

BRIDGE TECHNOLOGY



**The iconic
»Modulo-
meter« is an
integral part
of Nagra**

The new Nagra Classic DAC II bridges the gap between the top DAC and the future streaming bridge from the swiss company. In the STEREO review, it reveals why it is so special.

Matthias Böde

When Nagra announces a new component, the high-end world jumps to attention. The devices from Romanel-sur-Lausanne in Switzerland indeed have an almost unique aura. In the case of the new DAC II from Nagra's ambitious „Classic“ series, our curiosity was particularly high after it was revealed that the device employs the „Nagra Audio Digital Module“ (NADM), otherwise used in the highly expensive HD DAC X. Thus, we even went to the Nagra factory at Lake Geneva to find out more about the company and its brand new D/A converter.

It is housed in the 28 cm wide aluminum enclosure of the Classic line. On the right-hand side, the Nagra-typical rotary switch for the operating modes is positioned, wherein „R“ stands for remote, i.e. control via the supplied hand-held remote control. Otherwise, the input is selected using the wheel next to the display. This is then shown in the window, as is the corresponding PCM or DSD format. A quick press and the absolute phase is rotated by 180 degrees.

The almost iconic „Modulometer“ from the Swiss company, which can be dimmed in seven stages and displays the level of the

digital input signal using channel-separated pointers, is a key feature of Nagra products. Why implement it if nothing can be adjusted? Well, for example, to identify whether a track has been mixed louder or quieter.

Thus, strong dynamic compression, in which the volume of the music is always oriented towards the maximum of the zero-decibel mark, is already visually exposed, while balanced recordings „sweep“ a significantly wider range. The fact that the Modulometer is not „guessing“, but works very precisely, was also proven when we fed the Classic DAC II pre-set levels, which it reproduced as accurately as channel-identical.

Independent Processing

Of course, Nagra's new DAC offers the usual digital inputs, including one balanced and two coaxial inputs, one of which is a BNC socket with a 75 Ohm characteristic impedance. Additionally, it carries a USB interface for your PC/Mac. This provides full choice of PCM formats up to 384 kilohertz or quad DSD with 256 megahertz bandwidth. The other digital inputs as well as even the optical connection accept up to PCM 192 kHz.

However, two additional proprietary „Nagra Link“ inputs are also included, in high-quality AT&T fiber optic construction. These aim to provide the link to upcoming products from the Swiss company. For example, they are working on a streamer that is supposed to be released next year. This unit will be designed as a pure bridge without its own DAC or analog output stage. Thus, it will find its ideal place on one of the AT&T connectors.

All incoming signals are converted by the Classic DAC II into the so-called Quad DSD, DSD 256. Nagra promises advantages for data processing and the sound from that. The conversion takes place in a „Field Programmable

In addition to the usual digital inputs, the rear of the device offers several „Nagra Link“ connections for future devices.



As is typical for Nagra, the circuit boards sit between small rubber dampers to protect them from microphonics. They call this „silence locked“.

Gate Array“, or FPGA for short. The completely independently designed software was developed in collaboration with the legendary DSD/SACD co-developer Andreas Koch. It is therefore something like Nagra's own hardware, with which traditional DAC chips are not needed. According to the Swiss company, other DACs would leave their own mark on the sound, depending on the manufacturer and design, which is something they wanted to completely avoid here.

Surprisingly, the discrete output stage, which is equipped with military-grade parts, only leads to a pair of RCA sockets that are firmly screwed to the housing. XLR as an alternative, as is usual in this price range, is missing. The manufacturer explains that there is no point in equipping unbalanced components such as the Classic DAC II in this way, as XLR would not offer any advantage here and would only confuse the customer with regards to optimum cabling. Absolutely right!



BIG ROLE MODEL

The Classic DAC II takes the „Nagra Audio Digital Module“ from the HD DAC X, which costs a whopping 65,500 euros including the external power supply unit.



»VFS«-Base is almost a must

The DAC from Lake Geneva draws its power from what the manufacturer claims is an „extremely quiet“, meaning low-noise, switching power supply. In addition, the individual circuits are elaborately buffered to keep out external influences. If desired, the DAC II can also take its power from Nagra’s external power supply unit (PSU), which is said to further enhance the sound. The LEMO connection required for this is of course provided.

As a first step, however, tuning-minded listeners should consider purchasing the „Vibration Free Support“ (VFS). There is nothing better or quieter the DAC II could rest on than Nagra’s two-layer aluminum base. In it, polymer studs of different textures provide broadband damping both towards the base and between the stable light metal plates. Instead of four small plastic feet, the Nagra then stands on three solid steel cones screwed into the base with a hard tip made of the special thermoplastic Delrin.

Let’s keep it short: When the DAC was placed on the VFS, it achieved an even enhanced performance. The already extremely finely graduated, fanned out and

The „Vibration Free Support“ (VFS) available for the Classic DAC II including feet with „Delrin“ tips is much more than just an accessory.



NAGRAS RECIPE FOR SUCCESS: HANDMADE IN SWITZERLAND

From the outside, Nagra’s headquarters and factory in southern Switzerland looks like any other industrial building. But inside, the spirit of precise craftsmanship and high-end sound prevails. The company currently has 25 employees, five of whom are dedicated exclusively to development. A total of around 3,000 square meters are available for production, administration and logistics. The huge warehouse for components and parts of all kinds is impressive. During our visit, Lab Manager Mario Jimenez was checking a Classic DAC II and documenting the measured values in a comprehensive report (below left). The customers will find excerpts from this in the packaging. Should there ever be a problem with the device, the Nagra service can always refer to this individually determined test data.

Even though many fully assembled PCBs and other parts come from high-quality suppliers: Final assembly is always carried out by hand in the factory. As is the

preparatory work required for this. A pack of ten „Modulometers“ in a polystyrene holder, for example, lie on a table (left). Before installation, they are meticulously calibrated in a mixture of mechanical adjustment and software preparation so that they are able to display as accurately as the Swiss claim.

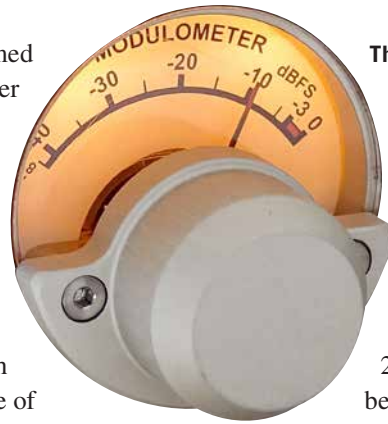


The metal parts for the components of the exclusive „HD“ series in particular are manufactured on two large CNC machines, where Gerardo Caviedes monitors the processes (2nd from right). Meanwhile, development engineers Leonard Bacinello and Tiago Figueiredo discuss the final details for the „HD Phono“ preamp in the laboratory (bottom). In particular, the final capacitor type for a specific position still has to be determined. Several are part of the final

selection process. „The choice is so difficult because looking at their measurement data hardly leads anywhere. They are largely identical.“ They have no problem admitting that



spacious sound image seemed even more expansive, deeper and airier. It also detached itself more easily from the speakers and stood more naturally in the room. The difference is immediately and always audible in a direct comparison, but especially with the 24-bit/192 kilohertz file of „I've Been Missing You“ by Austrian musician 7Ray and his band, found on the upcoming „STEREO Festival of Master Tapes“. Despite our high-end rack, the song's delicately placed hi-hats wafted freely from the background and the singer appeared particularly three-dimensionally outlined as soon as Nagra's little DAC king took a seat on its throne. It is therefore far more than



This is how precision works: When we digitally fed a one kHz signal ten decibels below the maximum level, the two pointers of the modulometer are exactly on top of each other at the „-10“ mark.

just a recommended piece of accessory. Rather, the almost 2,200 euros for the VFS should be factored in from the start.

In any case, however, the Swiss DAC – equipped with clockwork precision and the relaxed sovereignty of an expert – delivered sound images of exquisite balance and high-class grandeur, which always appeared in an aura of invulnerability. The Classic DAC II did not allow itself the slightest coloration in the sensitive mid-range, which is particularly noticeable for

TEST DEVICES

Media Player:

T+A MP3000HV

Streamer/Server:

Aurender N10

Digital Recorder:

Nagra Seven

Pre-/Power Amp:

Audio Research REF6 SE/

Krell KSA-i400

Loudspeakers:

B&W 801 D4,

DALI Epikore 11

PMC Fact Fenestria

Cables:

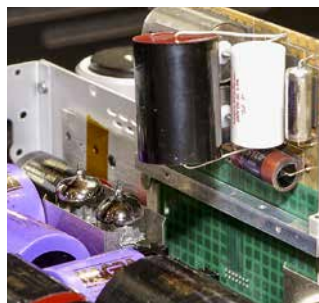
HMS Suprema (digital,

NF, power), In-Akustik

LS-2404

at a certain point the complex measuring equipment is of little help to them and the decision has to be made on the basis of other premises.

The duel is therefore moved to the listening room, where the HD PreAmp plays to the powerful mono power amps from Nagra's top line, which in turn drive a pair of Wilson Audio Alexx V (bottom right). The acoustics are of the finest quality, but by no means too „dry“, so that every detail is audible, but the listening pleasure is not neglected. The „Reference Anniversary Turntable“, recently presented on the occasion of the company's 70th anniversary, obviously serves as the ultimate playback device, with the MC cartridge specially manufactured for Nagra and according to their specifications adjusted to its arm. In addition to other refinements such as a double-layered coil carrier, an ironless alloy from space technology used only by Nagra for audio for the housing with



special damping properties is intended to help it achieve exceptional performance.

And it truly is a fantastic experience to listen to this dream combination. Among other records, the „Anniversary“ LP, which was also released for the anniversary, finds its spot on the turntable. All tracks were recorded using Nagra equipment. We enjoy this high-end experience before the technically and audiophile-savvy duo dive into lengthy condenser comparisons. The components are mounted on an extra circuit board that is connected to the rest of the circuit (left). Remember: listening can also be work; even in this place...

Still under the impression of our listening experiences, we pass the place where the input/output transformer coils are wound, for whose quality Nagra is almost legendary. Only two or three people are allowed to work there. So that nothing tarnishes the spirit of Swiss precision.





GOOD FOR YOUR HAND

The plastic remote control sits comfortably in your hand and controls numerous functions including on/off. Only the volume control buttons have no function.

your ears. Meaning that voices, for example, were presented purely and with a typical timbre. There was neither the slightest tendency towards coldness nor the tiniest hint of romanticizing roundness.

Performance at the top level

Instead, the Nagra delivered sophisticated and unadulterated performances with all formats and resolutions. It always seemed as if the sound had been balanced with an apothecary's scales. Like Switzerland in politics, the DAC II has imposed strict tonal neutrality on itself. Which doesn't mean that it can't also play powerful. In particular, the aforementioned master tape copies, coming from Nagra's small digital recorder „Seven“, fed via the balanced AES/EBU socket in high bitrates, proved to be real touchstones. For example, the steep impulses of Frédéric Alarie's bass number „George“ burst out of the loudspeakers without losing any of their spatiality. At the same time, the instrument revealed

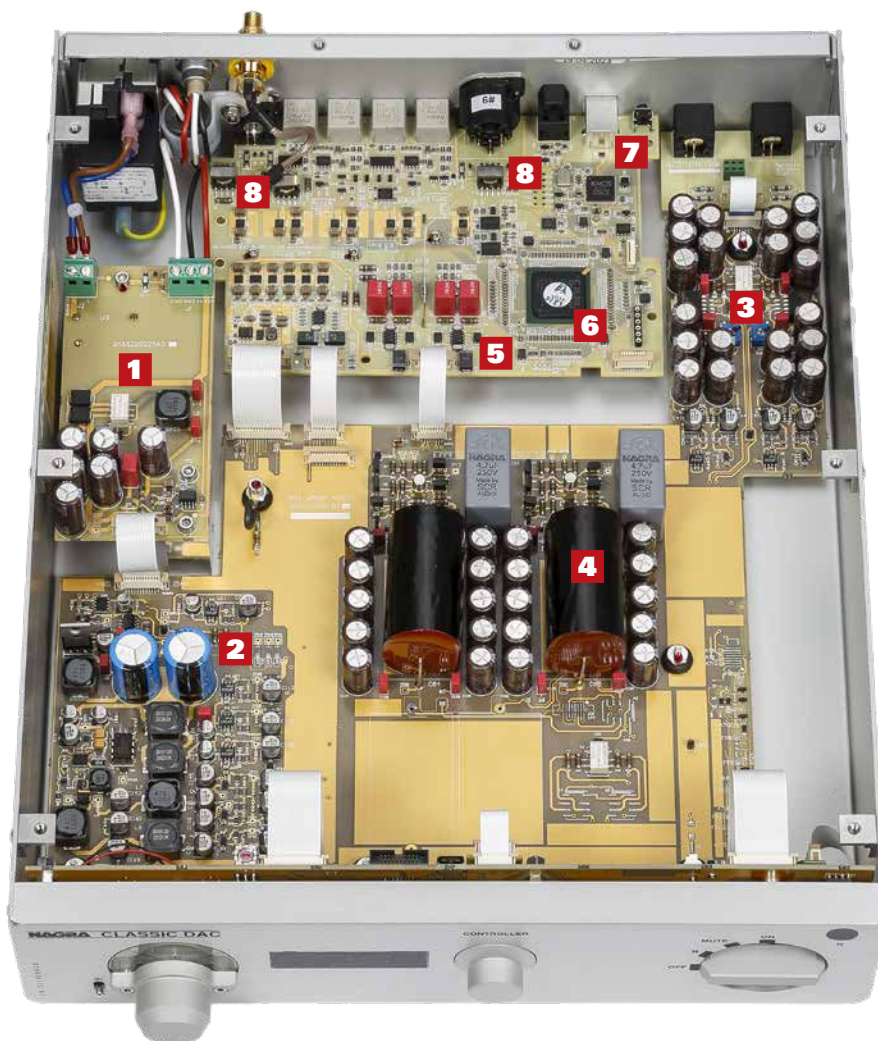
its gnarled, woody substance as well as an almost athletic smoothness.

The striking choral piece „Var nära mig“ from the Proprius album „Viska du vind“ by Göteborgs Kammarkör Sjunger, on the other hand, was enchanting. The voices wafled from the depths of the church like leaves gently stirred up by the autumn wind, the lead singer at the front possessed sonorous breath and unpretentious urgency.

To achieve this enchanting performance, the Nagra must of course be connected correctly in relation to its mains phase (see diagram). If the plug is plugged into the socket the wrong way round, the sound image narrows and the lower layers become slightly sluggish and grumpy. Avoid that at all cost!

Because the enchantingly multifaceted Classic DAC II is a professionally made, absolutely high-end listening device that wants to be driven to peak performance in every way – and is capable of that! In terms of sound, features and technology, it builds a bridge to the big, fascinating world of Nagra. ■

The Classic DAC II is powered by a switching power supply. While the first stage **1** reduces the mains voltage to twelve volts, a further circuit board **2** generates four highly constant supply voltages. The sophisticated output stage **3** is buffered via its own filter stage **4**. The digital section **5** is exactly the same as in Nagra's HD DAC X. There, a specially programmed FGPA chip **6** takes over the digital signal processing. The USB interface occupies its own sector including chip **7**. The coaxial and balanced inputs are galvanically decoupled using small coils to protect against HF interference **8**.



Nagra Classic DAC II

Price: around €19,500

Dimensions: 28x8x36 cm (WxHxD)

Warranty: 3 years

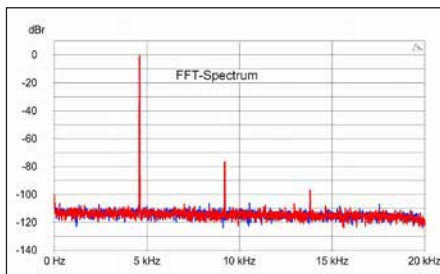
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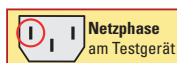
Thanks to its adopted circuit board for digital signal processing, Nagra's Classic DAC II benefits directly from the high-tech aspirations of the brand's ultimate devices. Nagra's professional signature and audiophile standards can also be recognized all around, resulting in a little dream that occupies the reference status among DACs.

Measurement Results



Signal-to-noise ratio at digital zero	116 dB
Output resistance RCA	45 ohms
Output voltage RCA 0 dBFS	1,5 V
Distortion factor at -9dBFS	0.017 %
Upper cut-off frequency	44 kHz
Power consumption standby/idling	<2 /14 W

Lab Comment



The Classic DAC II delivers a first-class performance in our test lab: its noise remains inaudible, distortion is extremely low, which is also reflected in the outstandingly clean FFT spectrum. The low output resistance proves the stability of the respective stage. With exactly 1.5 volts at the output, the Nagra is slightly „quieter“ than other DACs at full volume, but this is not important in reality.

Features

Two coaxial digital inputs in RCA and BNC versions, plus one balanced and one optical, USB input for PC/Mac, „Nagra Link“ inputs/outputs for future devices, one analog RCA output, „Modulometer“ display for input level, phase inversion, connection option for external power supply unit, remote control

STEREO-TEST	
SOUND LEVEL DAC	100%
PRICE/PERFORMANCE	
★ ★ ★ ☆ ☆	
VERY GOOD	

WHAT WE'VE HEARD

Göteborgs Kammarkör Sjunger: Viska du vind



The legendary Pro-prius label captured modern choral pieces with a variety of instruments and a captivating musicality that sounds incredibly natural.

Al Di Meola, John McLaughlin, Pace de Lucia: Saturday Night In San Francisco



The ingenious follow-up to the best-selling live guitar concert in the world radiates a great deal of sparkling live atmosphere, especially in the shape of the high-quality Impex mastering.