

## TRIAD SYSTEM ONE



# Three's Company

by Daniel Kumin

In the past decade, mini-speakers have become an increasingly popular solution to the urban dweller's hi-fi space allotment problems. Their prominence has grown so that even audiophiles with plenty of room are coming to favor midrange loudspeakers for secondary systems, extension speakers, and video set-ups. Small speakers have real advantages in placement flexibility, but they can also have an edge in imaging, due to their smaller point of sonic origin. As a result, the genre has developed some extraordinary designs, capable of astonishing the casual lis-

tener with their accuracy and depth.

But everyone knows that little speakers don't make real deep bass, don't play loud, and don't handle full high fidelity system power levels gracefully. So listeners with severe space limitations have simply learned to settle for a bit less than all of the music.

One solution, exemplified by Triad Design's Triad System One, is the three-piece loudspeaker system. Such a set-up, consisting of a single subwoofer and a pair of satellite minis, can offer the advantage of full-range reproduction emanating from space equal to that normally occupied by a single conven-

tional speaker. And if, as is the case with the System One, the subwoofer is powered by its own dedicated, built-in power amplifier, then the space requirement can be reduced even further.

Triad makes a full range of separate woofer-satellite models, but the Oregon firm's smallest set-up, the System One, is truly tiny. Its satellites are about the size of a half-loaf of bread—and even the powered woofer is no bigger than the breadbox. These minis are two-way acoustic suspension speakers of conventional design: A 3½" paper cone midrange is combined with a ¾" ferro-fluid-cooled soft dome tweeter to form a unit capable of reproduction to just below 200 Hz. The independent subwoofer kicks in at this point, employing a single 6½" polypropylene cone driver that is driven by a dedicated 70-watt mono amplifier.

This requires a bit of explanation. It is accepted psychoacoustic fact that human hearing isn't exceptionally adept at localizing low-frequency sounds below 200 Hz or so. An octave deeper, it's quite impossible for us to determine where sounds originate. Triad—and other three-piece makers—capitalize on this fact by using a single bass unit, driven by a single channel of amplification, to reproduce the lower spectra, thus conserving size, weight, power... and cost. Though the System One is sold as a three-piecer, compact discs now have made stereo bass commonplace (LP low bass is always mono), which suggests that two woofers might be a nice refinement. And in fact, Triad recommends adding a second woofer module to the set-up when possible.

We tested the System One in its three-piece configuration. The satellites hook up in the usual manner, and I was happy to find full-size five-way binding posts even on such a small speaker. Connecting the woofer unit will require a bit more thought for those unfamiliar with the three-piece concept. All woofer connectors and controls are on the unit's back panel, which also accommodates the bass amp's heat sinks, fuse, and power switch. The amp offers both line-level (preamp) RCA jack inputs, and speaker-level inputs, which again employ five-way posts. Although the woofer amp is monophonic, stereo inputs are provided, the left and right signals being summed (mixed), and then crossed-over appropriately.

The user can drive the woofer from a secondary preamplifier main output (if

available) or split a single main-out pair with "Y" adapters. For many users, the easiest solution is to connect via the woofer's speaker-level inputs, utilizing signal from a secondary speaker output. It would have been nice if Triad provided speaker jumper jacks on the woofer input panel, so that a single set of wires could be run from the system's amp or receiver. Perhaps space was a factor—the System One woofer module is small indeed, and panel space is clearly at a premium. I tried both line- and speaker-level inputs, finding no discernible difference beyond a small low-level hum problem with the speaker inputs.

The woofer is balanced to the rest of the system with a single volume control. This is simple enough, but Triad offers no means of calibrating the woofer-to-satellite balance other than by ear. So owners will end up with more or less accurate response in the crossover region between the units, depending on their taste in bass levels.

All three cabinets are somewhat conical in cross-section. The high-frequency units are slightly scooped out in front, presumably to minimize top-end diffraction of the tweeter's output, and to time-align the two drivers by placing the tweeter a bit behind the midrange. The System One we received was very prettily finished in

a dramatic white lacquer, offset by black cloth grilles. A wide variety of wood finishes (oak, walnut, rosewood, zebrawood) are also available, as is black, and Triad will special-order nearly anything else. It bears adding that the System One is impressively constructed for a system at its price, with a die-cast amplifier heat-sink-chassis assembly, and good fit and finish.

Once connected, the system offers nearly limitless placement options. I experimented first by listening to the satellites alone, to determine their preferred location. The best overall balance and imaging were obtained with the pair elevated about four feet off the floor, and two feet from the front wall. Without the woofer operating, the System One satellites sounded quite bright, lacking roughly the bottom three octaves of music to balance them, but with nice localization and a surprising spaciousness.

Similarly, several trial woofer placements yielded the best balance with the bass unit well off the floor (about

two feet), approximately centered between the satellites, and fairly close to the wall. Putting the woofer on a shelf on the left wall also yielded good sound, albeit less warm without the floor's reinforcement, but I had a problem—perhaps purely conceptual—with placing a "speaker" way off to one side. In fact, Triad's manual (which only arrived by mail after our listening tests were complete) discourages this arrangement.

To those unfamiliar with such a three-piecer, the System One's sonic performance is nothing short of astounding. This diminutive trio is capable of remarkably full-range output, with the kind of depth and balance you would expect from at least a good-size bookshelf pair, if not a floor-standing design. Vocal reproduction was excellent. On *The Magazine* (Rickee Lee Jones, Warner Bros. 25117-2), the System One's midrange was quite smooth and open, producing a vocal image that hung in space rather dramatically. Percussion sounds were clean and well etched, while standard pop music bass lines encountered no serious limitations.

With classical music sources, the Triad set-up really shone, particularly on fine-grained music like Handel's *Water Musick* (Denon 33CO-1665). This disc sounded delightfully detailed, with a bright string tone that successfully avoided harshness. It was extremely easy to close your eyes

## MANUFACTURER'S SPECIFICATIONS

**Satellites:** Acoustic suspension, two-way loudspeaker system. Woofer: Self-powered acoustic suspension.

**Driver Complement:** Satellites: one 3.5" midrange; one .75" ferro-fluid-cooled soft dome tweeter; Woofer: one 6.5" polypropylene cone woofer.

**Woofer Amplifier:** Single channel, 70 watts (unqualified); input impedance: 1000 ohms/47K ohms.

**Sensitivity:** 88 dB SPL at 1 meter for 1 watt (2.83 volts) input (Satellites only).

**Nominal Impedance:** 8 ohms (satellites).

**Power Handling:** 70 watts per channel (music).

**Cabinet:** Walnut, light or medium oak, rosewood, zebra wood, veneer, or black or white lacquer; other finishes available at extra cost.

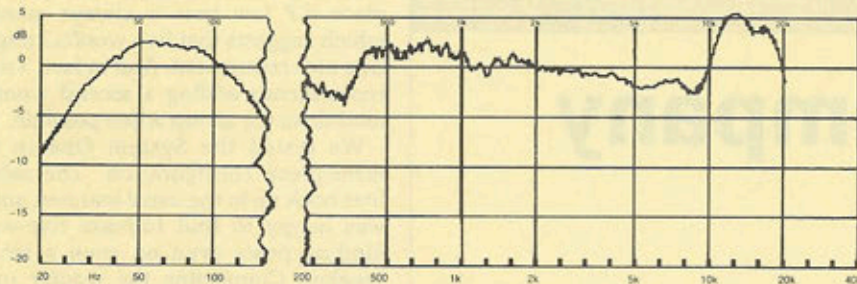
**Grille:** Acoustically transparent black cloth.

**Dimensions:** 8" x 5" x 5" (satellites); 8" x 13" x 8" (woofer).

**Weight:** 23 lbs. (system).

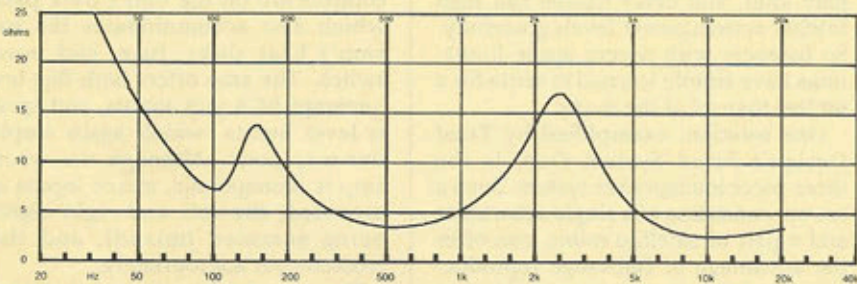
**Manufacturer's Suggested Retail Price:** \$525/sys.

**Address:** Triad Design, Inc.  
Clear Creek Business Park  
490 N.E. 219th Avenue  
Troutdale, OR 97060



Near-field woofer response, microphone four inches from driver surface.

Satellite system room response, on axis at one meter swept 1/3 octave warble tone.



Satellite system impedance over the audio band.

and forget that you were listening to one of the smallest speaker systems around.

The System One does have a couple of limitations. The overall balance in my listening room was quite bright, which was mitigated by toeing the satellites in noticeably, and—on occasion—rolling off the preamp's treble control slightly. The system will not play out-and-out loud, particularly with program material rich in bass and transients, like many current well-recorded rock'n'roll CDs. If you force the attempt, the unfortunate woofer can be heard bottoming with a rather disturbing "thwack."

But don't be misled: This system reached perfectly satisfying levels in my rather large listening room—even on the most demanding material. In a smaller den or dorm room, I think its output would easily surpass a realistic concert level, and to its credit, the woofer amp never audibly ran out of steam.

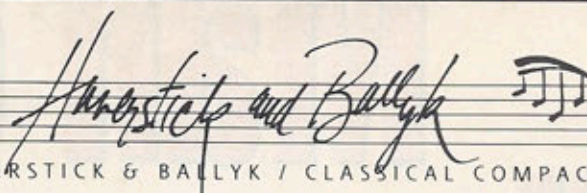
Unfortunately, our review sample's woofer amp produced a slight mechanical buzz whenever it was turned on. Perhaps caused by loose power transformer windings, this was loud enough to be heard on very quiet passages, but I will assume it to be peculiar to our test unit.

In the measurement lab, the System One's response proved nicely smooth in the midrange and lower treble, but with a top-octave peak that might explain the brightness I experienced. Low bass performance is surprisingly extended from such a diminutive design, with significant output (at moderate drive levels) below 40 Hz.

Both the satellite's sharp bass roll-off, and its impedance curve's rise in the same region, indicate the presence of a series capacitor at the satellite input. This serves to protect its little "bass" (midrange) driver from dangerous excursions. The latter's dip to four ohms at 400 Hz should cause no trouble even to modest amplifiers.

Our measurements registered 87.3 dB sensitivity at one watt at one meter's distance. A half-dB more was achieved at 500 Hz; this neatly matches the manufacturer's claim of 88 dB.

What the curves and figures don't tell is the kind of excitement this little system generates when people hear it before they see it. Triad's tiny trio shows what fresh thinking and a blank sheet of paper can produce. ■



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