

A New Generation of Cable Design

Silversmith Audio Interconnect and Speaker Cable

BY LARS FREDELL

I believe that over the years I have probably tried many different cables, both interconnects and speaker cables, than most other audiophiles. At least if you talk in terms of sane, well adjusted audiophiles. Only tweakernuts like myself would dedicate hundreds of quiet Sunday mornings to endless switching of cables while listening to minute, or perhaps imagined, differences in the sound. I have literary tried everything: cables ranging in price from 50 cents to thousands of dollars per foot.

Surprisingly, in all this effort I have managed to avoid learning anything about the underlying fundamental science of signal transmission. Sure, I know something about the basic materials involved and what some of the audible differences are under certain conditions. But I know nothing about what it is that makes a cable a cable. There are other things in my life that function on the same premise: My car, my computer and occasionally my wife. In some lucky instances then, I seem to exist in a state of ignorant bliss.

This convenient situation recently changed when Ralph Dodson, the very well adjusted and sane designer of the excellent digital converters carrying his name, suggested that I contact Jeffrey Smith of Silversmith Audio. "If you want to hear what cables really can do, you need to try out some of Jeff's stuff. It's very good!" Little did I know that this understatement would force me into a position where I actually desired to learn a little bit more about signal transmission theory. Not much, mind you, just enough to begin to understand why Jeff's cables sound so incredibly good (actually they don't have a "sound" at all!).

Thus, I have lately familiarized myself somewhat with the work of Malcolm Hawksford (*The Essex Echo*, 1995; *Stereophile*, October 1995) and the duo of Andrew Harrison/Ben Duncan (extensive contributions in the UK magazine *Hi-Fi News & Record Review*), among others. My newfound insight is very shallow, indeed, as it is based on reading their articles and trying to understand them, but failing to understand most

of the complex formulas involved. I'm well aware that the theories espoused by these individuals are not universally accepted as cable gospel, but since the Silversmith cables are partially based on them, and since they sound so damn good, I figure that there must be something to it.

IN THEORY

The Silversmith cables are, as the name indicates, made of silver. Thin silver ribbons, almost like a foil, are surrounded by loose fitting convoluted tubes of Teflon, which is said to be in physical contact with less than 3% of the silver ribbon (interconnect; for the speaker cable it's less than 1%). For all practical purposes, this is an air dielectric design. Silver was chosen because of its superior conductivity, which reduces resistance and thus helps an amplifier's damping factor. Copper, of course, is a less suitable conductive material as it has the disadvantage of deteriorating properties when its surface oxidizes (this can cause reflections and diodic properties) while silver is superior even when oxidized. The Silversmiths are "cold-rolled" into a ribbon. This process elongates the grain structure without using heat (heating the material would break down the grain structure), which produces a more durable ribbon with uniform properties.

The speaker cable is a very thin silver foil (considerably thinner than similar products from Alpha Core and Nordost), significantly thinner than a 20 kHz signal skin depth, according to the designer, and 3/4-inch wide. This width was chosen because it would



approximate a 13 gauge wire (can carry in excess of 20-amps continuously, with a resistance of less than .002 Ohms/foot). There are no connectors, as the butt ends of the conductors are scooped out in the shape of a spade. I really like this intelligent solution because, in my opinion, all connectors and connections tend to deleteriously filter the signal. Good riddance! Each conductor is encased separately allowing wide spacing to keep the capacitance low. The cable is flexible and this makes it easy to dress, even in very cramped quarters.

The interconnects are designed in a similar fashion, except that the ribbons are narrowed (same thickness) to approximate 21 gauge wire size, and silver plated Cardas RCA (or Neutrik) connectors have been added. Jeff paid particular attention to the shielding and experimented with many different variations. Among other options, he worked with a copper tape, which improved the sound but was too unwieldy. Eventually he developed a special silver knitted mesh of low density (he found that at certain frequencies shield material seemed more important than mesh density), which adds no additional capacitance but offers 100 to 120 dB noise reductions. The shield is left floating at one end.

At the root of Jeff's theories are some guidelines he's extracted from Hawksford's writings in particular: "Indo-inductance disappears in a particular frequency range when the conductor is thinner than the skin depth of the highest frequency in that range." These have led him (not uniquely; others as well) to the core belief that indo-inductance (or self-inductance, which causes "skin effect") is perhaps the most important variable in cable design. "You just get a purer signal path," he says. "The sound is more open with better phase characteristics

and better transient response." Both inductance and capacitance are extremely low—Jeff believes that the capacitance of his cables is probably lower than any other audio wire—and this is important for sound purity. "Increased capacitance can help filter RFI noise, but it can also dull transients and reduce resolution," he theorizes. "Inductance (and resistance) should obviously be kept as low as possible."

IN REALITY

Well, whatever theories you apply, or don't apply, I know that I've never heard anything quite like these cables. The harmonic purity is truly amazing with uncanny image specificity and integrity. There is no "halo effect" around individual instruments (or "bleeding" of instrumental edges), just the natural expansion of their sound in open space. This is particularly obvious on piano and brass instruments because their natural timbre, at certain frequencies, can be quite brittle at times. None of that is obvious here! Human voice, especially female sibilance, is reproduced with a very natural richness to it, which seems to muddle the otherwise clear demarcation line between

"real" and "definitely reproduced."

Both frequency extremes are entirely fleshed out in all their glory and intensity. There is none of that "glare" that so many silver cables are often accused of (mostly incorrectly in my experience; there are usually other problems to blame when this occurs). At first, I thought that I had a problem with the midbass when using the Silversmiths. The 60 to 100 Hz region seemed to lack some impact. However, after prolonged discussions with Jeff and his listening partner Kent Fuqua of KMF Audio (and many listening comparisons!), I ended up sending one of my reference cables to San Diego so that they could hear what I heard. Finally, we agreed that my reference boosted the energy slightly at around 70 Hz and lost some energy below 30 to 35 Hz, while the Silversmiths were flat down to well below 25 Hz.

The Silversmith's transparency is better than anything I've heard previously. It is so good that on many recordings you can clearly perceive the distance between the microphone and the source of the sound, that is, a voice or an instrument. The open space there takes on its own dimensions, which

adds an uncanny sense of realism to the proceedings. This continuity is common on big orchestral works, but much harder to get on close-miked recordings, or with a soloist up front. The Silversmiths also develop the most expansive soundspace I've heard, both in terms of width and depth.

Ralph Dodson was right. The Silversmith experience has been an ear opener for this old cable jockey. Please make sure that you share it! If nothing else, it'll reference what is possible to achieve with good cable thinking and design—and without any of those "magic" boxes attached to the conductors. Congratulations, Jeff—may your presence in high-end audio enlighten many! ●

► **Silversmith Audio Interconnect and Speaker Cable, Silversmith Audio, 4946 Pacifica Drive, San Diego, CA 92109. Tel: (858) 272-6375. Web site: www.silversmithaudio.com. Designer: Jeff Smith. Cable description: Ultra thin (0.005 inches) cold rolled, pure silver conductors with elongated grain structure in an air dielectric. Prices: Speaker Cable, \$2,500/6 foot pair (\$450 per additional 2 feet); Interconnects, \$1,400/3 feet (\$200 per additional 1.5 feet).**

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