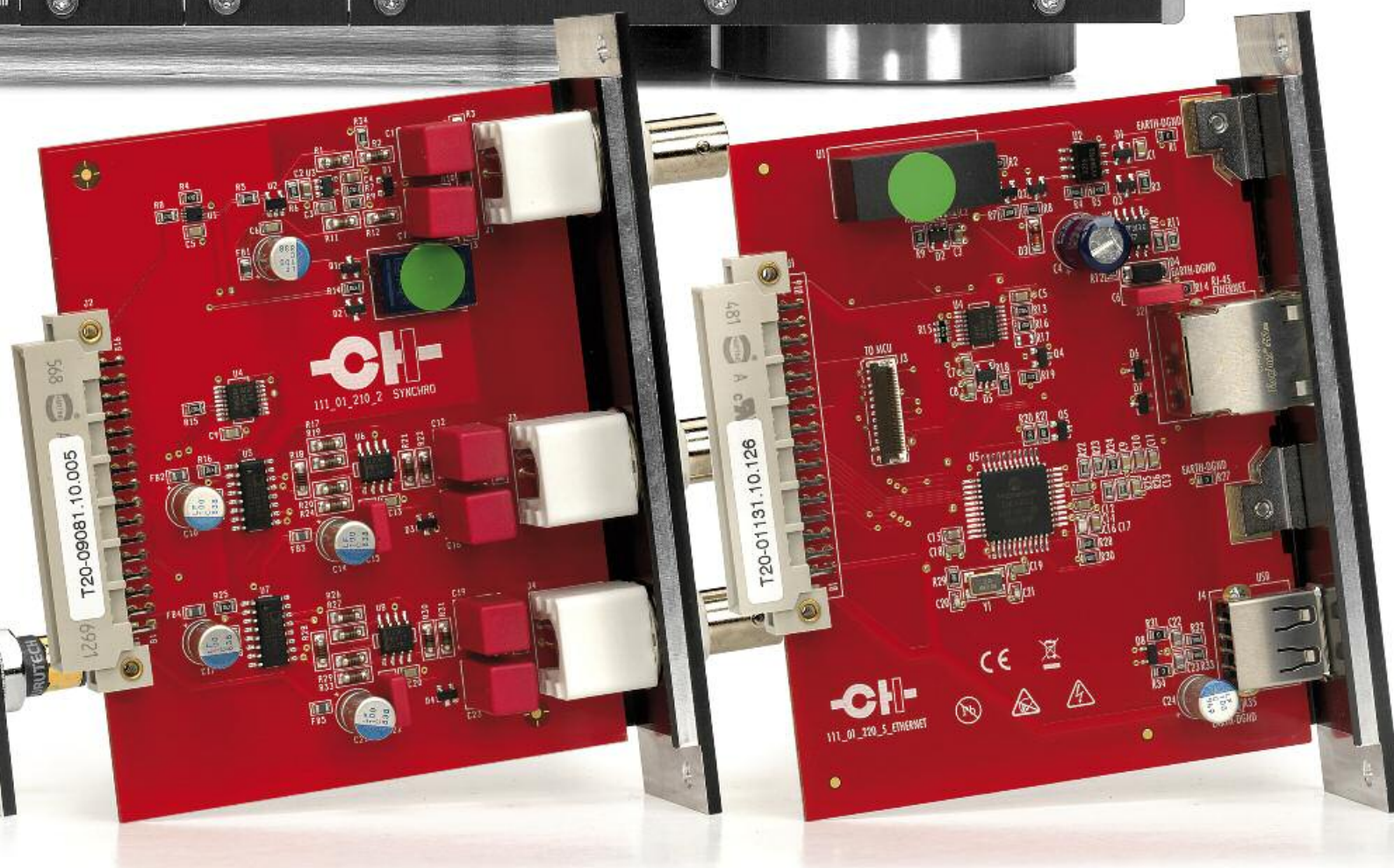
Bottom left: The OEM laser scanning unit from Denon/Marantz was tested to over 20,000 function cycles during its development, which should be enough for many, many years of trouble-free operation

electrically isolated power supply for each individual module, which are rarely found elsewhere due to the cost, are also standard. All in all, audio device construction is at "Nirvana level"! The D1.5 can be operated in three ways: firstly via two concentric rotary knobs on the right of the front panel, the inner one of which can also be pressed. Or you can use the dainty but solid aluminium remote control, which skilfully echoes the design of the front panel and is a real pleasure to hold. In addition, the device can also be fully operated via an Android tablet using the excellently programmed CH-Precision app. But no matter which option you choose: the operating logic is exemplary, and the large central display, which automatically dims down after a period of non-use, leaves no doubt as to the operating status of the device.

With regard to experiments with mains cables and filter strips, a few words of warning are in order: The D1.5 does not respond favourably to high-capacity, heavily (triple) shielded mains cables or to filter strips with digital equipment. All these standard digital tuning tools are counterproductive here, as they slow down or even round off the incomparably accurate initial transient response of the tones. The device is designed in such a way that I was unable to register any interference with the power supply, and is so effectively shielded that it is even possible to position an MC transformer on top of, next to or underneath it without even the slightest hum-


Designed and manufactured
in Switzerland by
CH Precision Sàrl
ZI Le Trési 6D
1028 Préverenges
www.ch-precision.com
D1.5 SACD/CD unit
Serial: 0Y3D1206
Max power: 100W
Analog Out
75Ω - Unbalanced Outputs - 50Ω
Balanced Output
1 - GND
3 - 180° output
2 - 0° output
Right
Analog Out
75Ω - Unbalanced Output - 50Ω
Balanced Output
1 - GND
3 - 180° output
2 - 0° output
Left
CLASS 1
LASER PRODUCT
Digital Ou
AES
Optical
CH Link
High-speed PCM capability
Ciphered DSD transmission
Coaxial
Left/Rig
T16-05238.10.188
T21-04211.10.006


Sync I/O
Control
75Ω / Hi-Z input
Signal Ground
External DC Power Supply
Power Switch
Ethernet PoE compliant
Mains voltage selector + fuses
Voltage: 90 - 264V AC
Frequency: 47 - 63Hz
1 - 75Ω outputs - 2
USB firmware update FAT32 formatted disk only
Chassis Earth & Digital Ground
DO NOT OPEN DURING OPERATION, RISK OF ELECTRIC SHOCK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T20-01131.10.126
111_01_220_5_ETHERNET

Previous double-page spread:
Thanks to its modular design and software updates that can be installed via USB, the CH Precision is a future-proof digital solution. The Swiss manufacturer is not known for hectic model changes, but product care is a top priority

Bottom left: The individual option plug-in cards are a feast for the eyes for fans of elegant circuit boards. Bottom left: The unbalanced analogue outputs come with 2 pairs of fittings, including rather unusual BNC connections, allowing precise characteristic impedances of 75 ohms and 50 ohms when using suitable cables

Bottom right: A series of optional cards gives an impression of the maximum expansion level of the CH Precision Digital System: The external 10MHz Time Reference allows the drive and one of the separate converter solutions to be clocked centrally and, of course, an external power supply is also available

ming or high-frequency noise in the phono branch - which I can only describe as insane! And the most important thing: even if I only feed it with a normal 16-bit 44.1 kilohertz CD, this player sends goose bumps down my spine after just a few bars of music.

The song "Everybody Dies" from Billie Eilish's album Happier Than Ever (Interscope Records, 00602435973678, EUR 2021, CD) is playing. When her erotic voice emerges from the low-frequency synthesiser pads, I would describe what is played on this CD player as "acoustic sex" that is no longer suitable for minors. It's downright spooky how the super-talented singer seems to be standing right next to you, life-size. I sit there and forget to breathe for several seconds, celebrating every lip sound, every breath, every little nuance of articulation. Thanks to the almost inhuman control this young woman has over her voice, she is able to create the finest arcs of tension, and the CH Precision reproduces this so convincingly that words fail me. When the human voice is reproduced so realistically that you always have the impression that you are not alone in the room (especially with movement noises, lip sounds or vocal tracks mixed heavily to the left or right channel), the playback device is clearly at absolute dream level. Speaking of which: I have never experienced any other CD player that has detached recordings in 16-bit 44.1 kHz format from the speakers as completely as the D1.5 does. The speakers simply seem to have disappeared as a source - something that top analogue turntables with a corresponding MC system and phono preamp are almost invariably capable of, but which digital playback devices often fail to achieve.

The spatial imaging is characterised by a phenomenal clarity of location and plasticity, without anything coming across as analytically frayed. Mahler's 3rd Symphony, performed by the Los Angeles Philharmonic Orchestra under the direction of Zubin Mehta (Analogue Productions, CAPC 117 SA, USA 2016, SACD) begins in the Scherzo (3rd movement) with various bird calls, orchestrated by different woodwinds, which are accompanied by alternating string pizzicati. Almost the entire orchestra in its imposing spatial expanse is included in this motivic work with short soloistic interludes, whereby the D1.5 creates a spectacularly realistic illusion of the concert hall in its breadth and, above all, depth. The whole effect is so uncannily three-dimensional that you soon have the feeling that you have swapped your seat in front of the system at home for one in the fourth row at the centre of the action. The richness of the tonal colours is in a class of its own: no matter which instrument is playing, the captivating naturalness and striking realism make me remain almost humbly in my seat, and I listen to the entire work all the way through twice that evening.

Incidentally, it makes no difference to the player in which frequency range it floods the listening room with music: in my opinion, the bass reproduction offered here, for example, has so far only been achieved by professional tape recorders. Even in the low bass, the finest tonal structures and a crazy resolution in coarse and fine dynamics can be heard at all times. Even brutal violence seems to be passed on with endless devotion and empathy at the same time. The flawless mid-range is followed by a high-frequency spectrum that is unrivalled in terms of precision, cleanliness and three-dimensionality. In all these years, I have rarely heard such a graceful sound. The drive/converter combination never strays from the path of neutrality, so that even after weeks of intensive listening I was unable to discern any characteristic colouration or even the tiniest sonic fingerprint.

The CH Precision D1.5 sounds neither analogue nor digital - it simply sounds incredibly correct and, for me, opens a new chapter in high-end source devices. The fact that this is even possible with CD, which has already been declared dead several times, makes my audiophile world view collapse like a house of cards. □

SACD/CD player CH Precision D1.5

Operating principle: CD/SACD drive with integrated D/A converter (optional) **Converter type:** Multibit Delta Sigma converter **Supported formats:** CD, SACD, MQA-CD **Digital outputs:** 1 x S/PDIF (75 Ohm, coaxial), 1 x TOSLINK (S/PDIF optical), 1 x AES/EBU, 1 x CH LINK HD (optional) **Analogue outputs (optional):** one pair RCA (unbalanced), one pair BNC (unbalanced), one pair XLR (balanced) **Frequency response (DC):** 20 kHz (CD), 50 kHz (SACD) **Dynamic range:** 96 dB (CD), 120 dB (SACD) **Signal-to-noise ratio:** 120 dB (for CD and SACD) **Total harmonic distortion + noise:** < 0.002 % (CD), < 0.0015 % (SACD) **Output level:** 4 V RMS at maximum digital level (balanced output), 2 V RMS at maximum digital level (unbalanced output) **Special features:** Extension CH-Link-HD option, analogue outputs (RCA, XLR); Sync clocking system **Dimensions (W/H/D):** 44/13.3/44 cm **Weight:** 22 kg **Price:** 42,250 euros incl. 20% VAT (D1.5 with a digital output)

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