

Integrated amplifier SCORPIO XS

Manufacturer: [AYON AUDIO](http://ayonaudio.com)

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PREMIERE

[AYON AUDIO is a company specializing in expensive and very expensive audio components: amplifiers, digital sources and loudspeakers. In 2008, however, they presented an amplifier costing 7,500 PLN called Orion, which changed the rules of the game. SCORPIO XS is the latest incarnation of the manufacturer's basic amplifier and its first one featuring EL34 tubes.]

In 2008, I talked to Gerhard Hirt, the owner of Ayon Audio, and asked him about the motives for developments of the Orion amplifier. He listed several reasons, but the most important to me were two: **the desire to present "company's" sound to people who until that moment could not afford Ayon products, as well as the need to "close" the lineup from below to have a competitive product also in the lower price range**. So there were two main reasons - ideological and practical ones.

AYON AUDIO in "High Fidelity"

- Sound —

Recordings used for the test (a selection)

| Tidal/SACD/CD

- Akiko Sakikawa, *Dream of NIKE*, Masakazu Ushata Work, Waon Records WAONCD030/Tidal, FLAC 16/44,1 (2019)
- Diana Krall, *All for You*, Impulse!/The Verve Music Group 532 360-9, XRCD24 (1996/2010)
- Jamison Ross, *All For One*, Concord Jazz/Tidal Master, MQA 24/96 (2018)
- Jim Hall Trio & Tom Harrell, *"These Rooms"*, DENON/Nippon Columbia CY-30002-EX, CD (1988)
- John Coltrane, *Blue World*, Impulse! B0030158-01/Tidal Master, MQA 24/192 (2019)
- Linda Ronstadt & The Nelson Riddle Orchestra, *What's New*, Asylum Records 60260/Tidal Master, MQA Studio 24/96 (1983/2019)



In order for the project to succeed at all, Ayon had to come up with an idea that would allow them to stick to the most important solutions, but so that the price could have been lowered. It was quite a challenge since the two most expensive elements, i.e. the chassis and power transformers, remained the same as in the more expensive model called Spirit. The Orion was based on KT88 power tubes, it differed from the Spirit mainly in minor cosmetic elements and less sophisticated components. But it also added something new – a headphone output and an USB input with a digital-to-analog converter.

In 2012 it was replaced with a newer version called [Orion II](#). Little has changed outside. The knobs were already knurled, the descriptions were better made, the "Direct" input was added to the power amplifier, and the weight increased by only 1 kg.

- Marta Zalewska, *Marta Zalewska*, Polskie Radio/Tidal, FLAC 16/44,1 (2019)
- Oleś Duo, *Alone Together*, Audio Cave (płyta jeszcze niewydana), 2 x Master CD-R (2019)
- Taylor Swift, *Lover*, Taylor Swift Productions/Tidal Master, MQA 24/96 (2019)

[Pentode](#) | I devoted the first part of the listening session to an amplifier playing in the pentode mode. It was immediately obvious that it was a **cultured sounding device that clearly indicates the type of output tubes used**. However, it does something more, because it does not stop at the EL34 celebration, and combines its "own sound" with a some distance from which we listen to music. Together, these two elements produced a large sound with high dynamics, great bass performance and with instruments slightly retracted beyond the line connecting the speakers.

This is a mode that will appeal to all those for whom compactness, punctuality and focus are important in the sound. Marcin Oles' double bass from the *Alone Together* album, which has not been released yet, was powerful, dense and very well controlled. The character of the reverbs that were imposed on it was not particularly emphasized, and the whole was rather smooth. Jim Hall Trio and Diana Krall listened right after this album sounded in a similar way. There were sibilants in the singer's voice - this is how the album was recorded - but they were smoothed, they didn't hiss or attack me.

More significant was the change introduced with new tubes - instead of the KT88 Genalex Golden Lion, Gerhard used the excellent KT88 Shuguang Black Treasure in the "anniversary" edition (Shuguang celebrated its 50th anniversary).

| SCORPIO XS

Some other change was actually more important - the use of a proprietary automatic bias control system. During the first calibration or after replacing tubes with new ones, it is set manually, but then the system maintains the appropriate parameters for each tube automatically, preventing their aging, improving their fit. And this is the core of the latest "basic" Ayon amplifier, this time in the latest version called AFB. This is the latest version of this system, which can be found in all the more expensive Ayon models.

| Auto-fixed-bias

The auto-fixed-bias is a proprietary Ayon Audio system that is designed to protect output tubes, react to their aging, but above all is to allow tubes to operate comfortably using their full potential. In Ayon Audio amplifiers, tubes are set to use 85% of their current capabilities, and not - as in other amplifiers - 75%. In order not to overload the tubes, they must be constantly monitored - and that's what AFB provides. An additional benefit is that the amplifier's performance does not change as the tubes age.

The AFB is an advanced system that, first of all, after connecting the amplifier to the mains in our room, needs to be calibrated - the amplifier must "know" the value of the voltage



Triode | Switching to triode mode takes a few minutes - it's important to follow the manufacturer's instructions! - therefore, comparing the two modes means is not as direct as one may wish. It does not really matter, however, as we can immediately hear that these are two quite different types of sound. But more importantly these are two *equivalent* types of sound. **With Scorpio XS, we get - in fact - two devices in one.**

Listening to Ayon amplifiers for - say - seventeen years I have never attached myself to a specific mode of output tubes operation. Sometimes I liked the pentode mode more, and another time the triode mode. I was not interested in "acts of faith" and tried to answer the question which sound was more satisfying. This time both modes turned out to be equally

in the outlet and adjust the parameters of the power supply to it. We do this by pressing, with a small stick (it can also be a match), a button on the back. The amplifier then enters the measuring mode, and the logo on the front panel flashes. It is a safe system that guarantees long, trouble-free tube operation.

The Ayon Audio Scorpio XS is a tube integrated amplifier with the semiconductor power supply. Although on the outside it resembles both the older Orion II and the new Spirit V, it features tubes that Ayon, if memory serves, has never used before - the EL34 power pentodes. They work in push-pull mode in class A, delivering 2 x 40 W when working in pentode mode, or 2 x 25 W, when working in triode mode.

[Operating modes](#) | ‘Operating modes’ technically describe how the output tubes are connected. **The simplest system is a triode with one control grid. However, it offers a small gain.** To increase it, manufacturers introduced more grids, forming a tetrode (four), pentode (five), hexode (six), etc. In audio designers use diodes (in rectifiers), triodes (2A3, 300B, 211, 845), tetrodes (or rather beam tetrodes: 6L6, KT66, KT88, KT120, KT150) and pentodes, with the iconic EL34 (but also: 6V6, EL84, PL500).

So - **the pentode (and beam tetrode) offer more power, but the gain is less linear, and the triode offers lower power, but better linearity.** However, you can "force" the pentode (and beam tetrode) to pretend to be a triode. This is a fairly simple change, which is why some amplifiers, including most Ayon Audio amplifiers, are equipped with an appropriate switch, which determines in what mode the tubes operate. In Scorpio XS it is placed on the back of the device. It is

interesting. And **although I personally chose the triode mode, it is only because I am specifically looking for those features that it offered me, and not because I did not like the pentode mode, or that there was something “wrong” with it.**

In the triode mode the sound is not softer at all - well, maybe except for the lower bass. It is also not less open. In fact, much more happens at the top of the band in this mode. The sibilants in Diana Krall's voice were, however, less "active", as well as the characteristic sound of the voice of Muniek Staszczuk from the *T.Love*. In turn, the cymbals from the Jim Hall Trio album were equally active and "present". However, the difference between what I heard with it before and what the triode mode gave me was significant, because the midrange was richer, stronger. The sound was also more resolving and better differentiated. But also, let's say it, it was not as heavy, and the bass attack was slightly muffled.

This is an amplifier delivering a large scale sound. It presented very nicely both, the spontaneous performance from the Jamison Ross' *All For One*, Akiko Sakikawa's harpsichord from the *Dream of NIKE*, as well as the piano trio accompanying Sinne Egg on the *Face The Music*. On the latter disc, much attention was paid to the great presentation of the drums, with the exceptionally vigilant reproduction of the snare drum – I could hear the reverb of this drum as if I was sitting right next to it.

The whole presentation was slightly warmed up, but only in the middle part of the band. Treble will always be present, and the bass will not enter "soft" mode. **It is a lively, active**

important to make the change when the amplifier is off, otherwise we can damage the tubes, power supply and even output transformers.

Appearance | The amplifier maintains the classic Ayon look, with a black chassis, transformers housings painted black and tubes placed on the top. The front features a laser cut logo illuminated in red. There are also two great looking knurled knobs and a row of red LEDs. Use the left knob to change the volume, the right to choose the input. The first one is coupled with a motor, so you can change the volume using a remote control. But, beware, **you have to pay an extra PLN 450 for it**. The point was, I guess, to keep the price as low as possible, but to give customer an option to purchase a remote later. The input can be selected only manually. The remote, apart from volume control, allows user to use the „mute” function.

On the back there are four line inputs with gold-plated RCA sockets and two pairs of speaker outputs. **The tested unit featured transformers with a secondary winding for the 4 Ω load**, as confirmed by the sticker, but - as I assume – one could also order an 8 Ω version. There is also a segment LED display there, which allows user to read information about the status of output tubes (whether any of them needs replacement) and a button with which one can calibrate the mains voltage.

Functions | The tested amplifier is a classic product of this type, i.e. does not feature a D/A converter, Bluetooth receiver or an Ethernet connection. It offers only one pair of speaker outputs, no preamplifier output, no recording output, no headphone output. The remote control is optional and only supports volume control. So this is a "bare" device. And yet it

presentation, and when we play a high resolution file, we will know what get it has to offer. These will be elements such as above all, better differentiation, and better depth. This was the case, for example, with the *What's New* by Linda Ronstadt with the orchestra conducted by Nelson Riddle. The band's sound was big, strong and full, it was playing with passion, or melancholic at other times - because it is such music - but it has never been boring.

Also with these recordings a feature that I already mentioned when describing the sound of the amplifier in the pentode mode came to light: the particularly cultured sound. This is not the fastest amplifier in the world, nor the most resolving one, it rather combines layers than separates them, and does not build clear bodies. But everything it does is very nice and good. **This is a very factual amplifier, well designed, which reaches right to the "heart" of music from the side of harmony, saturation, richness.** It does not exaggerate with these elements, it does not pretend that it is more tube-like than the tube itself, but this the direction it follows.

| SUMMARY

In fact, listening to the Scorpio XS, seeing it in front of us, we quickly forget that it costs so little. Because it delivers such a competent, so nice performance. With equal ease it reflects the melancholy of recordings by Marta Zalewska (I recommend it!) and John Coltrane from the *Blue World*, with recently found and beautifully remastered recordings from 1958. **This is a very versatile amplifier, which has two faces – a more rock and pop one, which will be great with speakers more**

is equipped with a system that regulates the operation of tubes, found in very expensive products. It's a bit like we equipped a small car with a driving assistance system from an expensive limousine. For us, i.e. users – it's great.

— A FEW SIMPLE WORDS WITH... —————

GERHARD HIRT

Owner, designer

WOJCIECH PACUŁA: What was your goal with Scorpio XS?

GERHARD HIRT: Dealers asking me nonstop to bring an Integrated amp to the market for below € 3000.-, like a door opener into the Ayon tube amp world. The Scorpio XS is the answer, but from the business standpoint, it is a very tough project for Ayon. It means the customer get a lot of "amplifier" for that money, let's say, as never before in our history.

Is it the first Ayon amplifier featuring EL34 tubes?

Yes, it's our first amplifier of this kind.

What did you have to sacrifice to offer such an attractive price?

Actually, not so much, the EL34 needs less power supply and energy storage, it has a simpler circuit in general, we installed a simpler tube protection system, we cut Direct in and Pre out function. But the real secret to bring down the price is the number of production output; it is not a secret when you go to

difficult to drive, as well as the triode one that will work great with jazz and vocal music.

In the former one, the Swift Taylor's *Lover* album sounded really well (in Tidal it is available in MQA 24/44.1 files, and in Japan on 7" disc), and in the latter one the new disc with a soundtrack for the *Euphoria* HBO series, with vocals in the lead role sounded really great. **The Scorpio XS is a device you can rely on and that will never let you down**, whose sound can be tailored to our taste and our speakers. For the money – it's w great accomplishment! So the **RED** Fingerprint is a must.

- Design —————

Mechanical design | Most of the details related to the description of the mechanical construction, appearance and functionality have already been recalled. I will only add that the feet are made of aluminum and they feature rubber pads.

Electrical design | **The entire amplification circuit is based on vacuum tubes - the preamplifier, control section and output stage work in class A.** The system has no global feedback, and in the signal path we will find nice passive elements. Power tubes come from the current production of the Russian company Electro-Harmonix, and the others feature only a red symbols printed on them, so I assume they come from China. As we read in the company materials, there are no buffers in the signal path, only gain elements. In the preamplifier it is a **double 12AU7 triode (ECC82)** that divides

the material suppliers and give them an order based on 1000 units for an example.

This is hard for the tube high audio industries because we are used to it to make only small numbers in real. So, we are maybe of the rear tube audio equipment company who can calculate really on bigger numbers, but this can be only realized with a large and powerful distributor network and especially our North America distributor is engaged in the Scorpio XS project and they give us a yearly order guarantee.

Only with such a big supporting background we are able to launch such an amplifier. Please also consider it is still a real Ayon amp, I mean with this expensive Aluminium brush and black anodized chassis, on the other hand we can not use just a lousy metal sheet chassis, for an example, sure such a chassis would reduce the cost a lot too.

‘XS’ is short for ‘eXtra Small’?

Actually "XS " was the idea from our USA distributor, indeed it means Xtra small, you are right ! ♦

| HOW WE LISTENED TO IT

The signal source during the test were two digital devices: [Ayon Audio CD-35 HF Edition SACD](#) player (№ 1/50), as well as the files player, the [Mytek Brooklyn Bridge](#). Scorpio XS was compared directly to my amplification system, consisting of the [Ayon Audio Spheris III](#) preamplifier and the Soudation 710 power amplifier.

the triodes into left and right channels. The same tubes, one per channel, were used to reverse the phase and drive the output tubes.

The electronic circuits were assembled on PCBs - there are a lot of these. Inside the amplifier one can see a really powerful power supply with a small amplifier section next to it. **The power supply is based on two large toroidal transformers, placed one above the other in a large housing behind the tubes.** After rectifying the voltage, it is filtered in a classic Pi type choke, consisting of capacitors and chokes - power chokes and preamplifier have their own chokes. The filament voltage is rectified and regulated - again for both, the preamplifier and the power amplifier. All power supply is controlled by a microprocessor. The company named this solution the "Intelligent Auto-Fixed-Bias" (AFB).



Both amplifiers - tested and reference one - drove the Harbeth M40.1 speakers via the Siltech Triple Crown cables. I also listened to Ayon using the Western Electric WA310 NOS cable. The tested amplifier was placed on the top shelf of the Finite Element Pagode Edition rack and was powered by the [Hijiri SM2R "Sound Matter"](#). It was tested in both modes - pentode and triode.



Remote | The RC-4A remote can be used with many Ayon products. It is small, made of aluminum and featured only five push buttons, two of which allow user to control volume, one to operate „mute” function, and the other two allow user to choose what kind of device one want to use the remote with. ■

Technical specifications (according to the manufacturer)

Frequency range: 15 Hz – 40 kHz (-3 dB)

Output:

- pentode mode: 2 x 40 W

- triode mode: 2 x 25 W

Input sensitivity (@ full power): 330 mV

Input impedance (1 kHz): 100 k Ω

NFB: 0 dB

Volume control: Alps pot

Remote control: yes (optional)

Inputs: 4 x RCA

Dimensions (W x D x H): 450 x 340 x 260 mm

Weight: 29 kg

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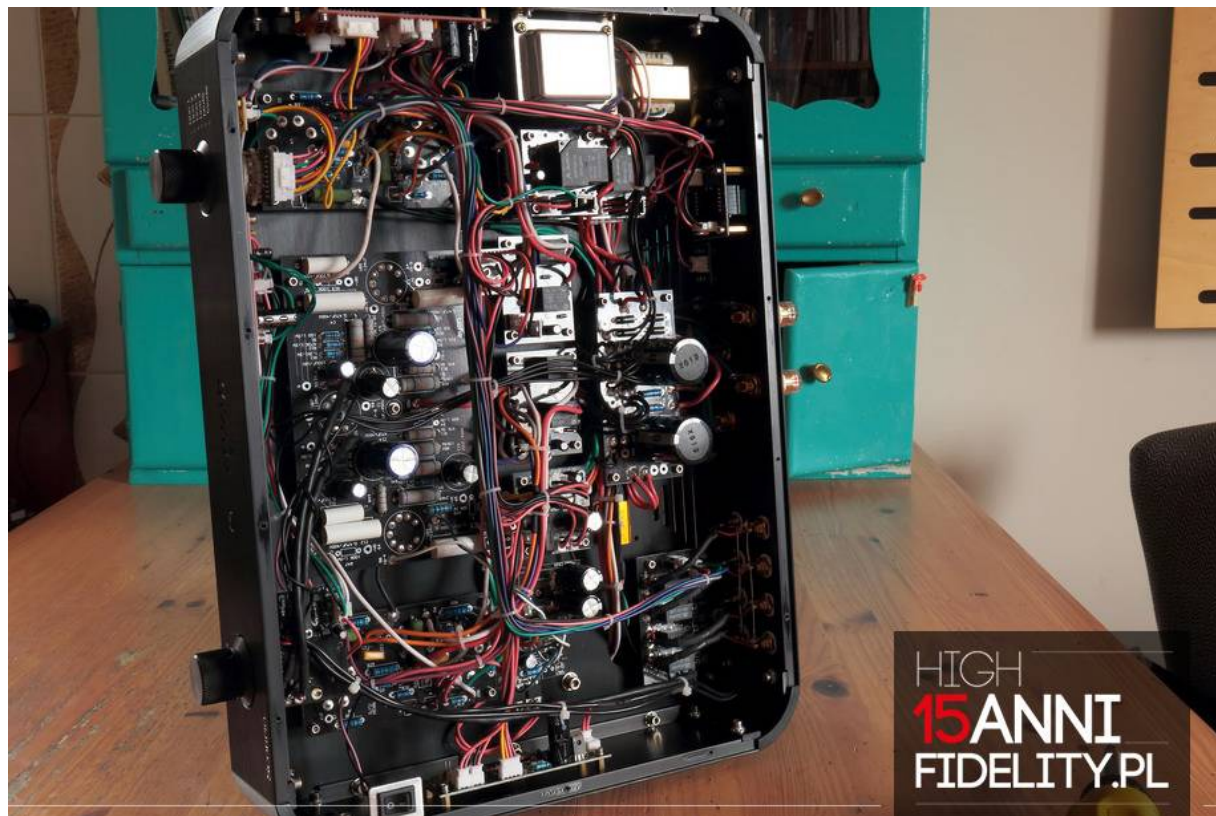


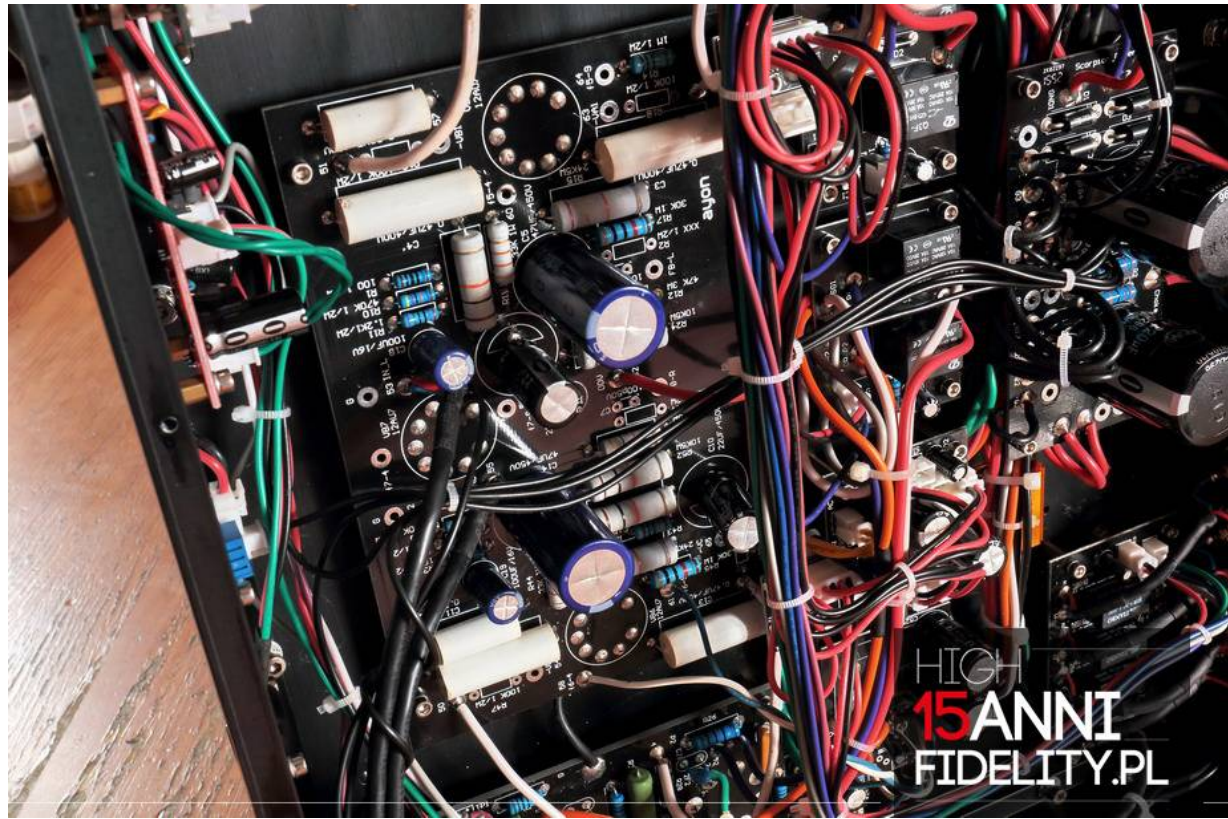
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