

Started over twenty years ago by Mr. Zdzisław Hryniewicz-Struss, **Struss Amplifiers** had their commercial debut in the form of the 01-2 amplifier in 1995. What it may have lacked in the good looks department, it made up for in its sound quality, so much that it was compared to the best amplifiers in this price range, including the Pioneer A-400X. Already at that point it showed some characteristics that were to be subsequently developed in later models.

The model 140, first presented in 1997, was the first of the whole series. It had a completely different front panel with the company's new logo. The amplifier received positive reviews and found many customers, including my brother. It served as a basis for the whole series of amplifiers which all differed in their rated power output and design but had similar looks. The series was the first to feature Mr. Struss' dual-mono design with separate transformers for each channel. The 01-2 model already had separate current rectifiers and power supply blocks for the left and the right channels, although they were fed from one main transformer. Another common feature was the elimination of unnecessary amplification stages – up to that point, Struss amplifiers only had a passive preamp in the form of a potentiometer and a power output stage.

The next change came in 2001 with the Q model. It had a new case design and also featured an independent headphone amplifier with its own volume control. The Q model served as a basis for the Chopin model, of which the fourth version (MkIV) was tested and reviewed in September 2009 (*"High Fidelity"* No. 65).



Although both models shared a similar casing, there came some changes within the company. Up until then the only person working full time had been Mr. Zdzisław Hryniewicz-Struss who also took care of servicing, marketing, etc. As we could read in the materials received from the company, on 01.01.2009 a new person appeared in the company, Mr. Jacek Hryniewicz-Struss (the then 36-years old son of Mr. Zdzisław Hryniewicz-Struss) who took over manufacturing and marketing, and the production was moved to Bielsko-Biała. Mr. Zdzisław Struss was to be in charge of developing new designs and servicing the units.

However, something didn't work quite right. I don't know the full story; all I can say is that within a short time the company disappeared from audiophiles' radars. And even introducing the ambitious, powerful (2 X 500W) R500 model shortly afterwards didn't change things. As it later turned out, it was a step in the right direction and the company resurfaced again. And so in May 2011 the company was approached by a person who knew this and that about business, Mr. Zbigniew Dysko. Executive boards member of several large businesses, including Schoeller Artykuły Spożywcze Sp. z o.o., Nestle Ice Cream Polska Sp. z o.o, and a co-owner and executive director of a large company distributing office supplies, he took upon himself the mission to regain the Struss label its rightful place. What did he need it for, I ask, since audio is a small business branch and difficult at that? Mr. Dysko's answer is that he does that out of his passion. Himself an owner of a Struss amplifier, he deeply believes in the company's potential and cannot imagine that it could disappear from the market.

The sound with them was clear, swift and dynamic. However, the tonal balance was shifted up and lacked weight in the bass. However, it was obvious at once that the sound is not distant. All its components were close and energetic – just as they had been with the speakers. The sound was not sharp, but it's because the bass was thinned out and rather light – I didn't get as full and tangible sound as in my own headphone system. (Leben+ Sennheiser).

A step in the right direction was hooking up the magnetostatic HE-6s from HiFiMAN (review [HERE](#)). Although the manufacturer describes the said headphones' impedance to be between 24-600 Ohms, these low-impedance (only a few ohms) planar headphones sounded better than the aforementioned dynamic headphones. They sounded deeper, stronger and fuller. The Struss managed to drive that difficult load and only during very low bass drops on the *Fourth Wall* album by Dominic Miller, I could hear light overdrive. Still, it wasn't what I was hoping for. The breakthrough came when I used the recording studio headphones – AKG K271 Studio and **Beyerdynamic DT990 Pro** (600 Ω version). I cannot explain it – objectively, both my Sennheisers and the AKG K701 are much better and more sophisticated designs. However, it is with these two that they played much better. I finally achieved full sound, which combined with its energy and close sonic planes, gave a nice, tangible sound. I really don't know how to explain this, even though it isn't the first time something like this happened – I listened to Struss in parallel to a linear preamplifier/headphone amplifier Funk Tonstudioteknik LAP-2.V3 (reviewed in this issue of *"High Fidelity"*) and there the situation was similar. It seems that Mr. Struss designed this amplifier using this type of headphones.



Dear editor!

The R150 is a wholly new concept of processing input voltage from the sound source into the current needed to drive the speakers with simultaneous voltage amplification. Most circuit solutions have been adapted from the R500 – our flagship design. In order to obtain high dynamics while maintaining low noise, the ground paths are independent between the input and output circuits, including the high current supply section. Integrated, gold-plated RCA inputs are Yalcom made; the CD and XLR sockets come from Neutrik. The XLR input circuit is a new, Struss proprietary design. As already said, the input circuit has its own ground and is coupled with the source ground. There is no dedicated preamplifier (only a passive stage). Signal from the selected input is fed directly to the Alps "Blue Velvet" potentiometer through a shielded Gotham cable (Swiss made) with a capacity of 146 nF/km. Such electrical characteristics of the cable practically eliminate its influence on signal quality; for practical purposes it disappears from the signal path. Independently, bypassing the potentiometer, the input signal is fed to the headphone amplifier section with its own dedicated stabilized power supply. This section and the rest of the amplifier is a new SMD based design employing THT components where it is sonically critical. It's worth adding that the whole design is based on J-FET transistors. Power output stage is the most interesting amplifier section. Full

The first design he got involved in was the R150 integrated amplifier, a smaller version of the already mentioned R500. There is an interesting fact connected with the R500 – its front panel features a large rat with wings (hence the name of the whole series, “Rat” – with the “R” in every model’s name). The logo was designed by the late Zdzisław Beksinski (24 Jan 1929 – 21 Jan 2005), a well-known Polish painter, murdered in his own house for literally a few zlotys (and, let’s add it, himself the father of Tomasz Beksinski, the unforgettable music radio presenter for the Polish Radio 3, who introduced New Romantic music to many radio fans, including me). Mr. Beksinski (who is the third person in this story with the same first name) had a common friend with Mr. Hryniewicz-Struss who asked him over a glass of vodka to sketch something that could make a cool logo for the amp front panel. And so it happened. Unfortunately, soon afterwards the photo film with his project got lost. And that might be the end of story if it wasn’t for the fact that luckily a photograph was found featuring one of the amplifiers with the said rat on its front panel. It was enough to reproduce the original project – and so it made its way onto the R500. Sadly, it is absent from the R150 front. To somehow compensate for that, we show it on the cover of this “High Fidelity” issue.

Be that as it may, what’s most important is the fact that from this year onwards, the Struss R150 amplifier is being manufactured by the Printor Sp. z o.o., a large and highly specialized company from Lodz. The company was chosen for many reasons, among which – other than high precision, excellent product repeatability, and good organization – was, according to Mr. Dysko, the company’s experience with high-end electronics (the company previously manufactured electronics for Lipinski Sound). The device we received for this test review came from the new production batch.

SOUND

In my perception, the R150 is a logical development of the 140 model developed in 1997 – the first more mainstream amplifier of the company – and its new implementation in the form of the Chopin MkIV model (2008). Surely, their topology is different, as is their construction, not even mentioning their external design; however, my ears detect some sort of common DNA shared by all these amplifiers – despite the fact that there are more differences between them than there are similarities.

R150 as an integrated amplifier

The sound is very quick and agile. The device has a high output power, and it is true power, i.e. high current efficiency, which directly translates into an excellent control of the woofers, while maintaining outstanding definition. What has changed is the treble reproduction. In the 140 model, the tonal balance was severely off, and there was simply too much treble – my brother still struggles with it. The Chopin MkIV did not have this problem – it was a much warmer-sounding amplifier; for some customers even too warm, but not for me or my sound system. However, I understand those who found this troublesome enough to exclude it from their purchase list. The R150 is different than both the 140 and the Chopin MkIV; its sound is much more mature, it is deep and full. The tonal balance is very neutral, i.e. it’s very similar to my reference system (I don’t mean it is neutral in the absolute sense, but rather as a reference point). The higher mid-range of the R150 is perceptibly more powerful, but not through brightening or sharpening, but through the tone’s incredible energy. It is rare in the audio world, and as such is worth sacrificing other things for it, and is even worth building an entire sound system around it. To clarify this, I need to briefly tell you how I reached this conclusion.

With the passing of time, my personal importance hierarchy of different components of sound has changed. It is an inevitable process – we all change, and some of us develop. I hope I am the latter.

Either way, I used to pay more attention to things such as treble, bass and mid-range, i.e. the way specific sub-ranges behave separately from one another. What mattered to me was the bass drops and treble extensions, as well overall dynamics. The clarity and lack of compression were also important factors. Later on, the sound definition became the main focus, which after listening to several exemplary high-end audio systems turned into my appreciation for sound differentiation. Finally, I came to my present belief – in reality, none of these things really matter unless the sound simply “flows”. The delivery must have inner energy, coherence, focus, and the music must flow – and the aim of a good audio system is an emotional transmission. Otherwise, even the best sounding system will remain an electromechanical set, and not a true audiophile system. It’s not that all the aforementioned elements aren’t important – quite the contrary, they are incredibly vital – but only if they translate into something more, something that moves the listener, something that allows us to believe we are listening to a live performance. It’s a different approach than what it seemed to be when analyzing individual aspects. It is now easy for me to accept minor sound anomalies and even flaws, as long as the sound carries a “surplus value”. Speaking of the R150 sonics, it is audible that in some aspects it is inferior to

amplification path consists of only 8 transistors (including 4 output HEXFETs); the input stage is symmetrical (JFET). In order to eliminate the memory effect and parasitic capacitance we employed a forward transconductance circuit on a MOSFET transistor. The amplifier does not employ any capacitors in the signal path. Most of components on the PCB are local stabilized current supplies for the voltage circuit that decide about stability of the very simple amplification circuit, its low noise and high dynamics. Signal to the output speaker terminals goes through a non-invasive protection circuit. Power supply for the output stage is built on four 22 000 µF/105° Jamicon filtering capacitors.

The *peak* indication warns of reaching the maximum power output which helps to prevent accidental damage to tweeters.

Magnetically shielded transformers are made of steel sheets from Tysen; the main switch features a *soft start* circuit, additionally reducing mains interference. The amplifier is manufactured in a specialized Polish company, being an OEM for western audio brands. PCBs are assembled on a specialized automated line. It allows for 100% repeatability. After the initial burn-in, each amplifier goes through quality control.

A new design and a new concept. We leave it up to you to deliver the final verdict.

We trust that our new R150 amplifier will provide you a new, positive listening experience.

Yours sincerely,
Struss Amplifiers Team

That’s all from the manufacturer, Mr. Zdzisław Hryniewicz-Struss, the designer. Now on to my own description.

Front and back panels

The front is made of a thick aluminum plate, brushed and black anodized. The rest of the casing is made of steel plates. The top panel is damped from the inside with an anti-vibration bituminous mat. The front plate features a large volume knob with a red LED, an input selector knob with a row of blue signal LEDs next to it, a headphone amplifier volume knob with a 6.3 mm headphone jack, and a red LED indicating overdrive (never went on during my test review). The volume knob is oval-shaped and reminds me of Meridian’s knobs; the input selector knob and the headphone amp knob each have a different shape. In my opinion, it is too much of stylistic variation for a single amplifier; all they, including the mains switch, should share a common stylistic concept. Additionally, all these blue and red LEDs – I would rather have them all in the same colour, e.g. red. One more remark: the headphone jack is placed on the far right, next to the volume knob makes it awkward for the right-handed person to control volume.

The back panel is divided into three sections – inputs, speaker terminals, and the mains socket. From the left to the right, first we have six pairs of line inputs with one balanced pair (XLR) and five unbalanced RCAs. The latter are of average quality, except for the CD marked input, featuring better Neutrik connectors. Then, four speaker terminals, one for each channel; they are gold-plated Chinese-made binding posts used by many audio manufacturers. And finally, an IEC mains socket with a fuse.

The inside

Through the top panel ventilation grill we can see two large toroid transformers with the Struss logo. Much smaller grill is above the output transistors radiators. There are two power supply transformers, since the amplifier, typically for Struss, is a full dual-mono design. The main amplifier section is built on one PCB. The transformers have separate outputs for the input and output stages – in total, 9 independent power supply sources to stabilize the amplification section, which in itself is quite simple. The transformers are fully shielded and sit on a thick, copper plate. Copper is always good in audio designs, it is not by chance that Japanese manufacturers use it wherever possible.

From the input sockets the signal goes to a small input relay board. Lower quality, although gold-plated sockets are soldered into the board, the CD socket is coupled through a short tape, plugged to the board next to the relays. The board also houses a differential amplifier for the XLRs, based on the NE5532 op-amp.

From the relay board, the signal goes to the Alps potentiometer and also, bypassing it, to the headphone amplifier, sitting below. The headphone amp is a fully discrete, class A design. From the potentiometer the signal is directed to the main power output section. Thick, shielded Gotham interconnects are used for internal wiring.

The whole output stage is built on one PCB which is not mounted directly on the bottom plate but bolted to a thick aluminum flat bar, together with the output transistors. To improve cooling efficiency, a large “Christmas-tree” type of radiator, seemingly a long Mr. Struss favourite, is bolted onto the same bar.

The output stage is fully discrete and features J-FET input transistors and two complementary pairs of IRFP240+IRFP9240 HEXFETs per channel. Thick OFC copper stranded wires are used to connect the speaker terminals, soldered to a small board. The same board also houses a relay, being a part of a protection circuit.

sound carries a surplus value.

Speaking of the R150 sonics, it is audible that in some aspects it is inferior to my reference system. I need to mention its rather over-intensive mid-range delivery, including the higher mid-range which has a smaller than usual volume of particular sound components, as well as its bass that isn't quite defined. To make it clear, this is not an ideal amplifier. It is, however, "good enough" to treat it as a serious contender of even the most "pimped out" system.

Its special trait, and what is most important to me, is the R150's intensiveness and delivery energy. This Polish amplifier sounds incredibly powerful. Each detail has its weight, and is delivered quickly and dynamically. The sound attack is strong and this is what makes part of the higher mid-range too distinctive (depending on the system). However, it is not a flaw, i.e. this doesn't happen due to brightening or sharpening or even contouring – it can be utilized.

I fully agree with those who say that you cannot fix an error with another error. An accumulation of errors gives nothing but worse sound. However, as we know, a skilled choice of electronics, cables, accessories, etc., allows to creatively complement the sound of one device with another, and so it is in this case.

I think the R150 will work nicely with most speakers – however, it will blend ideally with the slightly warmer-sounding ones. But again, not the intentionally warm, since that's a flaw; but the ones where a light warming-up of sound is part of a strive to achieve a greater, more important goal.

Such is the sound of Spondors, Harbeths, and even Castles (e.g. **Howard S3**). Among other labels we can also mention **Sonus Faber Minima Vintage**. With all these the Struss will sound particularly, exceptionally well. You can also try PMC speakers (e.g. **OB1i**), they should also be a great match. This will allow to fully utilize the amplifier's outstanding definition and energy, and to fit it in with a slightly quietened higher mid-range of all of the aforementioned brands.



The R150 amplifier can be listened to comfortably for long periods of time. Generally speaking, the sound is similar to Hegel amplifiers. However, the Norwegian devices seem warmer, and have a slightly muffled high end. The Polish amplifier plays very openly, and the treble have its "weight". The bass is energetic, strong and full, and has a beautiful tone. However, it isn't as defined as my reference system. The dynamics are excellent and the sound scene isn't half bad – it is deep, with a well differentiated foreground and background. What seemed to be missing were precise sonic planes behind the listener, if they had been recorded on the CD (in the counterphase); instead, the planes were rather peripheral. Overall, it is a very successful amplifier, better than the Chopin MkIV which was not bad on its own.

R150 as a headphone amplifier

The Chopin MkIV wasn't unique only because of the way it could handle speaker loads, but also because it featured a full-fledged headphone amplifier. The R150's headphone amplifier is its upgraded successor. During my listening session, initially I used two pairs of headphones: Sennheiser HD800 and **AKG K701**.

small board. The same board also houses a relay, being a part of a protection circuit.



Technical parameters (according to the manufacturer):

RMS power output: 2 x 150 W / 8 Ω | 2 x 280 W / 4 Ω (DIN 45500)
Minimum load: 1 Ω (momentary)
Output impedance: 0.1 Ω
Distortion (THD): 0.25% at 1 W / 8 Ω | 0.015% at 140 W / 8 Ω
Frequency Response: 2 Hz - 300 kHz (+/- 0.5 dB / 1 W / 8 Ω)
Dynamic range: 145 dB
Signal - Noise Ratio: 150 dB (IHF - A)
Input sensitivity: 500 mV (RCA) | 250 mV (XLR)
Input impedance: 50 k Ω (RCA) | 22 k Ω (XLR)
Transformers: 2 x toroid, magnetically shielded, 350 VA each
Filter capacitors in power supply: 4 x 22 000 μ F - Jamicon/105 $^{\circ}$ C
Advanced protection system: against speaker short-circuit and against DC voltage output
"Peak" indication: approaching maximum output
Remote control: RC5 code (volume)
Power consumption: 40 VA - 800 VA (peak)
Class A mode: 2 x 10 W
Stabilized power supply for voltage amplifier, adaptation of the R500 design
Dimensions: 430 x 95 x 338 mm
Net weight: 16 kg

Headphone amplifier

Output voltage: up to 6 V
Frequency Response: 5 Hz - 50 kHz (+/- 0.5 dB / 1 V/600 Ω)
Output noise: max 10 μ V (broadband measured)
Dynamic range: 135 dB
Distortion (THD): 1 V/64 Ω / 0.05%
Load impedance: 24 - 600 Ω