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Silversmith Audio Silver Interconnect and Speaker Cable

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Specifications
8-foot Silversmith Silver Speaker Cable, $2950.
4.5-foot balanced (XLR-terminated) Silversmith Silver Interconnect, $1650.

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In the matter of audiophile cabling - there being a pasta factory's abbondanza - I attend to those cognoscenti I trust. Harry Pearson and Scot Markwell's enthusiasm for Nordost's Valhalla line proved itself in my listening room. Another knowledgeable enthusiast, Kevin Tellekamp, the man behind Silent Running Audio, put me on to Jeffrey Smith's Silversmith Audio. Kevin, whose superb isolation platforms sit under my Mark Levinson hardware, doesn't mince words: Smith's wires trounce the lot. We'll get to my opinion soon enough. Meanwhile, Silversmith's eponym has sent me several emails from which I'll quote at length. This remains a controversial topic (as does so much in high-end audio). A practitioner's assertions are bound to fascinate the engaged reader. My occasional italicized asides appear within brackets.

"Briefly, my design centers around a single, ultra-thin, solid-core ribbon per polarity (one each for positive and negative runs). The ribbons [*three-quarter-inch-wide conductors*] for the speaker cables are self-contained in their own jacket system, which uses extremely thin-walled Teflon tubes to protect them as well as maintain a primarily air dielectric. There is so little solid material in the speaker and interconnect cables that you can actually see through them. In the interconnect, each ribbon is also enclosed in an extremely thin-walled Teflon tube; the ribbon/tube runs are then encased by the outer thin-walled tube that gives the interconnect its flexibility [*the most flexible I've ever handled*].

"One of the first things you'll have noticed about the speaker cable is its lack of a traditional connector. In notching the [*protruding*] ribbon in the shape of a spade lug, I can avoid the signal damage a connector causes. A word of caution: while the [*notched*] ribbon is surprisingly resilient, it is obviously more fragile than a traditional connector and should be treated with care. Also, its width can cause connection difficulties with narrowly spaced binding posts. I recommend using the Velcro straps that I enclose with all cables, to keep the speaker cables together, wide edge to wide edge, and enter the binding posts from opposing directions. This will keep the ribbons from touching and shorting out. [*A necessity. My speakers' binding posts are too close to accommodate the wide ribbons in any other way*.] With regard to my single-ended IC, my concern over connector-related degradation led to my choice of the Bullet Plug by Eichmann Technologies out of Australia. Instead of the error-inducing, massive metal construction that seems to define other RCA connectors, the Bullet Plug is an all-plastic design with small, hollow and thin-walled pins. The sonic improvement this connector affords is astounding."

Smith offers two lines, Silver (here discussed) and Palladium. The latter takes its name from that of a drop-dead expensive metal that, in Smith's words, "will not oxidize or otherwise tarnish and therefore will not degrade sonically over its lifetime." I expect to receive a review pair of the Palladium IC's in about a month. Smith also produces a Palladium speaker cable but, as the cost of the metal is so prohibitive, he's yet to reward himself with a set. A review pair lies somewhere over my rainbow.

Speaking of lifetimes, several ago, I ran two Crown Macro Reference amps as a mono pair. For the best bass reproduction, The Crown manual suggested speaker cables thick as a linebacker's neck. I mention this only to point up an absurd disparity. When Smith says there's not much to his cables content wise, he's not just whistling three-voice fugues. Should that put us off? Only if we equate mass with quality, in which case, I've these exquisite concrete pavers I'm willing to sacrifice…. As a technically unlettered listener, I can only report that the heft issue seems irrelevant to what I'm hearing my system's low end doing.

In answer to a question about dielectric constants (a conductor's proximity to operating within a vacuum, i.e., the ideal environment), Smith has this to say:

"I have not taken measurements, but the dielectric constant should be close to 1 [*the ideal*]. Similarly, I have not measured actual LRC (inductance, resistance, capacitance) values, though, given the geometry of the ribbons, those can easily be derived and are very low. Still, they have nothing to do with the sound of a cable. [*Bravo! If only the pocket-protector types would sit down and listen!*] In any event, because my conductors are free floating and can change their relative position, those values fluctuate slightly.

"I've heard your comment about a very different sort of sound from quite a number of people. [*I had offered Jeff some preliminary impressions*.] Solid dielectrics, multiple strands, thick wire, and massive connectors are all causes of signal alteration, i.e., time smearing, tonal shift, loss of resolution, dynamics, transparency, etc. I did not design my cables to be the best sounding on the market. Doing so implies using one's own amplification, speakers and source material to subjectively determine what sounds best to one's own ears. Using established engineering principles concerning electromagnetics, transmission lines and wave propagation, I simply designed my cables to do the least possible damage to the electrical waveform. I worked out the design entirely 'on the drawing board.' Only then did I actually build and listen to the cables to ensure that the cosmetic choices I made did not cause any sonic degradation. Few people have ever experienced a low-error cable, and that is the reason I frequently hear observations such as yours.

"Unfortunately, this low-error quality can be a double-edged sword. Some systems need a tone control, specifically a resolution-restricting cable, to achieve a sound to the listener's liking or to cover a system's flaws. For better or worse, my cables reveal naked truths, those of a system as well as recordings. Also, while my Silver and Palladium cables are far from the worlds most expensive, they are somewhat pricey. I make them entirely by hand and utilize the finest materials available. The review samples you received represent about a day's efforts at the workbench. These designs cannot be extruded or otherwise mass-produced. The Silver line is priced low enough so that most audiophiles can, over time, pick up a cable or two. Adding just a single set of interconnects can really transform a system. Be careful! Several of my customers have reported sleep deprivation."

That last sentence could stand as a model for the kind of exuberance niche-market providers bring to their disciplines. What sets me apart from Jeff Smith, and by extension, you, the concerned reader, is needful diffidence. As a breed, we remain alert to the possibility of improvement but are wary of wackos and frauds. Our shared passion emerged a good half-century ago as high fidelity. Over the decades, designer-manufacturers have made claims that would bring a blush to Baron Munchausen's cheek and, in certain cases, an end to the physical universe as we know it. On the other hand, seasoned listeners are well aware of those minute and gross differences various audio components bring to the mix. That's where the observationalist, a.k.a. subjectivist, audio reporter comes in. He's very much like a medium. Rather than the spirit world, he conveys his impressions of what emerges from a realm not far removed, the ghostly sound field. But before I do my part, let's let Jeff Smith hold forth a little longer. This is, as I say, a hot-button subject, and we need to learn as much about it as we can.

As these Silversmith designs are far from conventional, it seemed prudent to ask Jeff about cables as contributors to amplifier instability. While my Mark Levinson amps are probably as stable as they come, some designs operate closer to the edge and are therefore a cause for concern.

"It's true that speaker cables can cause certain amps to oscillate. The culprit is high capacitance. The primary factors that determine capacitance are surface area, distance between conductors, and the dielectric. Obviously, a wide ribbon like mine has quite a bit of surface area, but the distance between the conductors is extreme, so the resulting capacitance is lower than that of most cables."

Kevin Tellekamp mentioned the curious fact of a military network within high-end audio.

"Yes, my background is military. I am a Naval officer, having graduated from the US Naval Academy with a degree in engineering, and am now in the Naval Reserves after eight years of active duty. During my last assignment, a shore tour as an instructor at a combat training facility here in San Diego, I began working part-time at a high-end audio shop. One of my co-workers, a dedicated DIYer, got me excited about building my own speakers. Having access to the Navy's wood hobby shop and some woodworking skills, I thought it sounded like fun. After building the speakers and wanting to get the best sound possible out of them, the question of how to wire them came up. I conducted some research and, after discovering quite a few things impacting cable design that most engineers, surprisingly, aren't taught, I realized that there is only one way to construct an audio cable that does not act as a tone control. After fabricating a prototype, I knew I was on to something special and decided to pursue it. Ralph Dodson, the man behind the Dodson Audio DAC (you have to hear it if you have not already), used to frequent the store and participated in a few listening tests. Ralph was impressed and called Lars Fredell of *Ultimate Audio* to tell him about my cables. This all took place before I was officially a company. I shipped some cables off to Lars to listen to in the summer of 1999 and, during his evaluation, a few people visited and heard them as well, including Kevin Tellekamp and Vladimir Shushurin of Lamm. In what seemed a whirlwind, I officially started Silversmith Audio on the first of January, 2000 and, four days later, exhibited at CES with Lamm/Nearfield Acoustics, Eggleston/Wadia, and Lamm/Verity Audio/Bybee. I could not have asked for a better start."

And now, despite my best efforts to remain the dignified, distanced skeptic, I revert to the drooling fool we audiophiles becomes at moments such as this. Until I hear Smith's Palladium IC, these Silver ICs and speaker cables are probably going to be my Products of the Year. Never has this system sounded so musically right. Great, yes, but never so *right*. Prior to Silversmith, I'd achieved a totality fairly oozing resolution, a beautifully arrayed stereo image, precise dynamics, timbral truth; all those sonic lovelies we strive to achieve. I thought I'd climbed to the top of the hill. As always, there's a tad more terrain to ascend. In the language of Wheezing Moose, the penultimate Mohigan, these Silversmith cables bring to the event that certain jenny-say-kwa: in audiobabble, a heightened sense of coherence, space, dimensionality, and harmonic texture, and the picture holds together, no matter how large the force or loud.

For my part, hardware reports convert to crashing bores when the reporter begins detailing the recordings he's played. Suffice that I listened to many. As a curiosity, indeed, as perhaps the most interesting aspect of these sessions, the sense my Valhalla cables convey of extraordinary resolution and transparency these Silversmith cables in no way diminish. Far from it! With Silversmith, the recording takes precedence. In making direct comparisons between the Silversmith Silver IC and speaker cable and the Valhallas, the latter remain (to say it again) bears for resolution, transparency, soundstage and dynamic finesse. The Silversmith Silver cables' way with musical texture, the feeling they convey of a lifelike, extraordinarily dimensioned space proved by no small degree the more satisfying experience. With Silversmith, one's consciousness of transparency and resolution defers to one's immersion in the recording.

To return to neck-thick cabling for maximum bass response and the physics governing such matters, I'm baffled. Together, these insubstantial Silversmith ICs and speaker cables permit a supremely rich low end, along with a midrange - I was about to write "money can't buy" until I thought about that for a moment. An early perception of low-end pudginess has given way to utter satisfaction as the cables matured. Smith thinks they're 95% ready out of their black satin pouches. I'll only add that it takes perhaps a dozen hours for them to perform spot on. I believe I've found the answer to the question, "Where's the beef?"

The Silversmith Silver ICs and speaker cables operate in what sounds to me like celestial synergy. I hesitate to guess what it is about the speaker cable that makes it sound so absolutely right. Its innovative termination, the notched ribbon conductor? The foil- like ribbon that just about floats in air? I only know that I love what I'm hearing. Let's end with Smith's thoughts on the Great Cable Flap:

"As an engineer, I was taught that electrical energy flows up the positive conductor and back down the negative conductor in a loop, like water in a pipe. This analogy is simple and makes circuit analysis easy. Inductance, capacitance, and resistance (LRC) are the only factors considered. This is the primary reason some engineers say that wires cannot possibly affect sound. Based solely upon LRC parameters, that would be the correct assertion. However, these engineers were either not taught or forgot the assumptions that allow them to use the water-in-a-pipe analogy. Dielectric factors such as absorption and polarization are very small and do not affect circuit analysis; self-inductance and mutual inductance are similarly small and can be ignored, along with the assumption that skin effects are negligible. In normal, low frequency circuit analysis, these assumptions can pass for valid. However, in applications that involve human hearing, they won't fly.

"To understand how these affects impact our perceptions, and how to eliminate them, one must understand what really happens in the flow of electrical energy. The water-in-a pipe-analogy is not entirely accurate. Instead of traveling in the conductors, energy flows *between* the conductors, in the dielectric, as an electromagnetic wave. As the electromagnetic wave passes through the dielectric, some of its energy is momentarily stored and then released; some is actually absorbed and lost. These polarization and absorption effects are non-linear. They occur at varying rates in different frequency ranges and are material dependent. We perceive the results as, among other things, coloration. Each solid (and even liquid) dielectric has its own sound. I associate the Teflon sound with a nasal quality in the male vocal range. Teflon is actually a very poor choice for the primary dielectric in an audio cable. However, of all the solid materials, it is the least objectionable. Air is polarized at a much higher frequency and its energy storage and loss are far, far less than that of any solid. Just think about the difference in the number of atoms/molecules in a given volume between a gas and a solid. We cannot hear the coloration a gaseous dielectric contributes.

"The propagation speed, the rate at which the electromagnetic wave travels down the cable, is also material-dependent and is typically a large percentage of the speed of light. Does the actual value of the propagation speed have any bearing on the sound of a cable? Can a person hear the difference between a one-nanosecond and a two-nanosecond arrival time of sound to their ear? Obviously, the answer is no. Nonetheless, propagation speed is important in that it is an indication of the dielectric's quality. A purely gaseous dielectric will have a greater than 99% speed-of-light propagation. Lesser-quality dielectrics will be much slower.

"Where propagation speed does have a dramatic effect is in the nearly universally misunderstood concept of skin effect. Contrary to popular belief, the higher frequencies do not ride in the outer regions of the conductors. Once again, energy is conveyed between the conductors, not in them. As the electromagnetic wave travels along a cable, however, it will penetrate the conductors. As it penetrates, the wave is rapidly attenuated, with the higher frequencies undergoing more rapid attenuation than the lower frequencies as they journey towards the conductor's center. If we look at a cross section of a round conductor, this greater rate of high frequency attenuation causes the electromagnetic field intensity of the higher frequencies to appear stronger at the perimeter than the lower frequencies, which have a seemingly more uniform distribution. This is why many erroneously claim that the higher frequencies travel in the conductor's outer 'skin.' What very few people understand, and this is the most important aspect of the wave penetration, is that the speed of propagation in the conductor itself is incredibly slow. Instead of some high percentage of the speed of light, the wave, in copper for example, travels radially at approximately 3 meters/sec at 50hz and 60 meters/sec at 20kHz. Compared to the waveform in the dielectric, this is a low level, grossly time smeared signal, and it wreaks sonic havoc.

"Note: this wave-guide or transmission-line model of electrical energy flow is an established engineering/physics principle that has been used for decades, particularly in high energy/high frequency applications where, as in audio applications, these effects are non-trivial and must be accounted for. In the mid 1980's, the well-known and respected audio engineering guru Dr. Malcolm Hawksford of the University of Essex in England was the first whom I know of to apply these concepts to the audiophile hobby in an attempt to explain why there are sonic differences among varying cables designs. His collection of works, titled the Essex Echo, remain the most important papers ever published on the subject, and condensed/layman's versions have been published in some audiophile magazines. The basic equations behind all this can also be found in college texts on engineering electromagnetics and transmission-line/electromagnetic wave propagation.

"There are only two ways to alleviate this energy loss, prevent time smearing, and create a conductor that acts in a more linear manner. The first, the method employed in my Silver cables, is to utilize a very thin ribbon. A very small round conductor would also act linearly, but cannot pass much current. Using multiple, individually insulated conductors increases current carrying capability but also adds solid dielectric and mutual inductance (strand interaction) degradations that increase with the number strands. The only way to avoid mutual inductance and its associated signal smearing is to use a single, solid-core conductor per polarity. Special weaves or geometries (Litz or any other) will not eliminate this basic electrical phenomenon.

"The Palladium cables improve upon the Silver by using even thinner ribbons. They also employ a conductor material with superior skin-effect related characteristics, an advanced palladium-based alloy whose properties represent an up to 25-fold improvement over gold, silver, copper, and aluminum.

"I'll stop rambling now. Hopefully I've explained why I have gone to such lengths to avoid thick metal anywhere in the signal path and use only single conductors in an air dielectric."

Associated Equipment

Digital Front End
Mark Levinson No.39 CD player

Amplification
Mark Levinson No.33H mono amplifiers

Loudspeakers
Wilson WATT / Puppy Six

Cabling
Nordost Valhalla balanced ICs and speaker cables

Accessories
Richard Gray's Power Company and Quantum Symphony.

Mike Silverton has been writing about recordings and audio hardware for about twenty-five years. The publications in which his work has appeared include Stereo Review, Fanfare, The Absolute Sound, The Stereo Times, and his own Webzine, La Folia, LaFolia.com, sponsored by Madrigal Audio Labs. Mike has produced poetry readings for the New School for Social Research in NYC and poetry broadcasts for New York's municipal station, WNYC, and the stations of Pacifica Radio, WBAI, KPFA and KPFK. His own poetry has appeared in various magazines and several anthologies.