In-the-ear Earphone Technology

Etymotic was first

Etymotic Research introduced the ER-4B and ER-4S in-the-ear earphones in 1991. The ER-4B (binaural) earphone was designed for listening to precision binaural recordings. It was developed from the 1984 ER-1 Earphone that was referenced to a flat diffuse field, used primarily for research.

The ER-4S was designed to compensate for the high frequency emphasis in all CD recordings, in order to provide accurate sound reproduction. The high accuracy and exceptional sound isolation of the ER-4S have made these earphones popular with musicians. Performing musicians use them as in-ear monitors because the response of the ER-4S matches the response of typical monitor loudspeakers. While wearing ER-4S earphones, musicians can hear each instrument distinctly while hearing the blend clearly. The isolation of outside sound makes it possible to listen at reduced levels, which prevents hearing damage and ear overload distortion from excessive volume levels.

The ER-4P was designed to produce 10 dB greater output at high frequencies and 13 dB greater output at low frequencies than the ER-4S, to accommodate the wide range of personal players and airline audio systems. For those who want the features of both the 4P and 4S, a special connector is available to convert the ER-4P earphones into ER-4S earphones.

ER is still first

Other in-the-ear earphone designs have tried to match the ER-4 MicroPro earphones, but not one is comparable to the high-fidelity, reference-quality sound or the isolation of the ER-4. The word Etymotic means "true-to-the-ear," and ER-4 MicroPro earphones produce the highest sound quality of any earphones available.

About ETYMOTIC RESEARCH, Inc.

Etymotic Research has spent over twenty years developing in-the-ear technology for auditory research, precision monitoring, and critical listening.

ER earphones reduce noise naturally. They slide in your ears like earplugs to block out external noise, allowing you to hear every recorded detail.

ER earphones provide the highest external noise isolation of all earphones and no batteries are required.

Specifications

ER-6 Series

Frequency response: 20 Hz to 16 kHz
Tolerance: ±3 dB to 6 kHz, ±6 dB to 16 kHz re nominal
Transducer type (ER-6 and 6i): balanced armature
1 kHz sensitivity (ER-6): 108 dB SPL for a 0.35 V input (97 dB @ 0.1 V; 104 dB @ 1mW)
1 kHz sensitivity (ER-6i): 108 dB SPL for a 0.14 V input (105 dB @ 0.1 V; 107 dB @1mW)
Impedance (ER-6): 48 Ohms
Impedance (ER-6i): 16 Ohms
Maximum output: 120 dB SPL
Maximum continuous input: 2.5 Vrms
Weight: less than 1 oz.

ER-4 Series

Frequency response: 20 Hz to 16 kHz ±4 dB
Acoustic polarity: + electrical = + acoustic
Transducer type: balanced armature
1 kHz sensitivity (ER-4B-ER-4S): 108 dB SPL for a 0.79 V input (90 dB @ 0.1 V; 100 dB @ 1mW)
1 kHz sensitivity (ER-4P): 108 dB SPL for a 0.2 V input (102 dB @ 0.1 V; 106 dB @ 1mW)
Impedance (ER-4B/ER-4S): 100 Ohms nominal
Impedance (ER-4P): 27 Ohms nominal
Maximum output: 122 dB SPL
Maximum continuous input (ER-4B/ER-4S): 3.0 Vrms
Maximum continuous input (ER-4P): .75 Vrms
Weight: less than 1 oz.

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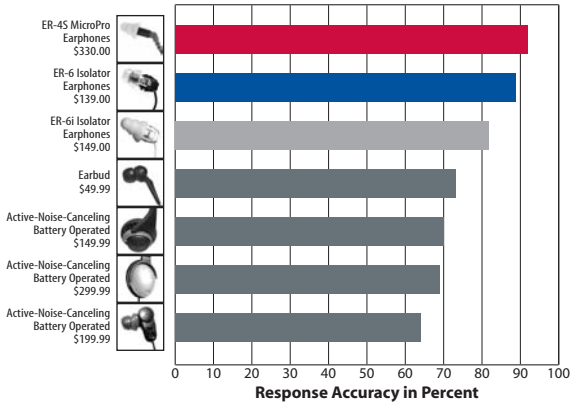
ER-6 Isolator™ is a trademark of Etymotic Research, Inc. KEMAR® is a registered trademark of Knowles Electronics, Inc. The ER-6 Isolator™ earphones are covered by one or more of the following U.S. patents: #4,677,679, #4,763,753, #5,887,070 and other patents pending. IPod is a trademark of Apple Computer Inc.

In-the-ear Earphones

- Noise isolating
- High accuracy

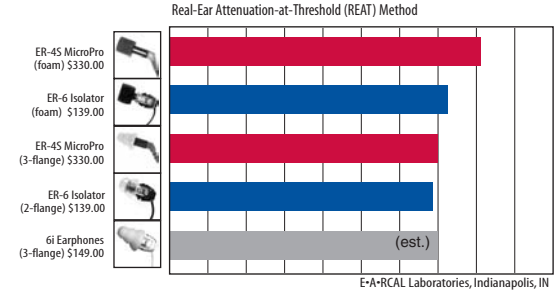
High Accuracy Sound

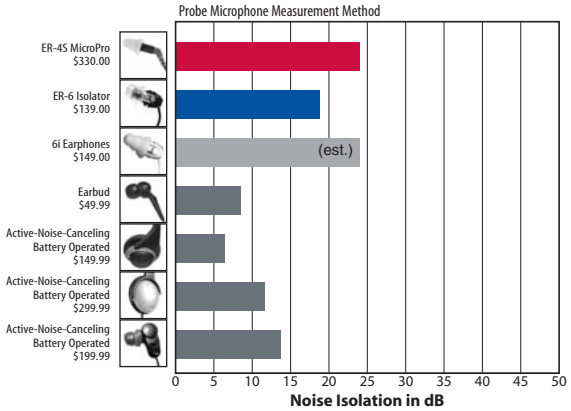
True high fidelity sound reproduction requires the reproduced sound to be as close as possible to the sound of a live performance. Isolator earphones are designed to match the acoustic response of the open ear.



Exceptional Noise Isolation

Etymotic earphones reduce environmental sound levels, allowing you to hear the full range of today's digital recordings without having to play them at unnaturally high and unsafe levels. Since you don't have to boost the volume to overcome external noise, ear overload distortion is minimized.





The Next Best Thing to Live Music

- Highest accuracy in-the-ear earphone
- For audiophiles, musicians and recording engineers

For Personal Listening

- MP3, CD, DVD players
- Personal computers
- Ideal for travel

MicroPro Earphones

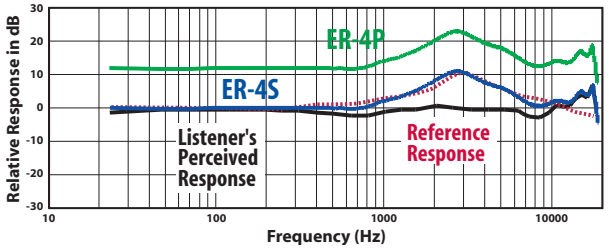
ER-4S (stereo) earphones have a flat frequency response that is the closest to a perfect fidelity response of any in-the-ear earphones, and equal to that of electrostatic earphones that costs thousands of dollars. These earphones can be used with a headphone amplifier when using low power portable devices.

ER-4P (portable) earphones have 12 dB higher overall sensitivity and enhanced bass compared to the ER-4S. ER-4P earphones can be used with portable players without requiring an additional amplifier. For those who want the features of both the 4P and 4S, a special connector is available to convert 4P into 4S earphones.

ER-4B (binaural) earphones are used for monitoring recordings that are not equalized for loudspeaker playback.

ER-4B	ER-4S	ER-4P	MicroPro Features
●	●	●	Lightweight and portable
●	●	●	High accuracy
●	●	●	High noise isolation
		●	Enhanced bass response
		●	Higher sound output

Response of MicroPro Earphones (measured at eardrum)



The above graph indicates that 4P earphones have 12 dB higher sound output and increased bass compared to the original ER-4S earphones. The dotted red line is the reference response of the open ear to live performances (CD equalization). The black line represents how a listener perceives the sound.

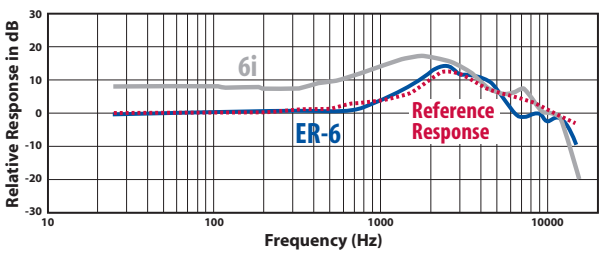
Isolator Earphones

ER-6 Isolator earphones have an accurate frequency response surpassed only by the ER-4S professional earphones, and have greater sensitivity than the 4S earphones.

6i earphones are designed specifically for use with an Apple iPod™ and other small portable players, offering 8 dB higher overall sensitivity and 8 dB more bass than the ER-6 Isolator earphones.

ER-6	6i	Isolator Features
●	●	Lightweight and portable
●	●	High accuracy
●	●	High noise isolation
	●	Enhanced bass response
	●	Higher sound output

Response of Isolator Earphones (measured at eardrum)



The above graph indicates that 6i earphones have 8 dB higher sound output and increased bass compared to the original ER-6 earphones. The dotted red line is the reference response of the open ear to live performances (CD equalization).