



Earthquake Sound "THOR" In-Wall Subwoofer

Big Bass Improvement

Gary Altunian



SPECIFICATIONS

THOR-10-Inch In-Wall Subwoofer IQ-1200R Amplifier

Design: 2-Channel, bridgeable / Class "J"
Power Output:
1150 watts RMS @ 4 ohms mono (1% distortion)
1200 watts RMS @ 2 ohms mono (0.1% distortion)
720 watts RMS @ 8 ohms mono (1% distortion)
Total Harmonic Distortion: <0.08% (1 watt/4 ohms)
Frequency Response: 5 Hz-4.2 kHz
Signal-To-Noise Ratio: 106 dB
Load impedance: 2 ohms or greater
Damping Factor: >500
Slew Rate: 50 volts/microsecond
Inputs: XLR/RCA/two high-level inputs
Output: binding posts/phone jacks/mono output
Dimensions (WHD In Inches): 17 x 1 5/8 x 12 3/16
Weight (In Pounds): 24

THOR 10 In-Wall Subwoofer

Active Driver: 10-Inch
Passive Driver: 10-Inch
Frequency Response: 18-160 Hz
System Efficiency: 89 dB@1W/1M
Measured SPL:
104dB@20Hz
108dB@30Hz
109dB@40Hz
112dB@55Hz
Excursion: 2 Inches Max
Dimensions (WHD In Inches): 17 1/2 x 27 x 3 3/4
Weight (In Pounds): 40
Finish: Flat white / paintable
Grille Type: Metal mesh, with two custom grille options (included)
Price: \$1,999 (two systems recommended)

Manufactured In The USA By:
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"The THOR system is capable of deep, extended bass response for both music and movie sources..."

Introduction

It has been said that many Americans are searching for two things: the best cheeseburger on the planet and more bass. I haven't found the cheeseburger yet (although I have some favorites), and I'm looking for the bass. Not just more bass, but better bass. Earthquake Sound—not the best name to use in California—manufactures home audio and mobile loudspeakers and audio components and accessories. The company has developed an in-wall subwoofer system to reach the depths of our needs for earth-shaking, extended bass response. There is something about visceral, deep, and almost inaudible bass that stimulates everyone from highway cruisers to audiophiles. But bass is best evaluated on the basis of quality, not quantity.

Earthquake "THOR" Subwoofer/Amplifier System

Earthquake Sound has introduced an in-wall subwoofer system; model IW-SUB10, dubbed "THOR-10." It's a system because it's a combination of two subwoofers and two outboard amplifiers that incorporate features typically not found in subwoofers. The loudspeaker component of the system consists of two ten-inch woofers housed in a large sealed injection-molded enclosure measuring 13-1/2 inches wide by 24 inches high and a depth of 3-3/4 inches that fits in a standard residential wall. The two outboard amplifiers (one for each subwoofer), named IQ-1200R, are Class "J" digital amplifiers capable of 1200 watts (RMS) of output into a 2 ohm load. I have never heard of Class J amplifiers. According to Earthquake Sound, they are a hybrid design of Class D digital and traditional Class A/B analog amplifiers. The IQ-1200R operates as a Class D amplifier up to 5 kHz and as a Class A/B amplifier above 5 kHz. They are heavy, rack-mountable, powerful amplifiers with cooling fans that are loud enough to be distracting unless installed in a cabinet or somewhere outside of the theatre. The fans seem unnecessary because the amplifiers run cool, and I was told that the fans have been removed in the final production model.

The IQ-1200R amplifier is a new model, still in its prototype stage and not yet in production based on the letter and literature I received with the system. Earthquake Sound specifies that it is 99 percent efficient compared with typical Class A/B

SEDUCTION



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designs that are roughly 40 to 50 percent efficient, meaning that most of a Class A/B amplifier's power produces heat instead of energy to drive the loudspeaker. The IQ-1200R amplifier includes an adjustable equalizer and room acoustics correction features not found in the current model. The equalizers provide level controls (\pm 6dB) at 20 Hz, 30 Hz and 40 Hz. According to the company, the amplifiers use an intelligent Back EMF (Electro-Magnetic Force) system that interacts with the subwoofer to memorize the system settings via an onboard microprocessor. Some of the settings can be optimized using an SPL meter, but to take full advantage of these features a spectrum analyzer is required. In the absence of a spectrum analyzer, Earthquake Sound provides some "rule of thumb" settings for the various equalization controls. According to the literature, the subwoofers are capable of reproducing bass as low as 19 Hz!

The Earthquake Sound Solution

The theory behind the THOR-10 subwoofer system is based on the belief that two subwoofers will provide better imaging and soundstaging than a single subwoofer, especially with planar or satellite loudspeakers. Even though bass frequencies are considered omni-directional, the wider the room, the more directional bass becomes. Earthquake Sound suggests that the subwoofers be located near the left and right front loudspeakers, which will enhance imaging and staging, especially when there are separate left and right channel bass signals.

The pre-amplifier or receiver is connected to the subwoofer amplifiers via the LFE output AND left and right front channel pre-outs, which, according to Earthquake, maintains better stereo separation and provides more directionality and imaging. This makes a lot of sense since bass signals are present not only in the Low Frequency Effects or Enhancement (LFE) channel but in all of the main channels. The amplifiers have separate level controls for LFE and left/right inputs, but not for the surround channels.

Construction And Build Quality

The Earthquake subwoofer enclosures are made of high-density injection molded plastic that seem relatively inert. A knock on the side of the cabinets reveals little resonance and they feel reasonably solid. The THOR subwoofer has two 10-inch woofers, one active and one passive. The patented woofer design is called SWS, or Shallow Woofer System, which combines a shallow

profile with a maximum cone excursion of two inches. The enclosures come with a metal grille and two additional grille frames with a piece of white grille cloth for an alternate grille cover to match a neutral room décor.

Earthquake Sound Subwoofer Installation, Set-up, And Adjustment

Installation of the subwoofers in a wall is very easy for retrofit or new construction applications. After removing the cutout, the subwoofer enclosure is installed and held in place with four dog-leg clamps, two on the top and two on the bottom of the enclosure. The enclosure screws directly into the wall studs with sixteen screws (eight on each side of the baffle), which prevents excessive resonance and reduces the chance of wall rattles. The enclosure is designed for wall studs spaced at 16 inches on center.

Speaker wire is not included with the system. I used 14-gauge wire for my listening tests.

System Adjustment And Equalization

After installing the two subwoofers, I began the process of system adjustment and equalization. I borrowed a spectrum analyzer, but found that the rule of thumb settings combined with listening tests and an SPL meter was more effective. In addition, the set-up instructions for the system were in rough-draft stage and not yet complete.

The first and most important part of the set-up process is setting the phase delay and phase shift of each subwoofer, which is accomplished with an SPL meter and a 50 Hz continuous tone. My receiver has a built-in tone generator, but a test CD with various frequencies would work as well. This process would be easier if the amplifiers had a remote control, since the SPL meter must be placed in the listening position; I was told that the new model would include a remote control. The next step is to set the output level of each subwoofer, using the same 50 Hz tone. The final step is to set the low frequency level controls, 20 Hz, 30 Hz, and 40 Hz. This is best done by ear, using a music disc with good bass content.

Listening Tests

After all of my hard work, I was ready for the reward of some good rockin' bass. First up: *Toy Matinee* (DTS Entertainment) a CD from an early 90's rock duo, remixed in 5.1 channels. "Remember My Name" is a track with pretty intense, tight, and thumpin' bass. This is a cut that makes you want to crank it up! So I did, with excellent results. The SWS

system produced tight, extended bass with no signs of bottoming-out or overextending.

The next test was a two-channel CD from Rod Stewart's *Great American Songbook, Volume II* (J Records). Track number 5, "Till There Was You," has a very deep electric bass track (probably between 30 and 45 Hz) that's a good test for any subwoofer. The THOR subwoofers performed well, only weakening on that very bottom octave of bass.

A film soundtrack with LFE and lots of bass was next. The most punishing low frequency tests I can think of are the soundtracks from *Jurassic Park* and *Apollo 11*. I have a copy of the original DTS® demonstration DVD with both of these soundtracks recorded at a full 1.5 megabits per second bit rate. The primeval T-Rex growl and the launch of the Saturn V rocket still sends a shiver up my spine, and is a challenge for any loudspeaker system, especially a subwoofer. The THOR subwoofers handled the bass with ease, up to a point. Any subwoofer can be overdriven, and I found that crucial level. However, my SPL meter indicated 105 dB+, which is well beyond normal listening levels, so I'm giving THOR a passing grade. Up to that SPL they performed well, with deep, solid, thundering bass response.

Summary

Overall, the THOR-10 in-wall subwoofer system from Earthquake Sound is a good value considering cost versus performance. The THOR system is capable of deep, extended bass response for both music and movie sources and is worthy of consideration if you prefer an in-wall to an in-room subwoofer. In-wall subwoofers face more challenges than in-room subwoofers because of their interaction with the wall, which makes vibrations and rattles much more likely. The THOR system is capable of high output levels, and since it bolts directly to the studs, it remains solid and near resonance free.

The design concept of the THOR system is well founded. Using two subwoofers makes sense and can enhance low-frequency imaging. I also like the idea of connecting the LFE and left/right front channel outputs to the subwoofer amplifiers.

The owner's manual that came with the system was inadequate but is in rough draft stage. After speaking with the designer of the system, I was able to set up the system correctly, but most people don't have a real-time system analyzer, so a more practical and easier set up method should be devised.

Well, I found the bass, so now I'm going out to find a better cheeseburger. Wish me luck. ■

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