

Helix C ONE — a 1-Channel Exception Amplifier

Because you can!



Full set of features with a link socket and adjustable boost

► Why would you build an analog mono with over one kilowatt of power and a HiRes audio frequency range? Because you can!

After we reviewed the Helix P ONE in the last issue, the C ONE is now kind of a competitor coming to the editorial team from the same house. As opposed to the modern digital P ONE, we have a class-AB mono (!) with over 1000 watts of power (!) , which can effortlessly play as “analog” up to

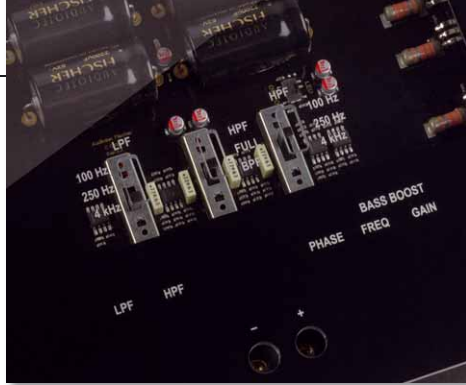


The driver circuit with red LEDs is located in the centre of the board

far beyond the classic audio range. The suspicion is that the C ONE was not designed as a pure subwoofer amp. Its ample furnishings suggest the same. Different from the P ONE, which is launched as part of a digital hi-fi chain and consequently does not have any analog crossovers or similar, the C ONE comes with a rich set of filters. Sure — for subwoofers there is a frequency adjustable bass boost and a phase control, and there is also a link function. But the band pass crossovers reach up to 4 kHz, so that the C ONE can control all kinds of loudspeakers, even tweeters. Yet the fans of digital equipment are also taken care of, as the C ONE can be equipped with an input module (HDM), which retrofits an S/PDIF input.

Externally, the C ONE can be recognized by the classic Helix dress, which measures only 37.1 millimeters in height, so that the C (and A) amplifiers are among the slimmest on the market.

And the C ONE has become a gorgeous power amplifier. It is not without reason that you can look through the acrylic lid at the noble black board, which is fitted with SMD components in a perfect manner — a feast for the eyes! The driver and the amplification are of course highly discrete, but in the power supply area we find the indispensable controller. It makes this power amplifier a pretty smart device because, like other devices of the house, numerous voltages and temperatures are monitored — lots of software for a mono. Because of the dramatic performance, a particularly valuable transformer core made from the vacuum melt is used, of course “Made in Germany”, which also applies to all parts of C ONE. The memory choke for buffering and the driver arrangement also make no secret of the fact that we have a genuine Schmallenberg product in front of us. For the single channel, no less than 32 MOSFETs come to the heat sink, the transistors must be



The switches set the frequency limits of high and low pass controllers

200 MHz types with hand-selected gate voltage, so that all 32 "open up" at the same time. Details such as the LEDs as a part of the driver circuit also testify to the sheer infinite meticulousness of the Helix team, because the red LEDs are particularly precise and therefore take preference over common diodes. In our climatic zone it is not to be expected that the fan will be activated, which is of course a large and significant component. However, it not only blows in the middle of the driver circuit, there is an air duct with slots, directing the air below the board to effectively cool down the aluminum body, and the power transistors can benefit from this as well. Another "trifle", which is simply fun to look at.

Measurements and sound

It is almost a pity that, despite all efforts, we were not able to set the fan in motion. But we have made a diligent use of the three-way control next to the fan. It adjusts the power amplifier to the impedance of the connected speakers. Different rail voltages are adjusted in positions 4, 2, 1 Ohm, so that the C ONE always performs optimally. In addition, there are even two different transformer ratios to allow maximum power output anytime. And the performance is sensational. Already at 4 ohms the C ONE delivers more than 500 watts, at 2 ohms it is rocking it with 840 watts. This is a super slim analog class AB power amplifier! Then it finally reaches 1 Ohm and cracks the kilowatt — at a fabulous 0.06% THD+N! This makes the C ONE an award candidate for the cleanest kilowatt



Voltage supply features a transformer core made from the vacuum melt



A beautiful layout with 32 power MOSFETs for just one channel



Helix C ONE

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► Sound	20 %	0,9	■■■■■
Bass foundation	5 %	1,0	■■■■■
Bass pressure	5 %	1,0	■■■■■
Accuracy	5 %	1,0	■■■■■
Dynamics	5 %	0,5	■■■■■
► Lab	55 %	1,3	■■■■■
Power	40 %	1,5	■■■■■
Damping factor	5 %	0,5	■■■■■
Signal-to-noise ratio	5 %	0,5	■■■■■
Distortion	5 %	1,0	■■■■■
► Practice	25 %	0,9	■■■■■
Features	15 %	1,0	■■■■■
Build quality electronics	5 %	0,5	■■■■■
Build quality mechanics	5 %	1,0	■■■■■

Technical Specifications

Channels	1
Power 4 Ohm	517
Power 2 Ohm	840
Power 1 Ohm	1085
Sensitivity max. mV	560
Sensitivity min. V	9,7
THD+N (<22 kHz) 5 W	0,005
THD+N (<22 kHz) Half Power	0,029
Signal-to-noise ratio dB(A)	101
Damping factor 20 Hz	1494
Damping factor 40 Hz	1495
Damping factor 60 Hz	1493
Damping factor 80 Hz	1493
Damping factor 100 Hz	1495
Damping factor 120 Hz	2154

Features

Low pass	15 – 4k Hz
High pass	15 – 4k Hz
Band pass	15 – 4k Hz
Bass boost	0 – 9 dB/40 – 120 Hz
Subsonic filter	via HP
Phase shift	0 – 180°
High-level inputs	–
Automatic switchon (Autosense)	–
RCA outputs	• (Master/Slave)
Start/stop capable	• (6 V)
Dimensions (L x W x H in mm)	430 x 240 x 37
Others	1 oder 2CH In, HDM-Slot

Rating

Price	um 1.100 Euro		
Sound	20 %	1+	■■■■■
Lab	55 %	1,3	■■■■■
Practice	25 %	1+	■■■■■

Helix C ONE

Absolute Top Class

Top Class
Upper Class
Middle Class
Entry Level

1,1

Price-Performance:
very good

CAR & HiFi

Issue 5/2020

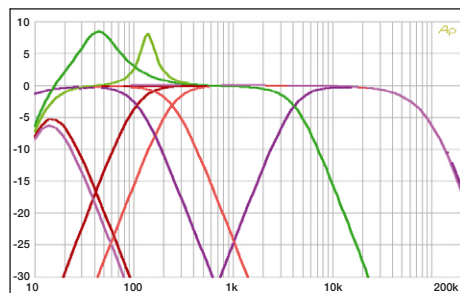
"Analogue power at its finest."

of all time. We continue with the noise ratio of over 100 dB, which can also only be described with superlatives. And the damping? Yeah, sure. We are in the thousands here. Which makes it clear that the C ONE wants to be both a powerhouse and a high-end sound machine. Too good for a subwoofer? Certainly, but not when you hear how it deals with its original task. Full control in all imaginable tricky situations, incredible clarity and tidiness in the sound — this could not be any better! A confident pressure down to the low bass, the C ONE manages it just as easy as the rough dynamics. It is a totally safe bench that the C ONE represents a dazzling full-range power amplifier and is also suitable for high-end systems. You should definitely try it, because it is actually almost too good for a subwoofer.

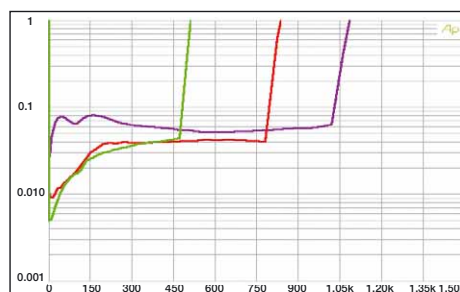
Conclusion

The C ONE is an exotic specimen and something very special in the global power amplifier landscape. Not only does it master the kilowatt as an AB-class-mono. Due to its excellence in manufacturing, performance and sound, it is the icing on the cake and much more than just a bass amplifier.

Elmar Michels



The switches of the C ONE can be adjusted over a wide range, as well as the boost. -3 dB point is above 70 kHz



For this immense performance, the distortion is extremely low. At 2 and 4 ohms there is a maximum of 0.04 % and even at 1 kW only 0.06 % THD+N