

soulution





To preserve the natural purity of sound in all its facets – this is the challenge first-class audio components should be able to master.

Music is a sensual, emotional experience and needs no artificial enrichment. It should pass through each component in the audio chain with as little adulteration as possible.

The aim of the designer should always be: Omit nothing, add nothing.

At soulution we use technology to serve that ideal. Our audio components deliver natural music. Interfering as little as possible with the sound picture. Serving the music, rather than imposing upon it. Achieving complete control without losing the magic.

Technology as the servant of music, not its master. That's what we at soulution mean by the "nature of sound".

fam

Cyrill Hammer Managing Director





DAC – Phono – Pre



760 DAC

For optimal sound absolutely nothing should be lost from the source. This is as true for the reproduction of high resolution files as it is for playing other audio formats. No amplifier or loudspeaker can replace what is lost. This is why the quality of the recording and playback components is so crucial. The 760 D/A converter meets this goal brilliantly: transporting all the musical information from the digital into the analog world, omitting nothing, adding nothing.

The perfectly coordinated interaction of the analog and digital stages ensures that nothing gets lost at the digital source. This is achieved by using first class interfaces for the optimal reception of digital data, a high-precision master clock generator which does not allow jitter, intelligent digital signal processing with oversampling and zero φ tech, analog output stages in the preamplifier and a potent power supply.



Only the perfectly coordinated interaction of the analog and digital stages ensures that nothing gets lost at the digital source.

DXD and zero ϕ tech

The incoming digital audio data are buffered, then a powerful DSP performs the conversion to the DXD format (24 bit, at 384 kHz or 352,8 kHz, dependent on the received data). In this case, priority is not given to the highest clock rate, but to the highest precision in interpolation of intermediate values. This is done by a specially optimised Polynom Algorithm, which also converts DSD signals into the PCM format and thus enables the sonic benefits of zero φ tech for DSD as well. A music signal free of timing errors ensures an unprecedented organic quality, an airiness and freshness in the music playback. Nothing gets lost.

Volume control: digital vs. analog

Thanks to its digital volume control and reference quality output stages the 760 D/A converter is able to drive amplifiers directly and without any loss of sound. Analog volume controls were regarded by some as the gold standard. The digital volume control of the 760 D/A converter uses an advanced 32 bit process to match the performance of the best analog controls while delivering even greater precision.



Massive copper conductors ensure the best connection between the perfectly stable power supply and analog sections.

760 DAC

Ultra-precise clock signals

An extremely accurate and clean clock signal is fundamental to a perfect D/A conversion. Minimal phase noise is more important than the long-term stability of the clock frequency. To meet the standards required by our D/A converters, experts in the field of oscillator design have developed optimised crystal oscillators with minimal phase noise exclusively for soulution. Synchronous processing of the digital data along its entire signal path ensures optimal results and is achieved by using two clock modules at 22 and 24 MHz respectively.

Perfect D/A conversion

The converter and output stages are fully dual-mono construction. The four output currents of the Burr-Brown PCM 1792 high-precision converter are first turned into voltage. This conversion process works internally with a bandwidth of 80 MHz and so lays the foundation for the highest signal to noise ratio and maximum dynamic range in the analog domain. The wideband output stage is identical to the one used in our reference preamplifier, the 725, and also includes that unit's excellent power supply. The bench results are impressive – extremely low distortion values, excellent channel separation and perfect linearity.

Experience music from digital formats at its best

If the measurements are remarkable, the sonic results are sublime: all the richness, tonal shades and the suppleness commonly associated with analog, combined with the precision, dynamics and control of the best digital. The result is a three-dimensional, almost holographic listening experience. Music played from digital formats has never sounded so good. Nothing is lost, nothing is distorted. Truly the "nature of sound".

The result is the sonic best of both the digital and the analog worlds.



Modern high-resolution digital music formats require powerful digital signal processing for optimum results.



755 Phono

Records are making an incredible comeback. Declared dead 20 years ago, today vinyl is attracting an evergrowing fan base.

When playing records, the phono stage is almost always the limiting component in the system. Compromise at this point profoundly impacts on sound quality. The technical demands are acute. A phono amplifier must deliver a gain of up to 80 dB (which equals an amplification factor of 10,000) while remaining linear and preserving true phase. At the same time it must provide equalisation in accordance with RIAA-IEC standards.



Creating the perfect phono stage with RIAA equalisation remains the pinnacle of audio amplifier design.

Dual-mono layout

The 755 uses unbalanced circuit design, meaning as few components as possible in the signal path. A dual-mono layout with discrete left and right channels maximises audio purity and virtually eliminates crosstalk while input buffering ensures a benign load to all cartridges. For all three inputs ($2 \times MC$, $1 \times MM$) the gain factor and the terminating impedance are freely selectable either via the front panel or the remote control. To suppress rumble from warped records there is an IEC subsonic filter (< 20 Hz) which will protect loudspeakers against hazardous cone excursions. Mono operation is selectable too.

Volume control

The 755's reference grade, analog, passive volume control uses high-precision, low-noise metal foil resistors, and it controls both volume and balance. To block switching peaks during volume changes, which may be hazardous to power amplifiers, a second volume control with a PGA (Programmable Gain Amplifier) is used. Active only when the volume is changed, it is similar to a potentiometer and enables the volume to be adjusted in smooth steps without clicks. As soon as the new desired level has been selected, the unit returns control to the precision resistors. When the 755 is not connected directly to a power amplifier but to a line preamplifier, the volume control may be switched out of the signal path entirely.



A network of non-magnetic, high-precision metal film resistors form the volume control of the 755.

755 Phono

Reference grade output stage

If preserving the original source of the music is important, then the quality of the output stage and the power supply are also key. Saving money here is not an option. At soulution we use the same circuit as in the 725 preamplifier. Optimised for speed, precision and current delivery, the output stage drives even long cable runs to remote amplifiers with ease.

Listening pleasure without limits

The full potential and beauty of vinyl records with all their subtle tonal variations, dynamics, musicality and refinement will only be revealed if the music signal remains unimpaired. The 755 phono preamplifier and the 750 phono stage achieve this with ease, reproducing musical details that are true to life and creating a three-dimensional, spatial sound to deliver real listening pleasure.

750 Phono stage

The 750 phono stage uses the same design principles we employ in the 755 phono preamplifier. Since the 750 phono stage drives a separate preamplifier the output stage provides a lower level signal, and the volume control is omitted. Having no in-built power supply, the 750 is powered by either the 725 preamplifier or from an external power supply.

The full potential and beauty of vinyl records is only revealed if the music signal remains unimpaired.



A relay-switched resistor network allows the termination impedance to be set via the front panel or the remote control.



725 Pre

The duties of a preamplifier have changed considerably over time. Analog turntables with MC cartridges require preamplification of around 60 dB while D/A converters or CD players provide output levels that can drive power amplifiers directly. That notwithstanding, the preamplifier remains the central switching and control unit, the real heart of the hi-fi system. Our research has also shown that the preamplifier is irreplaceable for sonic reasons.



The preamplifier remains the real heart of the hi-fi system, and is irreplaceable for sonic reasons.

Ideal control centre

Each of the 725's inputs is followed by a separate buffer amplifier and presents a benign load to signal sources. Input selection is made with high quality relays and only the selected input is connected, all other inputs being isolated.

Perfect volume control

The volume control uses high-precision, low-noise metal foil resistors, and controls both volume and balance. To block switching peaks during volume changes, which may otherwise be hazardous to power amplifiers, a second volume control with a PGA (Programmable Gain Amplifier) is used. Active only when the volume is changed, it is similar to a potentiometer and enables the volume to be adjusted in smooth steps without clicks. As soon as the new desired level has been selected, the unit returns control to the precision resistors.

Dual-mono layout

As few components in the signal path as possible, coupled to a dual-mono layout with separate circuit boards for left and right channels, help maximise audio purity and virtually eliminate crosstalk.



Stable supply voltage and adequate capacity in the power supply are required for optimal sound of a preamplifier.

725 Pre

Level and phase consistent on all loads

A perfect preamplifier shows consistent level and phase performance regardless of load. Harmonic distortion, hum and noise must be vanishingly low. At soulution we don't resort to the commonly-used techniques of high amplification with high negative feedback – which themselves can bring as many problems as they solve. Instead, we apply no-compromise engineering excellence to minimise and remove artefacts that mask musical detail and change the sound. Only in this way can we stay true to our goal of no deletions – no additions.

Deep power reserves

A highly specified power supply ensures that the strong, very fast and ultra broadband output stage (1 MHz / - 3 dB) is capable of driving even long, high capacitance interconnects to power amplifiers. We use an amplifier-like circuit which – thanks to very fast and precise regulation – provides extremely stable supply voltages. With more than 500,000 µFarad of storage capacitance it provides almost unlimited impulse current for the analog circuits. Bus bars supply this power throughout the unit without loss. A unique concept in the audio world.

Sonic quality

The 725 achieves the long-sought goal of virtual sonic invisibility. Transparency and richness of detail are peerless. Even more exciting is the almost holographic and three dimensional spatial reproduction resulting in a believable realistic sound stage on high quality recordings. The incredible drive in the low bass area delivered by the soulution 725 is way ahead of what can be achieved by even the best passive volume controls. With absolute control and precision across all frequencies, the soulution 725 defines the perfect preamplifier.

The sonic qualities resulting from the sonically invisible preamplifier are breathtaking.



Massive on board copper conductors distribute the supply voltages.





Stereo – Mono

Stereo

The power of an amplifier, its THD figures and damping factor are not the whole story. Alone, they cannot adequately describe the sonic characteristics of an amplifier. Only a holistic approach taking into account the real load of a loudspeaker leads to valid results. The ideal amplifier operates without level- and phaseshift across any load, without long signal paths or tricks that are often used in transistor technology like excessive amplification (open loop gain) and very high negative feedback. Such amplifiers may provide good technical measurements, but will sound inferior when compared to simpler vacuum tube designs. The soulution 711 is extremely fast with ultra-bandwidth (1 MHz/-3 dB) and has a high current capability. This cannot be achieved by tubes with output transformers. The unique and sophisticated circuit design of the soulution 711 gives the best of both worlds the sonic beauty of tubes with the bandwidth and current delivery of transistors. In other words, sonic characteristics that were thought to be incompatible: precision, dynamics, stability and power - all united to serve the music.



Fixed gain voltage amplifier

Immediately after the input connectors, the music signal is buffered in the soulution 711 allowing it to be passed with low impedance to the input of the error correction stage. An extremely fast operational amplifier, whose high processing speed provides quick and accurate correction, it passes the signal on to the true heart of the soulution 711: the fixed gain voltage amplifier. The music signal transits this ultra-wideband amplifier stage with a maximum level variation of 0,1 dB. This highly linear amplifier stage is only able to perform at such a level of precision because it is integrated with the error correction in a cast resin module for extreme thermal stability.

120 Amps

Fourteen bipolar transistors per channel, fixed on a massive copper rail which is permanently temperature controlled to maintain a constant idle current, provide the 711's muscular current rating of more than 120 Amps. A special turn-off-acceleration network ensures that the crossover distortions that degrade the sonic performance of many class AB amplifiers cannot even arise.

The ideal amplifier operates without level- and phase-shift across each load.





Comprehensive protection circuits permanently monitor the soulution 711 and ensure optimal and safe operating conditions.



Audiophile switched-mode power supply

With the extreme linearity of the amplifier, it is the stability of the power supply voltages that determine if an amplifier sounds truly exceptional. The power supply in the soulution 711 uses advanced switched-mode technology. Four modules, each 600 VA and optimised for use in audio amplifiers, combined with high-quality capacitors (> 1,000,000 μ Farad) provide more than enough power reserve for the amplification of complex and dynamic music signals.

Perfect feedback loop

The soulution 711 delivers stability, precision, speed and power through loudspeaker loads in the listening room and on the test bench – all without being artificially tuned for best measurements at the expense of sonic quality. In the listening room the soulution 711 is highly linear, without negative feedback to create timing errors, delivering at the same time powerful control of low bass along with precision in spatial reproduction. On the test bench the soulution 711 masters even the most exacting technical trials (see specifications) with simply perfect measurements at every load. THD components are virtually non-existent. The megahertzbandwidth results in a frequency response that shows not the slightest deviation in amplification even up to 100 kHz.

Effortless and rock-solid

Measurements can guide. But in high-end audio there is ultimately only one test that really matters: the listening. Hear how the soulution 711 makes your loudspeakers perform. Be amazed at the control and quality of the low bass that is possible with this stateof-the-art technology. Experience vacuum tube-like organic sound paired with the rock-solid spatial reproduction and neutrality of the best transistor amplifiers. Experience music in all its natural variety and beauty. soulution 711 – the new standard for uncompromised musical reproduction.

Experience vacuum tube-like organic sound paired with the rock-solid spatial reproduction and neutrality of the best transistor amplifiers.





Mono

Like no other audio amplifier that we know of, the soulution 711 defines a new standard in inherently stable, level and phase-correct behaviour. Only in terms of output power did we choose not to go to extremes. Now, with the 701 mono amplifier, power has been addressed too. The 701 takes things to the next level with up to 1200 watts (at 4 ohms) continuous output power – more than enough to breathe new acoustic life into the most critical, low-efficiency loudspeakers.

Custom-tailored amplification

Two proven soulution amplifier stages have been re-designed as bridge amplifiers in the 701 mono and provide an enormous increase in performance. If no music signal is present, the quiescent current is reduced automatically. And should your speakers demand bi-amping instead of ultimate power, the soulution 701 is easily switched to this mode. That's what we mean by custom-tailored amplification.



Perfect symmetry

An optimised mechanical design ensures perfect symmetry, affording identical thermal conditions for both amplifier stages and a perfect star-shaped ground reference, resulting in even better measured values. A frequency bandwidth of up to 2 megahertz (– 3 dB) and very low distortion (0.0003% at 50 watts at 4 ohms, 20 Hz to 20 kHz) speak for themselves.

Pure listening pleasure

We believe there is simply no loudspeaker made which the 701 mono blocks could not push to its ultimate performance. Put us to the test. Experience how complete control and authority are unified. We guarantee you quite an experience.

The 701 mono amplifiers accomplish what has been regarded impossible so far. More power with even less distortion.









Switched-mode power supply



Noisefloor measurement at the output of the amplifier (no music signal): The red graph (linear power supply of 710) shows the interferences provoked by the transformer and rectifiers. The SMPS shows significantly better results on the test bench.

Switched-mode power supplies still have a less than perfect reputation in audiophile circles. In the past, this technology has been used with the sole aim of cost and space optimisation and such compromises have directly affected sonic quality. Not so in soulution's amplifiers. Our power supply module has been developed exclusively for optimal performance.

Perfectly regulated supply voltages are just one of many advantages. Linear power supplies can briefly pull massive power surges (20 A), affecting power grid and other components in the audio chain. Thanks to power-factor-correction (PFC) this is not the case for switched-mode power supplies. Further, switched-mode power supplies allow current carrying circuitry to be shorter, allow the use of more storage capacity, and offer better noise performance than linear supplies. A comparison of the noise spectrum of the 710's linear power supply with the 711's switch mode power supply clearly shows the advantages of the new technology. The mains frequency and its harmonics are hardly detectable at the 711 with its switching power supply. By contrast, in the 710 the interferences up to 2 kHz exceed the noise floor of the amplifier. HF interferences in the switched-mode power supply are simply not measureable.



zeroqtech

An ideal audio component operates with correct level and phase. Phase shifts (time shifts) between low and high frequency components of a music signal will undermine the reproduction of the sound stage.

 $\text{zero}\phi\text{tech}$ solves one of the fundamental problems of digital music playback.



The red curve shows the phase shift which the 3^{rd} order Bessel filter used in the 760 would have without compensation by zero ϕ tech. With zero ϕ tech phase shifts are barely measureable.

Amplifiers and preamplifiers show similar behaviour to a low-pass filter. Until they reach the corner frequency (bandwidth, -3 dB) the gain remains constant and then decreases with increasing frequency. However, phase starts to shift much earlier, at approx. $\frac{1}{100}$ of the corner frequency. This means that for amplifiers with MHz bandwidth, such as soulution's, phase rotation becomes significant only at frequencies far outside the audio band.

Playback of digital formats requires an analog low-pass filter after the D/A conversion for eliminating image frequencies and the reduction of noise. This applies both to DSD as well as PCM-based D/A converters. Today's up-/ oversampling technology allows, thanks to the higher sampling rate, the use of softer filters. These have less phase shift than the brickwall filters which were used in the early days of digital music playback. They mitigate the problem but do not completely solve it.

soulution's zero φ tech rewrites the rules. Before the digital data run through the D/A converter and the subsequent analog low-pass filter, they are pre-emphasised to its phase error. This complex and very elaborate computing is performed by a powerful DSP with 32 bit resolution. Now, when these pre-emphasised data pass through the D/A converter and the analog low-pass filter, the phase errors cancel each other out, < 1° (20 Hz – 100 kHz). That's zero-phase! The effects are remarkable: unprecedented organic quality, airiness and freshness in the music reproduction. Nothing is lost, nothing is changed.

Specifications

D/A converter	soulution 760	
Mains	220 – 240 V (50 – 60 Hz)	
	100 – 120 V (50 – 60 Hz)	
Power consumption	< 0.5 W standby	
	60 W device in operation	
Analog outputs	$1 \times balanced (XLR)$	
	$1 \times unbalanced$ (RCA)	
Frequency response	0 – 200 kHz (DXD)	
THD + N	< 0.0005 % (20 Hz – 20 kHz)	
Signal-to-noise ratio	> 140 dB	
Channel separation	> 130 dB	
Output impedance	2 Ω balanced (XLR)	
	2Ω unbalanced (RCA)	
Output voltage	4 V _{RMS} balanced (XLR)	
	2 V _{RMS} unbalanced (RCA)	
Output current max	1 A (limited by protection circuit)	
Volume control range	0 to -79 dB in 1 dB steps	
Digital inputs	AES/EBU, SPDIF-RCA, Optical, USB, Network	
Digital outputs	AES/EBU, SPDIF-RCA, Clock-BNC	
Digitale formats	WAV, AIFF, FLAC, ALAC, DSF, DFF, DXD, MP3, AAC	
Bit depth/sampling rage (max)	AES/EBU: 24 bit/192 kHz	
	SPDIF: 24 bit/192 kHz	
	Optical: 24 bit/ 96 kHz	
	USB: 24 bit/384 kHz, 1 bit/5.64 MHz	
	Network: 24 bit/384 kHz, 1 bit/5.64 MHz	
Dimensions	$480 \times 167 \times 450 \text{ mm} (\text{W} \times \text{H} \times \text{D})$	
Weight	approx. 30 kg	
LINK (remote turn-on)	12 V control signal	

Phono preamplifier	soulutio
Mains	220 – 24
	100 – 12
Power consumption	< 0.5 W s
	60 W dev
Inputs	$2 \times MC$ u
	1 × MM ι
Input impedance	MC: 10
	MM: 47 0 -
Outputs	1 × balar 1 × unba
Frequency response (– 3 dB)	0 – 1 MH
THD + N	< 0.0029
Signal-to-noise ratio	100 dB
Channel separation	60 dB @
Gain (max)	MC: + 7
	+ 7
	MM: + 6 + 6
Volume control range	0 to -79
Output impedance	 2 Ω bala
	2 Ω unba
Output voltage	16 V _{RMS} k
	8 V _{RMS} ι
Output current max	1 A (limit
Dimensions	480 × 16
Weight	approx. 3
LINK (remote turn-on)	12 V con

on 755

40 V (50 – 60 Hz) 20 V (50 – 60 Hz) standby vice in operation unbalanced (RCA) unbalanced (RCA) 0 Ω – 1000 Ω $7 \Omega - 47 k\Omega$ and – 750 pF nced (XLR) alanced (RCA) Ηz % (20 Hz - 20 kHz) 1 kHz 78 dB balanced 72 dB unbalanced 66 dB balanced 60 dB unbalanced OdB in 1 dB steps inced (XLR) alanced (RCA) balanced (XLR) unbalanced (RCA) ted) $67 \times 450 \text{ mm} (W \times H \times D)$ 30 kg 12 V control signal

soulution 750/751 externally via 750 PSU or 725

< 0.5 W standby 20 W device in operation 750: $3 \times MC$ (RCA) 751: $2 \times MC$, $1 \times MM$ (RCA) MC: $10 \Omega - 1000 \Omega$ MM: $47 \Omega - 47 k\Omega$ and 0 – 750 pF $1 \times \text{balanced}$ (XLR) $1 \times$ unbalanced (RCA) 0 – 1 MHz < 0.006 % (20 Hz - 20 kHz) 100 dB 60 dB @ 1 kHz MC: + 66 dB balanced + 60 dB unbalanced MM: + 54 dB balanced + 48 dB unbalanced 0 to -15 dB in 3 dB steps 10 Ω balanced (XLR) 10 Ω unbalanced (RCA) 7 V_{RMS} balanced (XLR) $3.5 V_{\text{RMS}}$ unbalanced (RCA) 0.2 A (limited) $480 \times 117 \times 450 \text{ mm} (W \times H \times D)$ approx. 17 kg 12 V control signal

Specifications

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A)	
0 – 1 MHz	
< 0.00009% (20 Hz – 20 kHz)	
> 140 dB	
> 110 dB	
XLR)	
d (RCA)	
MC unbalanced (optiona	
- 3/+ 6/+ 9 dB	
steps	
A)	
LR)	
(RCA)	
1 A (limited by protection circuit)	
$480 \times 167 \times 450 \text{ mm} (\text{W} \times \text{H} \times \text{D})$	
approx. 30 kg	

Amplifier	soulution 711 Stereo	soulution 701 Mono
Mains	220 – 240 V (50 – 60 Hz) 100 – 120 V (50 – 60 Hz)	220 – 240 V (50 – 60 Hz) 100 – 120 V (50 – 60 Hz)
Power consumption	< 0.5 W standby idle 300 W max 1600 W	< 0.5 W standby idle 300 W/200 W max 2000 W
Outputs	2 pairs Cu-terminal, gold plated	2 pairs Cu-terminal, gold plated
Gain	+ 26 dB	Dual: + 26 dB Mono: + 32 dB
Power output	2 × 150 W @ 8 Ω 2 × 300 W @ 4 Ω 2 × 600 W @ 2 Ω	600 W @ 8 Ω (2 × 150 W*) 1200 W @ 4 Ω (2 × 300 W*) 2000 W @ 2 Ω (2 × 600 W*)
Pulse power	> 2 × 6000 W	> 12000 W
Frequency response (– 3 dB)	0 – 1 MHz	0 – 2 MHz (0 – 1 MHz*)
THD + N	< 0.001% at 50 W @ 4 Ω (20 Hz – 20 kHz)	< 0.0003% at 50 W @ 4 Ω (20 Hz – 20 kHz)
IM distortions	< 0.005% SMPTE < 0.0006 CCIR	< 0.005% SMPTE < 0.0006 CCIR
Signal-to-noise ratio	108 dB (5 W @ 1 kHz)	108 dB (5 W @ 1 kHz)
Channel separation	> 120 dB @ 1 kHz	
Damping factor	> 10000	> 10000
Output current max	120 A (limited)	120 A (limited)
Inputs	$1 \times balanced (XLR)$ $1 \times unbalanced (RCA)$	$1 \times balanced (XLR)$ $1 \times unbalanced (RCA)$
Input impedance	4.8 kΩ balanced (XLR) 10 kΩ unbalanced (RCA)	2.3 kΩ balanced (XLR) 4.0 kΩ unbalanced (RCA)
Dimensions	$480 \times 280 \times 535 \text{ mm} (W \times H \times D)$	$560 \times 306 \times 585 \text{ mm} (W \times H \times D)$
Weight	approx. 65 kg	approx. 75 kg
LINK (remote turn-on)	12 V control signal	12 V control signal

*in dual mode



soulution

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High-end made in Switzerland

