Power amplifier 710

soulution

nature of sound

nature of sound

To preserve the natural purity of sound in its entirety – this is the challenge that first class high fidelity components must master. During the development and production of our amplifiers, we at soulution have never let this challenge out of our sight. Our team is firmly convinced that the acoustical beauty of music does not need artificial enhancement, and that the music signal should pass through every component as purely as possible.

For an amplifier, the requirement of true high fidelity has always been: »no deletions, no additions«. This sounds simple. However it is no easy task for an amplifier to truly approach the ideal of natural music reproduction: to interfere as little as possible with the music, to serve the music instead of imposing itself upon it, to achieve complete control of the reproduction without depriving the sound of its magic.

For the natural reproduction of music, state-of-the-art technology is a prerequisite, but not an end unto itself. Amplifiers should not adulterate the music by their own sound. For the listener, becoming absorbed in the music is a sensual experience, full of emotional fireworks. The technology must be subordinate – and transparent – to the music. This is soulution's understanding of »nature of sound«.

reddot design award
winner 2006

soulution
nature of sound

Power amplifier 710

For decades vacuum tube amplifiers have been able to stack up against the transistorised competition – despite inferior measurement results. How is this possible? Our fundamental research has shown that transistor amps are generally neither superior nor inferior to tube circuits. soulution amplifiers combine the advantages of both types.

Sound concept

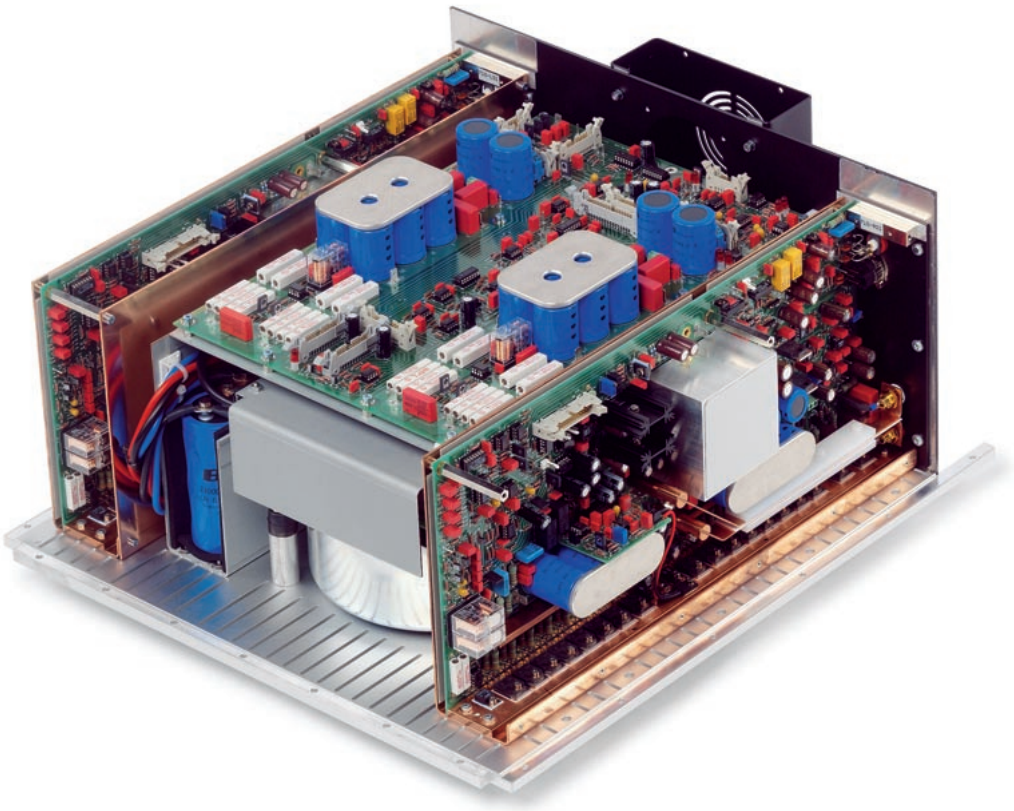
For a long time the power rating has been the center of attention for qualifying power amplifiers, later followed by total harmonic distortion (THD) and damping factors. However such isolated observations can not sufficiently explain the characteristics of the sound delivered by an amplifier. We believe that only a comprehensive view which considers the real load of a loudspeaker leads to valid results.

An ideal amplifier is stable, regardless of the load, provides constant amplification and zero phase-shift across all frequencies. This should happen without long signal paths or tricks that are often used in transistor technology such as excessive amplification (open loop gain) and very high negative feedback. Such amplifiers may deliver good measurement results, but very often they are inferior in sound when compared to simpler vacuum tube designs. The aim of the soulution 710 is also to be extremely fast (1 MHz – 3 dB) and to dispose of high current ratings – which cannot be realised with vacuum tubes. The unique circuit design of the soulution 710 leads to characteristics of sound that until now have been seen as incompatible: precision, speed, stability and power – all unified for the first time to serve the music.

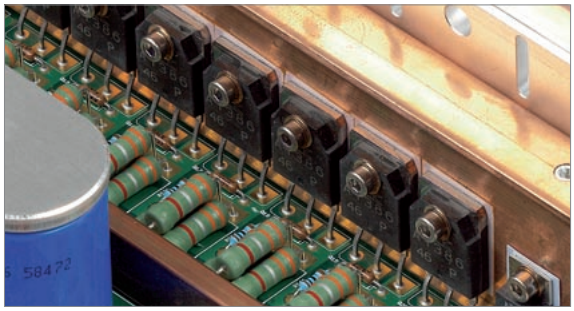
Technology for music

Immediately following the input connector, the music signal is buffered in the soulution 710 and therefore is transmitted with low impedance to the entrance of the following error amplifier. An extremely fast operational amplifier, whose negative feedback detects deviations quickly and precisely (thanks to high processing speed), provides a corrected, but still unamplified incoming signal.

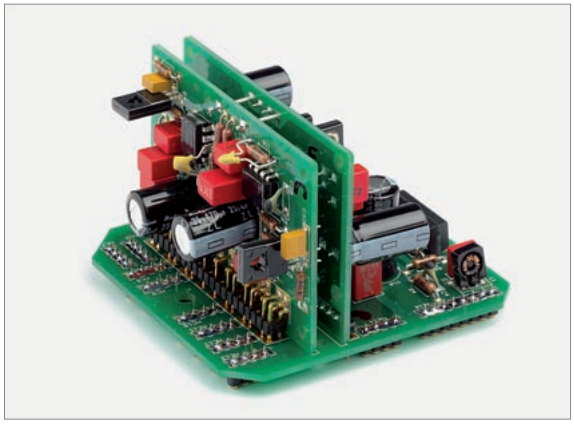
Next follows the true heart of the soulution 710: the »fixed gain« voltage amplifier. The music signal passes through this ultra broadband amplifier stage in approximately 10 nanoseconds with a maximum level deviation of 0.1 dB. This highly linear amplifier stage can perform at this level of precision only under constant thermal conditions; therefore it is combined with the error amplifier in a module casted in synthetic resin. Fourteen bipolar power transistors per channel, fixed on a massive copper rail which is permanently temperature controlled to maintain a constant idle current, provide the soulution 710's gigantic current rating of 60 amps.



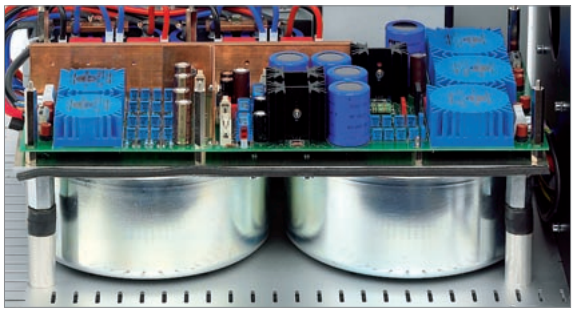
Power amplifier 710



Electronics and mechanics in harmony: all transistors are fixed to a 6 mm thick copper rail, providing an ideal thermal coupling.



The heart of the soulution 710 is the »fixed gain« voltage amplifier which is optimised for the shortest signal path and performs at up to 80 (!) Mhz. The two upright circuit boards are connected with silver pins, and the complete module is casted in synthetic resin.



Attention to detail: the two 1000 VA-torodial transformers are enclosed within steal cases and flex-mounted, effectively decoupling them from the case through rubber damping elements.

Technology for music

With the extreme linearity of the amplifier, it is, in our view, the stability of the power supply voltages that determine if that amplifier sounds truly exceptional. The power supply in the soulution 710 is equipped with two 1000 VA-toroidal transformers, capacitors with a total capacity of nearly 250 000 microfarads, and discrete rectifiers. Throughout the soulution 710, we use 10 separate power supplies. The power supplies for both the error amplifier and the »fixed-gain«-amplifier are stabilised in multiple stages.

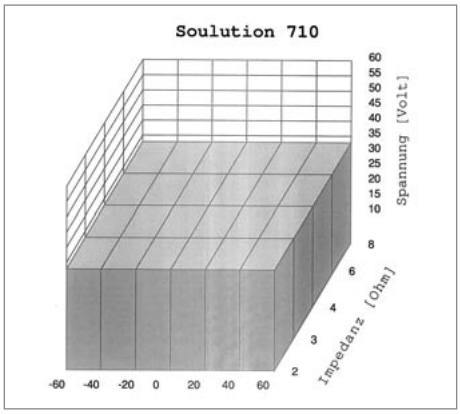
Technology in detail

We have stated: technology is not for technology's sake, and good measurement results alone do not guarantee a musical result. But a review of the technical performance does show very clearly where an amplifier excels and where it is making mistakes. Therefore first-class measurement results are a must for a reference amplifier.

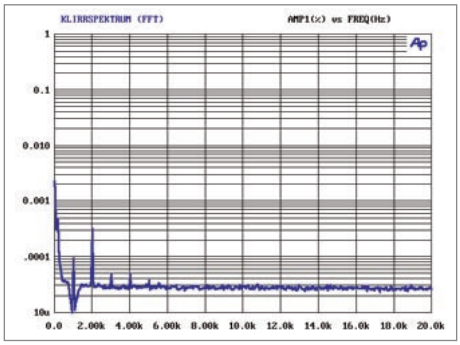
The soulution 710 combines stability, precision, speed and power not only in terms of the sound it delivers. But it can also prove these virtues in technical reviews without being artificially tuned for best results at the expense of sound quality. The soulution 710 works very linearly even without negative feedback. Therefore the calibration of smooth overall feedback, working practically free of timing errors, can be made exclusively according to sonic criteria (control in low base area and precision in spatial reproduction).

And the soulution 710 is mastering even the most demanding technical testing with success. Not even the famous »cube« of a well known German HiFi-magazine could impress the soulution 710. The power delivery is simply perfect at every load (right page, upper diagram). The extremely low total harmonic distortion (THD) is dominated by the 2nd harmonic, which is said not to be harmful in music reproduction. THD components of higher order, usually difficult for vacuum tubes, are nonexistent within the soulution 710 (middle diagram). The outstanding bandwidth and velocity are proven by the lower diagram. The frequency response shows not the slightest decrease in amplification even up to 100 kHz. With a slew rate of less than 0.4 microseconds the soulution 710 is one of the few ultra fast amplifiers with »Megahertz-Bandwidth«.

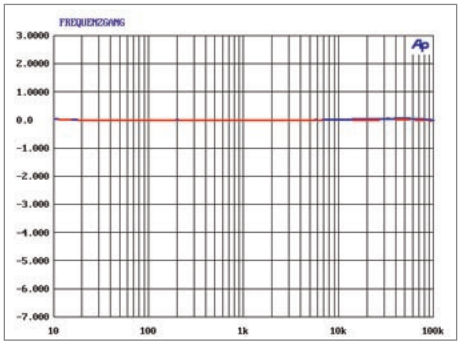
The soulution 710 disposes of asymmetrical (WBT-NextGen Cinch) as well as symmetrical inputs (XLR). The selection is made comfortably at the press of a button on the front panel.
The brightness of the mirrored display can be adjusted by the user.



Stability



Precision



Speed

Finally there is only one test that really matters when making a decision: the listening! Listen to how the soulution 710 makes your loudspeakers perform. Be amazed at the control and quality of the low base that is possible with this state-of-the-art technology. Experience the effortless sound of precious vacuum tubes paired with the rock-solid spatial reproduction and neutral sound of the best transistor amplifiers. Experience the music in all its natural variety and beauty. soulution power amplifier 710 – the new standard for uncompromised musical reproduction. »nature of sound«.

Specifications

Power amplifier	soulution 710
Power output	2 x 120 Watts at 8 Ohms 2 x 240 Watts at 4 Ohms 2 x 480 Watts at 2 Ohms
Frequency response	0 - 1 Megahertz (-3 dB)
Damping factor	> 10.000
THD + N	0,00068%, 50 Watts at 4 Ohms (20 Hz to 20 kHz)
IM-Distortion	< 0,005% SMPTE < 0,0006% CCIR
Signal to Noise Ratio	> 108 dB (5 Watt / 1 kHz)
Input impedance	10 kOhm symmetrical 4,7 kOhm asymmetrical
Inputs	1 pair XLR-Neutrik 1 pair WBT-Nextgen Cinch, gold plated
Outputs	1 pair WBT-terminal, gold plated
Mains	100 - 240 Volts (50/60 Hz)
Power consumption	15 Watts Stand-by Idle current 300 Watts max. 1600 Watts
Dimensions	480 mm * 280 mm * 535 mm (W * H * D)
Weight	80 kg
Chassis	Aluminium, black / silver anodised
Features	Start-settings chooseable via preset-switches, brightness of display adjustable
Link	12 Volts control-signal

Specifications subject to change without prior notification.

Your soulution-dealer

soulution
Spemot AG
Industriestrasse 70
4657 Dulliken
Switzerland

Phone +41 62 2 85 30 40
Fax +41 62 2 95 52 02
www.soulution-audio.com

soulution
nature of sound