

LS-1602 Referenz



inakustik

KABEL | LAUTSPRECHER | MUSIK

Our quality standards

REFERENZ

black&white reference - the in-akustik class for perfectionists. The benchmark for uncompromising sound experience. World leading value and price/performance ratio. Gets under your skin..

EXZELLEENZ

Excellence - the in-akustik class for discerning tastes. The finest materials, outstanding workmanship. With a passion for high end audio enjoyment

PREMIUM

Premium - the in-akustik class for state-of-the-art technology. Gets the most from your audio / video system. Built on a love of superior performance

STAR

Star - the in-akustik class for beginners with ambition. Always the right choice. More performance at lower cost. Striving to be better

A passionate family

in-akustik is a quality brand and respected around the world.. For more than 25 years in-akustik has put its heart and soul into the business of audio and video enjoyment. Perfect images and perfect fidelity are our passion. Made in Germany and always leading the way in value and incredible performance. With our own brand of CD and DVD labels, Focal home and car hifi loudspeakers and of course our cables, our family of products make passionate statements

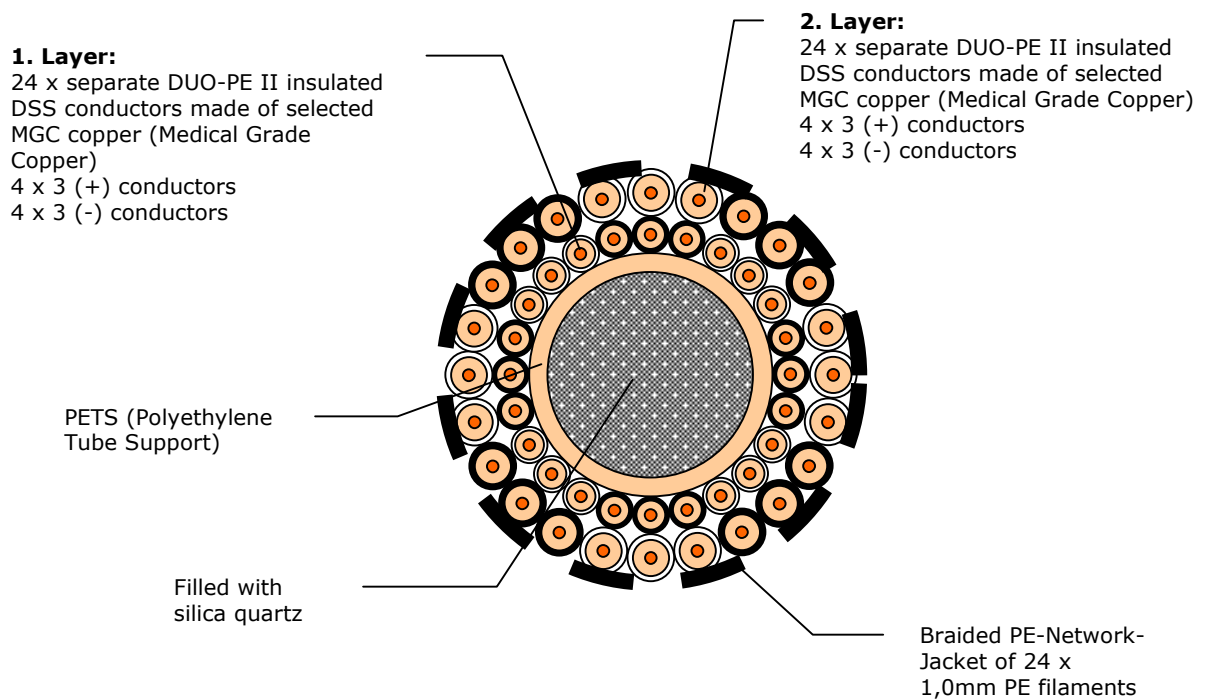


Insert the CD, sit back and enjoy. That's how simple it is when all of the components of the system are finely tuned and coordinated. Audio signals require just that bit more. They cover a great distance from the CD to the speakers with the section from the amplifier to the speaker accounting for the longest bit. But the greater the distance, the more vulnerable the system is to problems. Even in the very best recordings using the best hardware available. Reference loudspeaker cables from in-akustik have always set standards. Even the first LS generation was exceptional. In the form of our 02 Generation, we have raised the benchmark yet another notch because we are always on the lookout for perfect pleasure. So simply insert the CD and open your ears!

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Because 100% is not enough

Boom! The black&white LS-1602 represents a revolution. No other loudspeaker cable has ever undergone such a complicated manufacturing process. Using new sophisticated methods and the very best material available. The 48 (!) conductors are made of selected mgc (medical-grade copper) from high-purity batches. This extraordinary purity can only be achieved by complex special tests resulting in a mathematical paradox: conductivity = 102 per cent. Boom!



MGC Copper

Medical Grade Copper

Electrons flow in copper like cars on a highway. But impurities and a non-homogeneous crystalline structure act like rough road and construction zones, obstructing the current flow. The more impurities in a copper conductor, the worse the transport of the signal. And a construction zone on the highway not only slows traffic at the site itself, but can also cause a traffic jam lasting many miles (for example, a 100-yard construction zone can create a 10-mile jam). The same is true for copper. A single impurity atom "tenses up" the crystal structure over wide areas and impairs the conductivity.

The impurities in a material are expressed in parts per million (ppm), which refers to the number of impurity atoms for every one million copper atoms. In the hi-fi and high-end areas, the focus is usually only on the oxygen content. But many more elements can appear as impurities during the production of copper.

For the LS-1602, we thoroughly tested many highly pure batches of copper in the laboratory before selecting an extremely pure batch with outstanding values:

Chemical analysis (impurities): 30.2 ppm
Coil: 465 mm*

*Impurities below 30 ppm cannot be measured accurately in the laboratory. Below this impurity level, the coil test enables the purity of a material to be measured not absolutely but rather relatively among various batches. In this test, a precisely shaped copper coil from the batch in question is pulled apart with a particular force. The longer the coil extends, the purer it is. Typical values are around 430 mm.

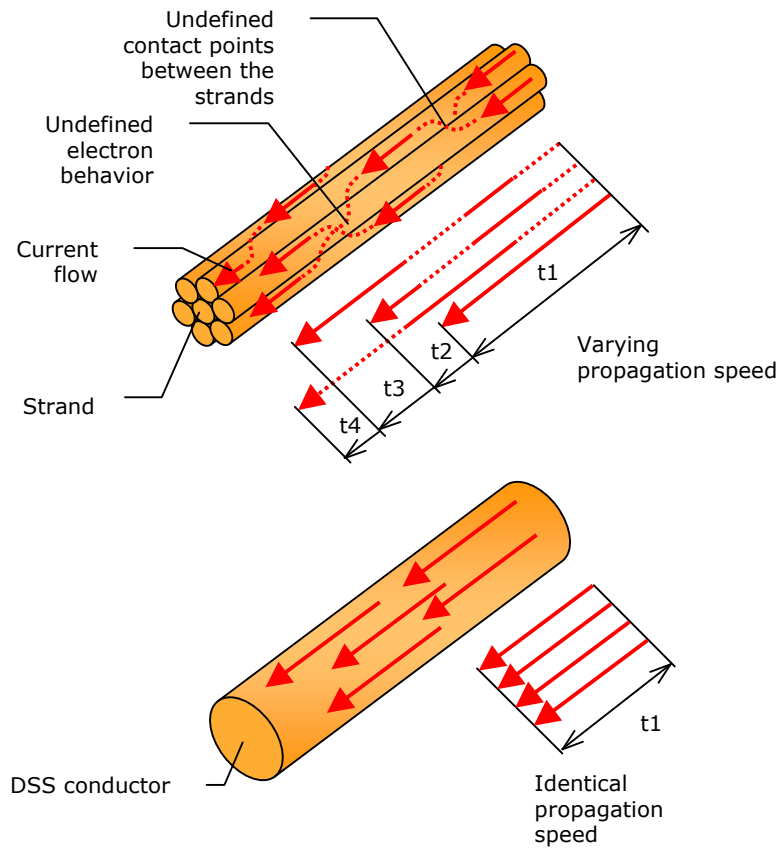
Is it worth the trouble? Yes!

The copper was examined in the laboratory with respect to its properties as an electrical conductor. The result was surprising: an excellent 59.1 m/ohm x mm² of conductivity, compared to the 58 (old standard copper only 56) m/ohm x mm² for conventional copper. That's 2% more — a considerable improvement in this area (100% + 2% = 102% in total).

DSS-technology

In a finely stranded cable, there are undefined contact points between the individual wires. The behavior of the electrons in such a cable is also undefined. Driven by many different factors, the electrons jump chaotically from wire to wire on their way through the cable. Delay time differences arise and the dynamics of rapid impulses are damped. The contours of the music are obscured and pressure is lacking

The DSS (Direct Signal Surface) cable in the black&white LS-1602 creates a direct, point-to-point connection. Perfectly timed and powerful.



PETS-technology

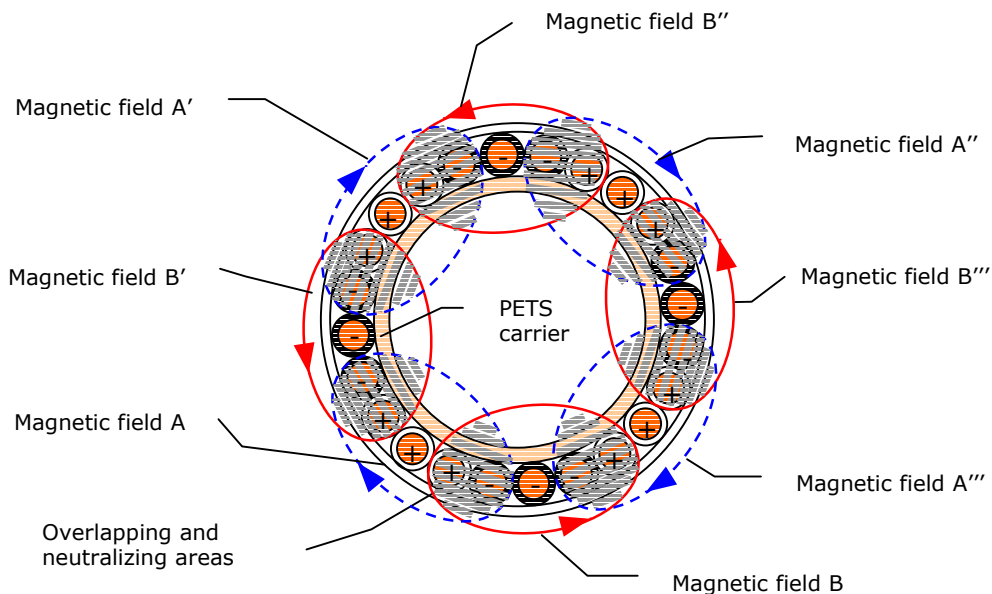
All loudspeaker cables possess a so-called series inductivity, a resistance which influences the transmission of the music signal in relation to the frequency. The ingenious construction of the black&white LS-1602 reduces this inductivity to a minimum by means of PETS (Polyethylene Tube Support) technology.

An amplifier transmits a current to the loudspeaker via the loudspeaker cable. An electrical circuit is created. This circuit forms magnetic fields around the cable which - depending on their alignment and positioning - may neutralize each other.

The wire Multilayer pairs of the LS-1602 circle around the PETS carrier material, forming a kind of wave guide. This unique configuration intentionally creates a number of overlapping areas of the magnetic fields.

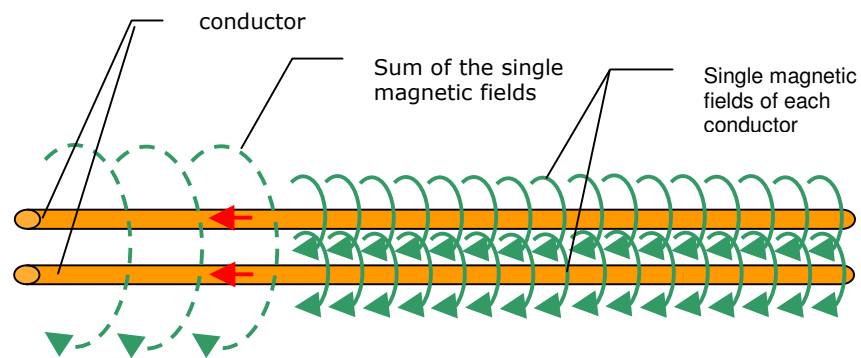
The magnetic fields (A & B) for the positive and negative cables are counter-rotational as the result of the opposing direction of electrical flow (+ & -). In the area where they overlap, they cancel each other out. This results in the extremely low series-inductivity for the LS-1602. The music signal can therefore reach the loudspeakers unimpeded.

Drawing as of the Construction of LS-1202

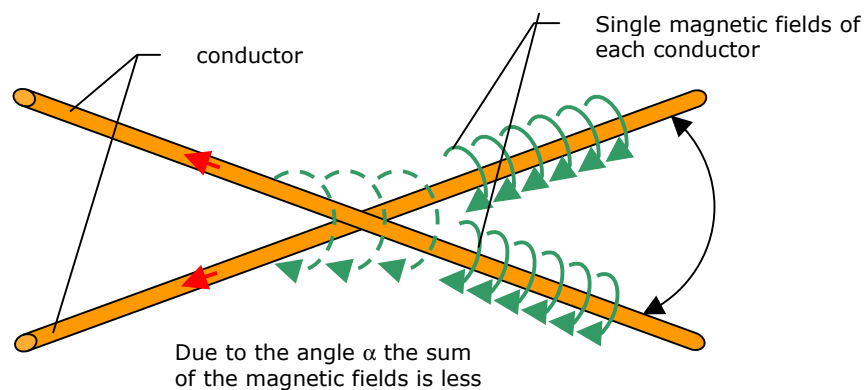


Multilayer

The inductivity reduction provided by the PETS technology is additionally supported by the multi-layer design. The total of 48 individual wires in two layers results in considerably more overlap of the magnetic fields (see PETS carrier diagram), which is reinforced by the opposing stranding of the layers. The result is that the magnetic fields having the same effective direction (e.g., all plus lines) are angled in such a way that they cannot reinforce each other as strongly. This measure provides an additional significant reduction in the inductivity.



In conductors with the same current direction running parallel to each other, the magnetic fields supplement and reinforce each other.



But in conductors with the same current direction running but angled to each other, the magnetic fields supplement each other significantly less strongly. The inductivity drops.

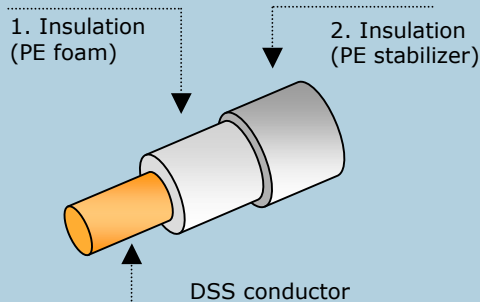
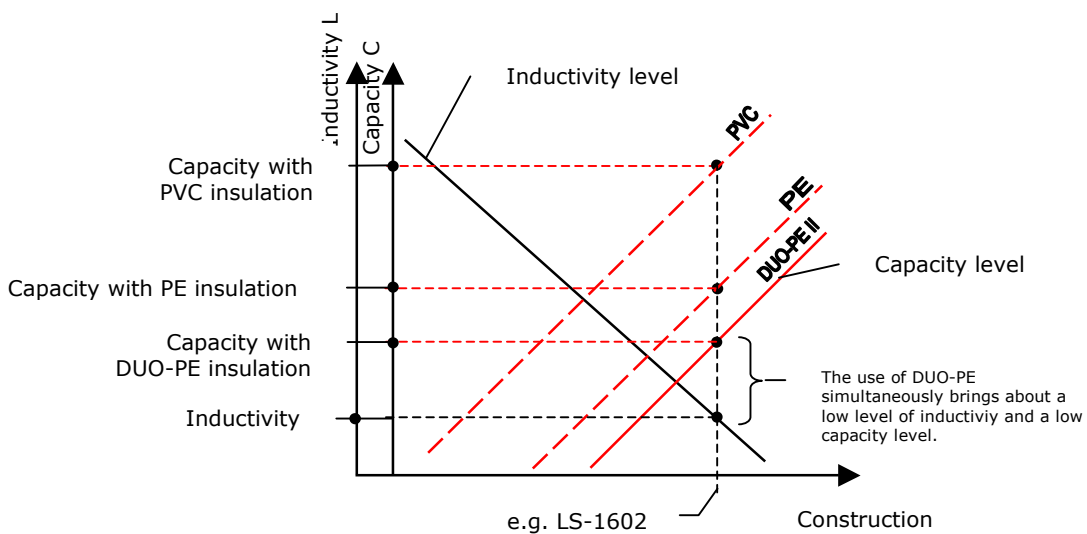
DUO-PE II

In the construction of cables, inductivity (L) and capacity (C) are inversely proportional, i.e. if the design causes one value to rise, the other will sink, and vice versa.

The capacity (C), however, depends on yet another factor - the dielectric constant of the insulation material.

In the LS-1602 cable, all 48 conductors are DUO-PE II insulated. This unique insulation consists of two layers of polyethylene. The first layer is air-enriched, which further improves the already outstanding qualities of the PE. The second layer helps to stabilize the construction.

This reduces both the inductivity (via PETS technology) and the capacity (via DUO-PE insulation).



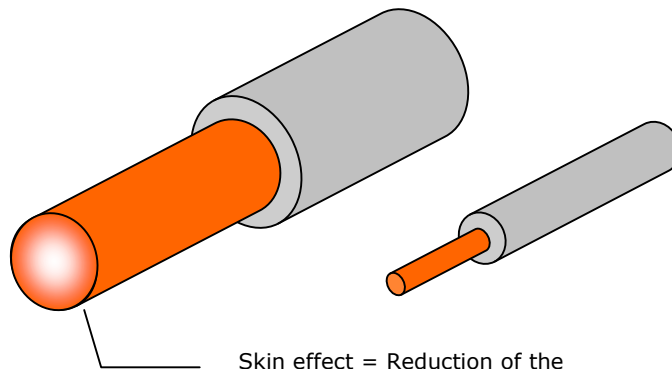
HSLR

(High Surface & Linear Resistance)

Every conductor is subject to the so-called "skin effect". This is the phenomenon that causes the electrical current in the conductor to flow with greater concentration on the conductor surface in proportion to increasing frequency, i.e. with higher pitches.

The effective usable conductor cross-section is thus reduced with increasing frequency and the resistance of the conductor increases, which causes higher pitches to be transmitted with less accuracy than lower ones. As a result: The resolution of the playback suffers..

The use of 2 x 24 separate DUO-PE insulated DSS wires provides the LS-1602 with an exceptionally large real conductor surface. This causes the resistance of the cable to behave linearly from the deepest bass sounds to the most delicate triangle, rather than allowing the skin effect to curtail the frequency response of even the mid-frequency guitar sounds.



Skin effect = Reduction of the effective conductor cross section; with thick conductors it occurs already in the audible range

PE-Network-Jacket

The innovative jacket of the LS-1602 also plays an important role. In contrast to other cables with pure braid optics, the black&white PE network jacket provides not only an appealing exterior look and cosmetics but also an important technical feature. While an additional sub-coating is usually used under the braid, which has a detrimental effect on the electrical parameters, the wires of the black&white cables are braided directly into the PE network jacket in a complex production procedure. The advantage of this is that no additional material such as PVC is used in the cable. The braid of the LS-1602 is also very open, so that even the "external jacket" consists primarily of air. This procedure makes it possible to produce the entire cable only using two materials: MGC copper and polyethylene. This guarantees stress-free signal transfer and lively music playback. In this case, less really is more! In addition, the wires are held compactly together by the stable PE network jacket, which consists of 24 individual monofilaments, each 1 mm in diameter with a pull of 800 g:

24 x 0,8kg = approx. 19,2 kg packing pressure

This significantly reduces the micro vibrations and ensures that the cable can function cleanly even with extreme dynamic peaks.



Silica quartz sand

The silica-sand filling in the core gives the cable more mass, which additionally reduces microvibrations. This makes the acoustic pattern more precise and relaxed.

Good contacts

The LS-1602 is available directly with solid gold-plated copper spade connectors or equipped with high-quality BFA banana plugs. Whatever you need.



Product overview

SPEAKER CABEL LS-1602		
ITEM NO.	DESIGNATION	CONNECTION
007 816321	LS-1602 2 x 3,0m SW	Easy Plug
007 8163213	LS-1602 2 x 3,0m SBW	Easy Plug
007 816322	LS-1602 2 x 3,0m SW	BFA
007 8163223	LS-1602 2 x 3,0m SBW	BFA
007 816323	LS-1602 2 x 3,0m SW	Spade 6/8mm
007 8163233	LS-1602 2 x 3,0m SBW	Spade 6/8mm



TESTERGEBNISSE

MONITOR Black & White 1602

Revolutionäre Durchzeichnung in Bass, Grundton und unteren Mitten, in den akustischen Regionen darüber durchgängig neutral. Solide Kabelschuhe (wahlweise auch Bananas) zeichnen die robuste und langzeitstabile Verbindung aus.

AUDIO TEST
URTEIL

überragend 120
Referenzklasse
★★★★★

Preis/Leistung sehr gut

Vergleich zu anderen Testgeräten siehe AUDIO-Bestenliste.



LS-1602

Speaker Cable



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Note: All product illustrations are approximate. Specifications subject to change