

BAG END

ELF INFRASUB-18

Get down to the infrasonic range by way of ELF technology.

By Stephen Webber

The acronym “ELF” has nothing to do with the little guys making the cookies in trees. Rather, it stands for Extended Low Frequency - and the Bag End ELF Infrасub-18 powered subwoofer definitely delivers on this promise, providing frequencies from 95Hz all the way down to a subsonic 8Hz!

Of course, humans don't typically hear much below 20Hz. The lowest note on a pipe organ (Cat 16Hz), for example cannot be heard so much as felt. I have personally felt this note coming from expensive custom monitor systems in multimillion-dollar mix rooms.

But is extended low end critical in the personal-studio environment? According to Bag End, yes. Bag End claims that the ELF Infrасub-18, by extending the frequency response down



The Bag End ELF Infrасub-18 powered subwoofer extends the low-frequency output of any near-field monitoring system down to a remarkable 8Hz while providing even, time-aligned bass response.

a full octave below 16Hz, is able to “improve phase response and reduce delay throughout the entire audible bass range.”

NATURE OF THE BEAST

Beyond its role as a subwoofer, the Infrасub-18 also functions as an electronic crossover for your whole monitoring system. Housed in a black, very attractive, sealed cabinet about the size of a compact refrigerator, the unit employs an 18-inch driver, a 400W Class A/B amplifier, an ELF Dual Integrator, and a unique protection circuit called an ELF Concealment.

The Dual Integrator is a 2-way, active electronic crossover that produces a 12/dB/octave rise as frequency is decreased. The low-frequency output of the Dual Integrator is connected to the power amp, which in turn drives the subwoofer. Unlike conventional low-pass filters, which introduce a frequency-dependent phase shift that can make blending the bass into the upper frequencies difficult, the Dual Integrator produces a short, uniform delay that is relatively easy to compensate for.

The ELF Concealment is a protection circuit designed to prevent amplifier overload. It works by first detecting any signal that is sufficiently low in frequency or high in amplitude to overload the amp and then, upon detecting such a signal, dynamically reducing the bass extension. That is, the Infrасub-18 selectively reduces the subsonic frequencies without affecting the audible bass frequencies.

Even though the Infrасub-18 system doesn't produce subsonic frequencies at “audible” levels, having the response extended an octave below the audible range allows the Infrасub-18 to produce the audible bass frequencies without the ugly time smearing that is typically caused by speaker-box resonance and phase shift. The result is fully integrated bass that is in time with the rest of the spectrum.

BAG END
ELF Infrасub-18 powered subwoofer system
\$1495.00

AUDIO QUALITY ■ ■ ■ ■ ■

VALUE ■ ■ ■

1 2 3 4 5

PROS: Smooth, accurate, and powerful low-frequency extension. Couples well with conventional monitoring systems.

CONS: Physically large for a small project studio. If used incorrectly, could make it harder to create mixes that translate well on other systems.

REAR PANEL

Connections to the Infrасub-18 are made on the unit's metal rear panel (which also doubles as a heat sink) through left, center and right RCA inputs and two speaker-level inputs on spring terminals. The RCA inputs each have high-pass-filter outputs that are sent to your main speakers' amplifier. Also included on the back panel are a power switch, a level control, and a polarity switch. The level control is located near the top, which makes it easy to adjust by feel when your standing in front of the unit.

The ELF Dual Integrator receives a summed mono signal from the left, center, and right inputs. This signal is then processed and sent to the power amp and driver. My only gripe here is that there's no way to defeat the Dual Integrator. This means that you can't easily switch from listening with the subwoofer to listening without it; to switch you have to unplug the inputs and outputs.

Complete instructions for connecting the subwoofer, as well as description of the operating principles of the ELF system, are silkscreened on the back panel.

LISTENING TESTS

Frankly, the Infrасub-18 sounds amazing. With the unit set to the proper level, I could hear what was going on in the low frequencies much more clear-

ELF Infrasub-18 Specifications

Subwoofer	18" pulp-paper cone driver
Amplifier	400W continuous sine wave
Frequency Response	8-95Hz (3dB)
Inputs	3 (L, R, & C) line-level RCA jacks; 2-channel (L & R) speaker-level spring terminals
Highpass Filter Outputs	3 (L, R, & C) line-level rca jacks; 12 dB/octave, factory preset -6dB at 95Hz
Enclosure Material	3/4" medium-density fiberboard
Dimensions	23.5" (H)X 21.25" (W)X 18.25" (D)
Weight	92 lbs.

ly then I could without the subwoofer. Also, the Infrasub-18 coupled very well with my Tannoy PBM 6.5 monitors. Boy, did I ever miss the subwoofer when I took it out of the chain!

Listening to the brass, woodwind, and string tracks. I recorded recently at Skywalker Sound, I could hear the character of the room almost as well as when I was in the studio conducting the live musicians. Of course, therein lies the danger: most rooms don't sound as good as the scoring stage at Skywalker

Infrasub-18 may be flat down to the infrasonic region, most rooms are not. One must be extremely careful not to push the volume of the Infrasub-18 up to where any uneven subsonic-bass characteristics of the monitoring space become problematic. To set up the system accurately, I recommend that you use a real-time analyzer and a good test microphone placed at the mix position.

Be warned that, at two feet tall, nearly two feet wide, and 92 pounds, the Infrasub-18 is one beast of a box. The unit's sheer mass could present a problem for studios in cramped quarters.



The Infrasub-18 sounds amazing.

Sound!

EVEN RESPONSE

Perhaps most impressive is the evenness Infrasub-18's bass response. On well-recorded, well-mastered recordings, the bass was extremely even over the entire spectrum, without certain notes "jumping out" of the mix. With no ports or other resonance peaks in the operating range, the Infrasub-18 does not favor any one note - a common problem with ported or "bandpass" designs.

A word of caution, though: while the

BOTTOM LINE

Although designed primarily for home theater installation, the Infrasub-18 when used correctly-could prove a very useful tool in the personal studio. And for those frustrated with the partial low-frequency picture given by most near-field monitors, it could be just what the doctor ordered.

Stephen Webber is an Emmy-winning composer and an associate professor at Berkley College of Music.