

Calypso Calypso HD Ownership Guide



Visit

GreenMountainAudio.com

for more information

The First Steps

Initial receipt. You'll receive two shipping cartons. Take the time to inspect each for damage, looking specifically for signs of impacts and punctures. If none are present, proceed while alert for damage as you begin to unpack them. Look and listen for any rattles, cracks, and chips. If damage is discovered, immediately contact either your Retailer or GMA.



Photo #1

Although the shipping carton is upright in this photo, you'll want to lay it on its back during the unpacking stage. This is what you'll see when you open the carton flaps.

The shipping-label side of each carton is the front of the speaker. Mark each piece of packing material in terms of 'front,' 'back,' 'top,' or 'bottom.' The custom-made shipping materials may be stored in a dry place. The cartons may be flattened. Plan to keep the custom packaging. It's also a good idea to buy 'replacement cost' insurance to protect your speaker investment.

Overview. While you can perform these steps alone, it would be helpful to have a partner. You'll first unpack the 'master' woofer cabinet and lay it on its side to install the cone feet and wires from your amplifier. At that point we hope you've positioned the cabinet in its final location of where you want it within your listening environment -- refer to our "Equal-Legged T" guidelines. It is easier to install the midrange and tweeter modules with the cabinet in place. Once the first speaker is finished, you'll repeat this process for its mate. **Two rules: 1) The Calypso HD will have a higher center of gravity once the midrange and tweeter are installed; and 2) NEVER grab either the midrange or tweeter to move the speaker.**

1. Unpack. Lay the carton marked 'Open First' on its back, label-side up. Open it. You'll see the woofer cabinet and another carton on top (Photo #1). First remove the EarSticks at the middle of the carton (although they may be in their own shipping tube instead of inside the carton). Then remove the midrange/tweeter carton (Photo #2) -- open its top flaps and remove the large rectangle of foam as well as the accessory pouch (Photo #3).

FOLLOW THE NEXT STEPS EXACTLY -- NO SHORTCUTS

2. Prepare the woofer cabinet. Stand the carton upright and slide out the woofer cabinet with one hand around the mid-section and the other at the base (Photo #4). Remove the protective



Photo #2
Remove this internal box from the shipping carton. It contains the midrange and tweeter modules.



Photo #4
Stand the carton upright. Slide out the woofer cabinet with one hand around the mid-section and the other at the base. It may be easier to have a partner's assistance from this point forward.



Photo #3
Open its flaps. Remove the large piece of foam. Set aside the accessory pouch.

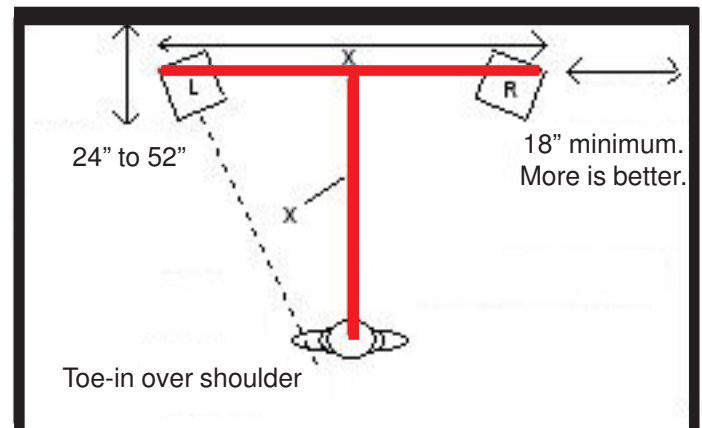
bag and any items (rings, belt buckles, etc.) that may mar the wood finish.

3. Position the speakers using our "Equal-Legged T."

We believe there's a link between the point at which our peripheral vision "falls off" and our keenest sense of hearing begins. Visual acuity for the fixed eye "falls off" at the 53-degree span. By placing speakers at the edges of this boundary, you'll create a convincing soundstage that most clearly reveals and separates the musicians. Separate the outboard

rear corners of the speakers by a distance, "X." Your chair will be the same distance "X" from the mid-point of that line between the speakers. Point the speaker's large bass ports "inboard" (to the center). In rooms larger than 900 square feet or 100 square meters, point them "outboard." On your left, the dotted line indicates how the speaker's sound axis must be directed over your shoulder, not into your ear. You'll see approximately 1" of the speakers' sides when sitting in a listening chair. Modify

this layout somewhat if the loudness of any center reflections is a factor (the television or walls). However, this is as wide apart as you'd ever want to place the speakers (including home theater). All of this applies no matter how close you are to them.



4. Attach the feet.

Lay the woofer cabinet on its bass-port side on a carpeted floor (or towel). Screw in each cone foot until it's flush with the base (Photo #5). Make sure they're flush and tight and remain that way if you ever want to 'walk' the cabinet across the floor. Screw on the pointed tips to pierce any carpet and padding underneath. Readjust later to ensure the cabinet won't rock back-and-forth. Any instability will produce a poor bass response and vague stereo image. To protect hardwood floors, place a black, dimpled disc underneath each of the cone tips.

5. Connect the amplifier wire.

While the cabinet is on its side, attach the wires from your amplifier using a 7/16" nut driver to tighten the gold binding posts. 'Finger-tight' isn't good enough. There are holes for bare wire. We don't recommend using banana plugs -- while they're used for a 'quick-change' among speakers, they don't make the best connection. Positive (+) and negative (-) are marked on the speaker's label and also on the black plastic surrounding the binding posts. These are 4 Ohm speakers, which makes a difference with some amplifiers. Stand the cabinet upright and point the woofer towards your listening position. You're ready to attach the midrange and tweeter.



Photo #5

At this point we suggest placing the speaker using the "Equal-Legged T" before attaching the cone feet. On a carpeted floor or towel, lay the speaker on its bass-port side and screw the feet until flush and tight to the cabinet. Then attach the cone tips. If you have hardwood floors, place a black, dimpled disc underneath each of the sharp cone tips.



Photo #7

Lay the assembly on its side. For the midrange module, thread the two 1.25" bolts into the lower side until they're just flush with the inside edge of the marble.



Photo #6

For the tweeter module, thread the bolts until just even with the inside edge.

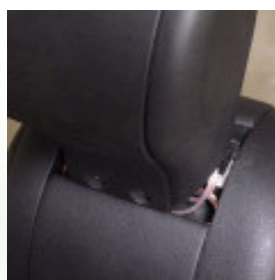


Photo #8

Place the assembly on top of the woofer cabinet -- it will be a tight fit -- and tighten the bolts to "moderately snug."

Now place this assembly on top of the woofer cabinet. It'll be a snug fit. Tighten the two bolts to "moderately snug" (Photo #8). These bolts must always stay inside the aluminum channel.

8. Connect the wires. Connect the wires from the top of the woofer cabinet to the matching wires at the bottom of the midrange module



Photos #9, #10 and #11

Match like wires and connect without twisting. Excess wires can be tucked away.

6. Unpack the midrange/tweeter modules.

The midrange and tweeter are matched to their respective woofer. It's important to keep them together. Under the gray foam lies the tweeter module, already wired to the midrange module. Remove this foam and the white Styrofoam divider. **IMPORTANT: Never touch either the tweeter's dome or the midrange's cone. You can damage the midrange's cone with your fingers. Both the midrange and tweeter have been packed on their sides, with the midrange's cone and tweeter's dome both pointed to the OUTER SIDES of their carton. The plastic bag covering the midrange was pulled tight so it did not touch that driver's**

cone. Since they're wired together, lift out the midrange and tweeter modules all at once (ask a partner to help). Lay them on their sides on carpet or a soft towel -- and then unwrap them. The tweeter's dome is protected by cardboard. Remove it now.

7. Mount the modules.

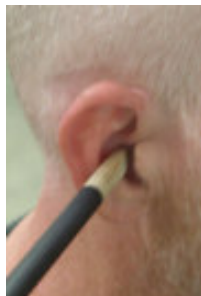
Thread the two, 1" long Allen bolts gently by hand into the base of the tweeter

module, until they're just even with the inside edge of the marble (Photo #6). Stand the midrange module upright and set the tweeter into the slot on top of it. Guide its two wires up and out the back so they're not pinched. Later, the excess wire behind the tweeter can be pushed up inside the tweeter's module. Tighten the two bolts to "moderately snug" with the red-handled wrench. Don't allow these two bolts to tighten against the black marble -- they must stay always inside the aluminum channel. Lay the assembly on its side again. Hand-thread the two 1.25" Allen bolts into

-- keep them parallel (not twisted together), to easily tuck under the midrange and tweeter modules (Photos #9, 10, and 11).

9. Repeat all of these steps for the other speaker.

Using the EarSticks



Needed: Camera tripod, Tape measure, Helper, Paper, Pen or pencil

1. Insert the long rod of the EarStick to the mounting block, and then attach the extension block and the short rod, as shown. With the EarStick attached to the tripod, sit with your ear in its relaxed, natural location. Place the short end of the rod so that it almost touches that ear. Slide away from it and stand up.

2. Ask a helper to hold a tape measure at the end of the short stick (where you were just sitting) as you walk across to the speaker with

the hook-end of the tape. Place it at center of the woofer grille. Have the helper tightly pull the tape to eliminate any slack. The helper should read the measurement (by holding the tape underneath the tip of the stick and leaning over it to look straight down onto the tape) and write it down.

3. The helper will then add 2 9/16" (65mm) to the woofer distance and locate this new number on the tape while you hold the hook-end to the midrange's grille. Loosen the two bolts on the side of the midrange module by three turns or more to move it back and forth until that distance is met. The module may try to creep forward when you tighten those bolts. If so, tighten the rear-most bolt first. Tighten it to a modest two-finger torque on the wrench. Check the tightness the next day and the following week -- and every few weeks thereafter until certain the bolts remain snug. You could add a Loctite thread-locking compound to the bolts, but this shouldn't be necessary.

4. To this midrange-grille distance, now add 1 9/16" (40mm). This distance is from the EarStick to the center of the tweeter's grille. Loosen that module's two bolts and slide the tweeter until that distance is met. Again, tighten using only a modest two-finger torque on the wrench.

5. Set the other speaker to match without using the EarStick. Simply measure the first speaker's midrange and tweeter modules' positions, relative to each other and to the woofer's marble -- measure under the front of the midrange module, to where the woofer's faceplate begins. Measure under the front of the tweeter's module to where the midrange's faceplate begins. Adjust the other speaker to match.

6. Measure 15' (5m) or more away from the woofer and add the midrange's and tweeter's offsets to provide better sound at lower volumes while entertaining. Record these numbers for reference.

Conditioning

The speakers need 200 hours of conditioning to loosen up the drivers. Although they will sound fabulous right out-of-the-box, you will hear improved sound, even at very soft volumes, after conditioning. The bass will most especially sound better. Over time, music will become more graceful and even less-mechanical sounding.

Play music at moderately-loud levels (30 Watts) and above 50 Watts as often and as much as possible. Music chosen should span a wide range of tones and dynamic contrasts. As a guide, at 30 Watts you will have to raise your voice to speak to someone, without having to yell or shout. Remember to slowly increase the volume. The woofer needs music with strong bass; the tweeter requires piano and saxophone. Consider playing a variety of rock, reggae, country, pop, jazz, and R&B.

Note: Speakers have been designed for grilles to be left in place.

Speakers will sound best when...

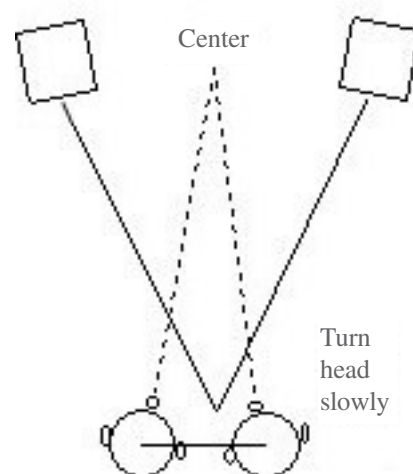
You are not wearing eyeglasses; you are seated in a low-backed sofa or chair; there is carpet on the floor; there is no coffee table or ottoman between you and the speakers; there is no TV screen or equipment rack between them (unless far behind and/or speakers are more than 15' {5m} apart); the control center and CD/DVD player are always on; a power amplifier is warmed-up for a half-hour; and all cable connections are regularly cleaned with isopropyl alcohol.

Speaker care

Liberally spray the speakers using only the aerosol-version of Lemon Pledge, made by Johnson Wax. Rub with a paper towel or lint-free cloth. Polish using a second clean and dry paper towel or cloth. Avoid spraying the grilles -- gently vacuum them instead. Use the craft sticks to re-install them if replacement should become necessary.

Fine-tuning the Sound

1. Setting the Center Image. With the speakers an equal distance from the wall behind, locate your chair on the exact center line between them. Houses aren't perfectly square...use a tape measure if needed. Sit in your center seat and listen to the center image of a not-too-complex recording. Close your eyes and locate its origin. Once you can literally point to the center image, check BY EAR for equal acoustic distance to the speakers. Move your shoulders left and right -- as if you were sliding on the sofa -- while your nose is pointed to the geometric center. Close your eyes (no eyeglasses), and slowly move sideways while rotating your head. The center point of your head will not move much at all. The correct angle has the most 'depth of center image.' If you are looking at the right speaker, rotate your chair very slightly to the left.



2. Fine-tuning the Tweeter's Position. This stage of fine-tuning will depend upon your ears and can only occur once the speakers are completely at home in your environment and your ears have been re-trained to our acoustically-correct sound quality. Those driver distances -- as determined by the EarSticks -- may vary a little for your particular system. We think it is because of the phase shift and resonances in your cables, CD player, preamplifier, and amplifier, in that order. Check for the 'best' tweeter position by either slumping down a little or sitting up higher in your chair. These changes in posture will help you listen for the desired result of a pinpoint image, located at the height of the midrange driver. You don't want to hear the treble coming out at the tweeter's height -- it should come from the midrange's height. You don't want to hear bass coming from the woofer's height -- it should come from the midrange's height. You will also hear the most 'depth' to the image and the clearest enunciation of words. While all those are 'audiophile' attributes, this step is really about you hearing the most musicianship. **For the midrange/woofer alignment.** Remove eyeglasses, footstools, and coffee tables before you begin. Listen to music which includes either the lower-range male voice, the left-hand of a piano, lower notes of the acoustic guitar, viola, or cello, or the higher notes of a double bass or the tom-tom. Repeat the 'slumping' motion described earlier and listen for the resulting pinpoint in this lower-midrange tone-range. If you've slumped down -- even an inch -- and find that the pinpoint effect is actually better (with more clarity, naturalness, and with a deeper recorded ambience), then the midrange is perhaps 1/8" too close when you sit back up. Recalculate the EarStick distances using this new number. Loosen the appropriate screws to move it that 1/8" away from you. After making your adjustments to the midrange location, sit back and enjoy hearing directly into the wood of the instruments and the singer's chest and throat. You can then easily estimate the depth of the concert hall and hear the most musicianship. **For the midrange/tweeter alignment.** Listen to a song that includes voice, applause, acoustic guitar, piano, violins, and/or horns -- half midrange/half tweeter sounds -- and close your eyes. After at least 30 seconds, try to pinpoint the exact location of the artist using your eyes behind your closed eyelids. Does the tweeter's sound separate from, or blend with, the midrange's location (midrange's height) when you move up and down in your chair? If so, move it in the same manner as above.

Setting up a Home Theater

A believable surround-sound experience means that the five speakers around you blend to create a realistic acoustic world. Studios place surround monitors 90 to 120 degrees to the left and right -- at ear level or slightly above -- but then, the studios have no walls near their monitors. You do, and they add reflections. That same span allows your sidewall reflections to create 'holes in the side images,' just as moving the front speakers too far apart creates a hole in the middle. For a smooth blend between the surround and front channels, we suggest you try the following technique for identifying and closing up any holes in your room's sonic image. This setup will close any gaps to create a continuous, sonic arc that encompasses your visual field.

- 1.** Ordinarily, this step would be the point at which you would want to position your speakers using our 'Equal-Legged T.' For a home theater, a strong center reflection may be a factor -- for example, the television. You would then not toe-in the speakers as much, or widen their separation (to get them away from the television screen). You would also then sit a little farther away to preserve your same triangle. The 'Equal-Legged T' layout is as wide apart as you would ever want to place the speakers.
- 2.** Use a music DVD, such as the Eagles' Hell Freezes Over (in DTS), as it is panned evenly to all five speakers, and try the surround speakers along the side walls, where they are slightly in front of you by 5-10 degrees. Place them below your ear height, tilted up. When the surround speakers are properly placed, your room will disappear in every direction because you will be hearing the sounds from the recording instead of the reflections from side walls.
- 3.** When all five speakers have been placed, including the center channel, it is important to make them all the same 'acoustic distance' from your ears. If the center speaker must be closer, then time-delay it to 'move it back' (one millisecond per 13.5" {34cm} of distance). Studios place their surround monitors at the same distance from the ear as the left, center, and right, and thus do not add any time delay to any particular speaker. If your speakers must also be closer to your ears than the distance to your main left and right speakers, then time-delay them to move them 'back' to the same 'listening distance' as to the front left and right speakers. On top of that delay, add another 5msec delay to the surround speakers for reproducing the older Dolby Pro-Logic and Dolby Surround movies. Some control centers automatically add this extra delay when decoding those movies.

Any of our floorstanding and bookshelf/compact speakers can be used in a surround-sound application. For the center channel, one would use Aperture. If you are using our Hammer Lite subwoofer, try to assign it just the full range of the Low Frequency Effects channel (LFE), or the '0.1' channel. For bass augmentation of Eos for two-channel music, the preferred crossover slopes are 24dB per octave for the Hammer Lite, and 12dB per octave for the Eos at a crossover point of 80Hz. These are also the usual settings for a 'THX' crossover circuit found in some control centers.

Happy Ears for Life™

RETAIN YOUR RECEIPT AS PROOF OF PURCHASE.

Place / Date of Purchase

Serial Numbers

Warranty assistance

Contact your Retailer, or GMA:
help AT GreenMountainAudio.com
(719) 636-2500

Secondary owners

As of July 1, 2007, this warranty is unavailable for speakers purchased on the secondary market unless they are re-certified by either GMA Factory Service or a GMA Authorized Service Center. Contact us for details.

We are passionate about our speakers and warrant their workmanship and sonic performance for life to the original owner **only after we receive the warranty registration card and a copy of the original bill of sale**. The warranty registration card and receipt copy must be mailed to GMA within 30 days of the original purchase. What this means: 1. You will pay nothing for labor and parts for defects in our workmanship. 2. Perfect speakers are shipped, ready to perform to their specifications for life.

The warranty described on this page shall be in lieu of any other warranty, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose. There are no warranties which exceed beyond those described in this document.

Because of factors beyond our control, our warranty only covers use for and in a home environment. It does not cover damage that occurs in any shipment; failures caused by accident, misuse, abuse, neglect, mishandling, misapplication, alteration, or modification; commercial use or service by anyone other than a GMA Authorized Service Center or GMA Factory Service; or any damage to either the speakers or custom packing and shipping materials that is attributable to Mother Nature, either to the speakers or to the custom packing and shipping materials. We determine and manage these incidents on a case-by-case basis. We reserve the right to either replace or upgrade the affected speaker(s) at our discretion. Serial Number labels that are defaced, altered or removed will automatically void this warranty, as does any disassembly or modification of the speakers.

If you choose not to retain and store the original custom shipping materials and your speakers need service under this warranty, we will sell and ship to you any missing custom packing materials so that you can re-pack and ship the speakers to us. Depending upon the model, the materials may cost up to several hundred dollars to replace. Only speakers shipped in original custom packing materials and according to delivery parameters will be serviced. The customer is responsible for all shipping costs to and from GMA. You are responsible for filing claims for shipping damages during transit to and from GMA.

There are no implied warranties and there are no express warranties except as described. Neither Green Mountain Audio nor any of its successors shall not be liable for incidental or consequential damages resulting from the use of this product, or arising out of any breach of this warranty, which is valid only for products sold in North America. Speakers purchased for use outside North America are warranted for five years or as determined by GMA Authorized Agents.

Return this Warranty Registration within 30 days of purchase

To receive the Happy Ears for Life™ send this form and a copy of the bill of sale within 30 days of purchase to:

GMA-Warranty, 310 South 25th Street, Colorado Springs, CO 80904-3007

REQUIRED FOR PRODUCT REGISTRATION

The information below will be treated according to our strict Privacy Policy. We will never sell your name or compile a mailing list for sale.

- | | |
|----------------------------|---|
| 1. Speaker Serial Numbers: | 8. Country: |
| 2. Place of purchase: | 9. Telephone (area code first): |
| 3. Name: | 10. Primary email: |
| 4. Address: | 11. May we send occasional email? Y N |
| 5. City: | 12. Age group: 18-25 26-34 35-44 45-54 55+ |
| 6. State/Province: | 13. Gender: M F |
| 7. Zip/Postal Code: | 14. Highest education: High school Some college
College/university degree Master's degree Ph.D. Other |

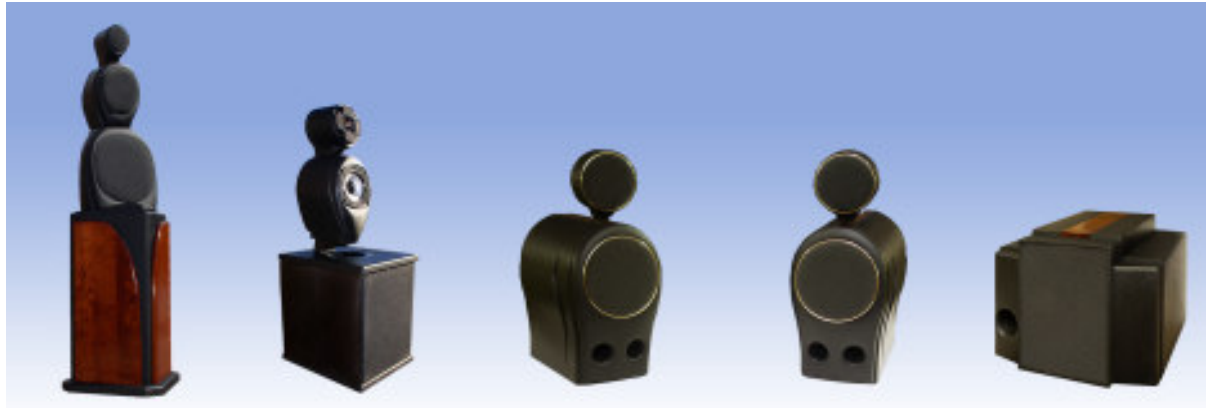
VOLUNTARY

Answer as many of the following questions as you wish. Use additional paper if needed. All information will be treated according to our strict Privacy Policy.

- | | |
|---|---|
| 1. Previously owned GMA speakers? Y N | 8. Own home? Rent? |
| 2. Reason(s) for choosing GMA speakers? | 9. Room size where the speakers will be used? |
| 3. Other brand(s)/models that were considered? | 10. First learned of GMA (friend, audio forums, Google, etc.)? |
| 4. Brand(s) the new GMA speakers will replace? | 11. List five favorite websites, newspapers, TV and radio stations: |
| 5. Intended use for the new GMA speakers (two-channel, multi-channel home theater, TV, etc.)? | 12. List upstream system components: |
| 6. One aspect you would improve about GMA speakers: | |
| 7. Married? Single? | |
| 7a. If married, was "wife acceptance factor" an issue? Y N | |

Specifications

Overview | [Woofers](#) | [Ports](#) | [Midranges](#) | [Tweeters](#) | [Wiring and Circuits](#) | [Acoustic results](#) | [Accessories in the box](#)



Calypso HD

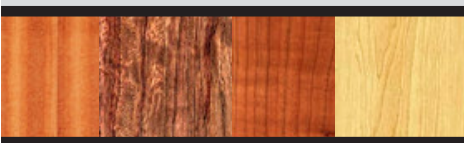
Pico Executive HD

Eos HD

Eos

Aperture HD

Application(s)	Time-coherent 3-way floorstander for use in all but the largest of rooms.	Time-coherent 3-way sounds best on the floor, a credenza, or bookshelf.	Time-coherent 2-way sounds best on stands or a bookshelf.	Time-coherent 2-way sounds best in tight places (bookshelf or center channel).
User adjustability (Soundfield Convergence™)	Midrange and tweeter adjust front-to-rear independently and together as one unit.	Midrange and tweeter adjust front-to-rear independently and together as one unit.	Tweeter adjusts front-to-rear in its channel via easy-to-use thumb-nut.	Tweeter adjusts front-to-rear under removable top cover.
Room size	Medium to large, 200-1,000sf	Small to medium, 150-600sf	Small to medium, 100-600sf	Small to medium, 100-600sf
Power (amplifier's 8 ohm rating)	7 to 170 Watts	7 to 170 Watts	7 to 150 Watts	7 to 170 Watts
Response +/- 0.75dB - 3dB frequencies	45Hz to 20kHz 40Hz, 22kHz in room	55Hz to 20kHz 45Hz, 24kHz in room	55Hz to 20kHz 47Hz, 26kHz in room	55Hz to 20kHz 47Hz, 23kHz in room
Size and Weight	51"H; 13.5"Square at base. 100lbs. (45kg) each; may vary depending on side panels chosen.	30.625"H; 10.5"W; 12.75"D. 45lbs. (20kg) each; may vary depending on side panels chosen.	19.875"H; 8.8"W 12.625"D. For speaker stand, base: 7"W, 10.875"D. 45lbs. (20.5kg) each.	10.875"H; 13.875"W 13.5"D. 29lbs. (13.2kg) each.
Finish Choices	Solid wood side panels of (from left) African Ribbon Mahogany, Bubinga, Cherry, or Maple. Other wood, granite or stone installed for extra charge.	Side panels in black leather, standard; choose other color or send 4 (12x12") stone or marble tiles for us to install.	Cocobolo trims the top channel. No other finish choices available.	Cherry trims the top of the speaker. No other finish choices available.

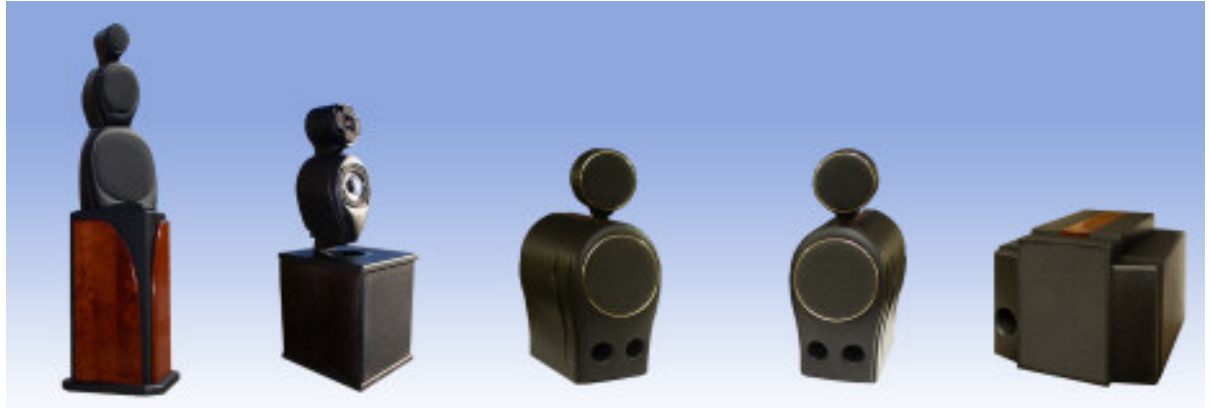


Notes

- All speakers are clad in black Texture-Kote™ for the look and feel of pin-grained leather.
- Original owner receives Happy Ears for Life™ warranty after forwarding Product Registration and copy of original bill of sale (within North America). Warranty may vary in other countries; check with GMA import agents for details.

Specifications

Overview | **Woofers** | Ports | Midranges | Tweeters | Wiring and Circuits | Acoustic results | Accessories in the box



Calypso HD

Pico Executive HD

Eos HD

Eos

Aperture HD

Woofers

8" (21cm)

6" (17cm)

6" (17cm)

6" (17cm)

Woofers

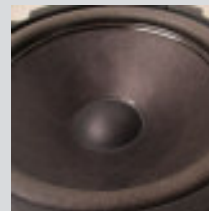
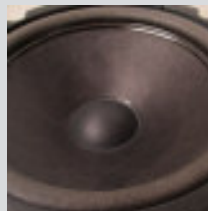
Low-mass Nomex fiber rigid cone. Very low resonant frequency from highly-compliant ultra-linear suspension of synthetic rubber and fully-vented flat spider; high-power, 4-layer 1.25" (32mm) voice coil. Alloy chassis; 22.5oz. (640g) magnet; 0.32" (9mm) p-p linear excursion; 30.6g moving mass. Shorting rings around voice coil for low distortion.

Single-pressed paper/carbon fiber cone with ultra-linear suspension, vented under-hung 2-layer, 1" (25mm) voice coil wound on Kapton former. Mechanically damped chassis. Shielded, radially-magnetized, neodymium-iron-boron magnet structure with heat dissipating black coating; 0.32" (8mm) p-p linear excursion; 9.85g moving mass.

Single-pressed paper/carbon fiber cone with ultra-linear suspension, vented under-hung 2-layer, 1" (25mm) voice coil wound on Kapton former. Mechanically damped chassis. Shielded, radially-magnetized, neodymium-iron-boron magnet structure with heat dissipating black coating; 0.32" (8mm) p-p linear excursion; 9.85g moving mass.

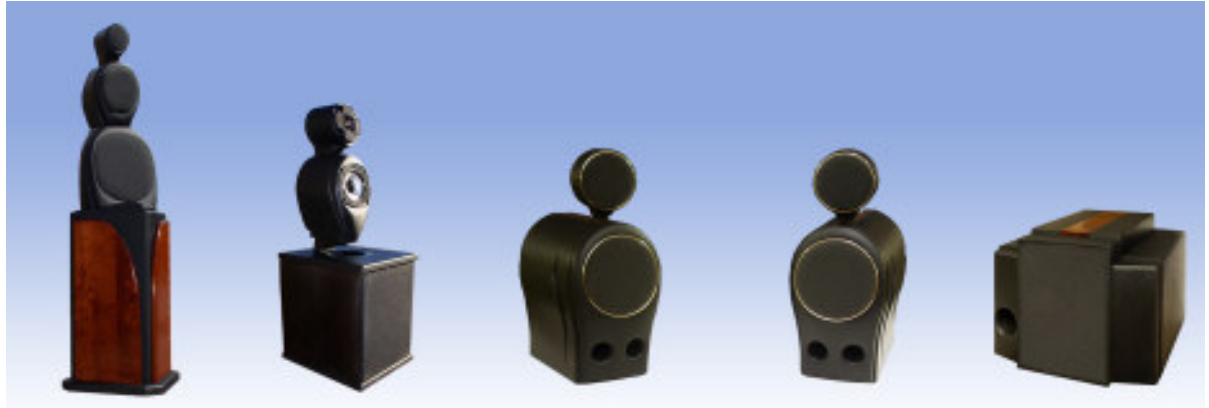
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Speakers have been designed for grilles to be left in place.



Specifications

Overview | Woofers | **Ports** | Midranges | Tweeters | Wiring and Circuits | Acoustic results | Accessories in the box



Calypso HD

Pico Executive HD

Eos HD

Eos

Aperture HD

Woofer cabinet

Woofer mounted in Q-Stone™ chamber atop slender wood column, twisted 45 degrees to reduce reflections. Internal Golden-Ratio Baffle™, 4th-order Butterworth ported with nearly zero box loss.

Woofer mounted in 2-layer wood cabinet of 13-layer Baltic Birch plywood and MDF. 4th-order Butterworth ported.

Woofer mounted in Q-Stone™ cabinet. 4th-order Butterworth ported with nearly zero box loss.

Woofer mounted on Q-Stone™ faceplate attached to cabinet of multiple-layer MDF with Golden-Ratio Baffle™, 4th-order Butterworth ported. Attached vibration-absorbing rubber feet.

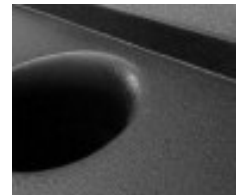
Woofer Port

3" (7.5cm) aerodynamic port on rear side tuned to 42Hz.

3" (7.5cm) aerodynamic top port tuned to 54Hz.

Twin 1.625" (41mm) aerodynamic ports tuned to 54Hz merge to become one port inside (Bi-Port™).

2" (50mm) aerodynamic port on front tuned to 54Hz.



Its angled location on each speaker prevents the Calypso's port from resonating with the space to the wall behind. Working with the internal Golden-Ratio Baffle™, the port transmits pressures most efficiently.

No tones other than the lowest bass will emerge. Mirror-imaging allows proper operation in all rooms.

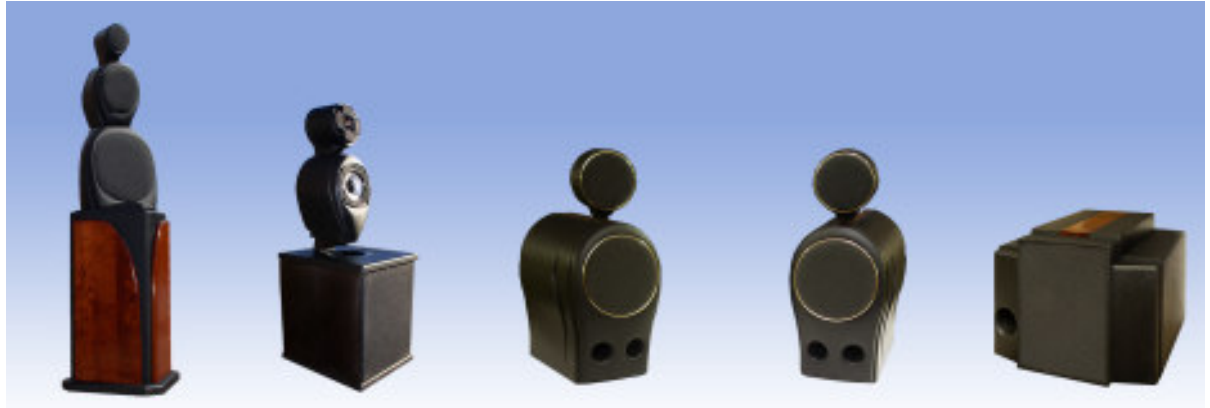
The Pico Executive's port is large for its woofer size. Its top location keeps it close to the floor while allowing bass pressures to fully expand into the room. All this produces maximum bass from a small enclosure.

The Bi-Port™ intake opening more efficiently transmits bass pressures from its ideal placement inside the enclosure. It also optimizes delivery of bass pressures into the room with its larger-than-usual twin openings on the outside.

The Aperture's port is tuned to maximize low bass from a shelf-mount position. It is angled to transmit bass pressures most efficiently from inside the cabinet.

Specifications

Overview | Woofers | Ports | **Midranges** | Tweeters | Wiring and Circuits | Acoustic results | Accessories in the box



Calypso HD

Pico Executive HD

Eos HD

Eos

Aperture HD

Midrange diameter

4" (10cm)

5.25" (13cm)

N/A

N/A

N/A

Midrange construction

Low-mass rigid cone of Kevlar skins laminated over Nomex honeycomb core. 6.2g moving mass. Very low resonant frequency from high-compliance suspension. Coated foam surround and large spider. 1" (25mm) hex-wound copper voice coil on Kapton former, vented at rear. Carbon fiber reinforced ABS non-magnetic chassis; 20oz. (567g) magnet. 0.25" (6mm) p-p linear excursion. Response -3dB at 350Hz and 3,150Hz.

Ultra-low-mass rigid cone of graphite and wood fiber. 3.13g moving mass. Low resonant frequency from high-compliance suspension. Coated multi-fold cloth surround and large spider. 1" (25mm) voice coil, alloy phase plug. Alloy chassis; 20oz. magnet. 0.25" (6mm) p-p linear excursion. Response -3dB at 350Hz and 3,150Hz.

Midrange enclosure

Resistively vented in alliptic, non-diffractive Q-Stone™ enclosure containing damped acoustic line.

Resistively vented in alliptic, non-diffractive Q-Stone™ enclosure containing damped acoustic line.



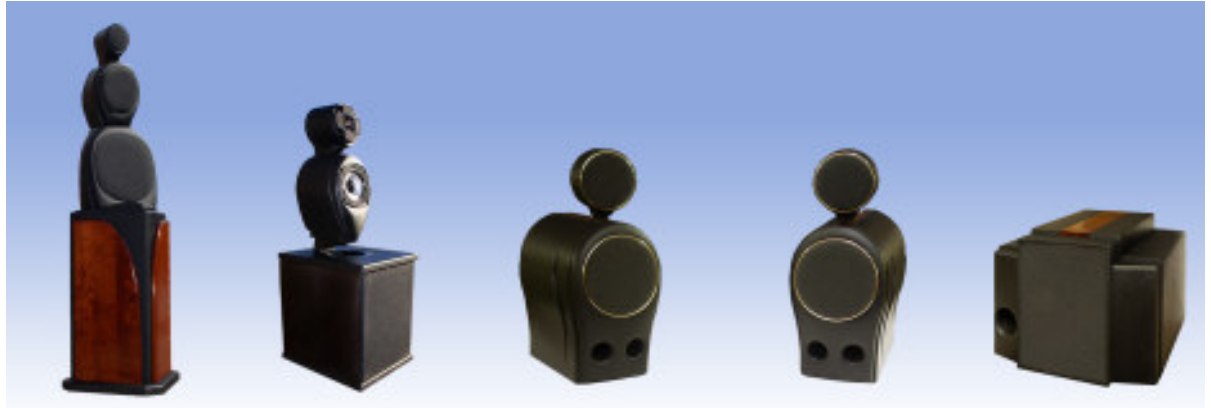
Speakers have been designed for grilles to be left in place.



A resistive vent loads the rear of both Calypso and Pico Executive midrange cones, suppressing each one's natural low-frequency resonance. The Calypso's midrange enclosure adds a second-stage muffler over the rear of this vent.

Specifications

Overview | Woofers | Ports | Midranges | **Tweeters** | Wiring and Circuits | Acoustic results | Accessories in the box



Calypso HD

Pico Executive HD

Eos HD

Eos

Aperture HD

Tweeter diameter

1.1" (28mm)

1" (25mm)

1.06" (27mm)

1.1" (28mm)

Tweeter construction

Lightweight linen dome, hand-coated with polymer. High-compliance, inverse-roll contiguous suspension. Hex-wound copper-clad aluminum voice coil wire, Ferrofluid cooled, high-strength aluminum alloy former, vented into large, damped rear chamber. 0.46g moving mass. Double neodymium magnets, fully shielded.

Lightweight, treated-fabric dome. High-compliance polymer suspension. Ferrofluid cooled voice coil with highly-flexible lead-in wires. Fully vented into large, damped alloy rear chamber. 0.35g moving mass. Six radially-magnetized neodymium magnets.

Lightweight, impregnated fabric dome with high-compliance polymer suspension. Ferrofluid-cooled voice coil with highly-flexible lead-in wires. Fully vented into large, damped rear chamber, with extruded heat sinks. 0.31g moving mass. Neodymium ring magnet.

Lightweight linen dome, hand-coated with polymer. High-compliance, inverse-roll contiguous suspension. Hex-wound copper-clad aluminum voice coil wire, Ferrofluid cooled, high-strength aluminum alloy former, vented into large, damped rear chamber. 0.46g moving mass. Double neodymium magnets, fully shielded.

Tweeter enclosure

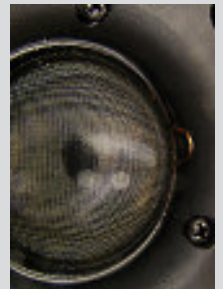
In alliptic, non-defractive, Q-Stone™ enclosure with integrated tweeter chassis damping.

In non-defractive, Q-Stone™ enclosure with integrated tweeter chassis damping.

In non-defractive, Q-Stone™ enclosure with integrated tweeter chassis damping.

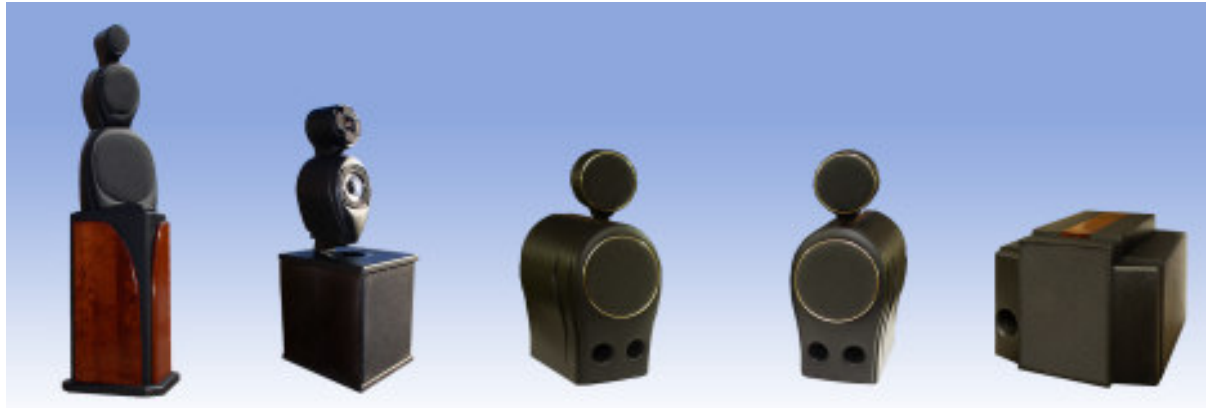
In Q-Stone™ enclosure, surrounded by inverse acoustic-foam and -felt horn. Integrated tweeter chassis damping.

Speakers have been designed for grilles to be left in place.



Specifications

Overview | Woofers | Ports | Midranges | Tweeters | **Wiring and Circuits** | Acoustic results | Accessories in the box



Calypso HD

Pico Executive HD

Eos HD

Eos

Aperture HD

Wiring

Woofers, Midrange, Tweeter

Exclusive High Definition Copper-Matrix™ wire by Marigo Audio: 18-gauge, 500+ strand Litz wires of six-nines purity, single crystal, oxygen-free copper with proprietary winding geometry; double cryogenically-treated, organic dielectric insulation; proprietary internal vibration damping system.

Woofers, Midrange, Tweeter

Exclusive High Definition Copper-Matrix™ wire by Marigo Audio: 18-gauge, 500+ strand Litz wires of six-nines purity, single crystal, oxygen-free copper with proprietary winding geometry; double cryogenically-treated, organic dielectric insulation; proprietary internal vibration damping system.

Woofers, Tweeter

Exclusive High Definition Copper-Matrix™ wire by Marigo Audio: 18-gauge, 500+ strand Litz wires of six-nines purity, single crystal, oxygen-free copper with proprietary winding geometry; double cryogenically-treated, organic dielectric insulation; proprietary internal vibration damping system.

Woofers

Double run of 14-gauge, heavily silver-plated and polished oxygen-free copper strands cryogenically treated, Teflon insulated; by Audio Magic.

Tweeters

22-gauge fine-stranded pure oxygen-free copper, cryogenically treated, polyethylene insulated; supplied by Jena Labs.

Woofers, Tweeter

Exclusive High Definition Copper-Matrix™ wire by Marigo Audio: 18-gauge, 500+ strand Litz wires of six-nines purity, single crystal, oxygen-free copper with proprietary winding geometry; double cryogenically-treated, organic dielectric insulation; proprietary internal vibration damping system.

Crossover

Balanced-Phase™ first-order circuit.

Balanced-Phase™ first-order circuit.

Balanced-Phase™ first-order circuit.

Balanced-Phase™ first-order circuit.

Zobel circuit's capacitor

Woofers
Midrange
Tweeters

Ultra-premium quality.
Ultra-premium quality.
Ultra-premium quality.

Ultra-premium quality.
Ultra-premium quality.
Ultra-premium quality.

Ultra-premium quality.

Premium quality.

Ultra-premium quality.

Ultra-premium quality.

Ultra-premium quality.

Crossover principal capacitor

Woofers
Midrange
Tweeters

N/A
Ultra-premium quality.
Ultra-premium quality.

N/A
Ultra-premium quality.
Ultra-premium quality.

N/A

N/A

Ultra-premium quality.

Ultra-premium quality.

Crossover bypass capacitor

Woofers
Midrange
Tweeters

N/A
Ultra-premium quality.
Ultra-premium quality.

N/A
Ultra-premium quality.
Ultra-premium quality.

N/A

N/A

Ultra-premium quality.

N/A

Ultra-premium quality.

Binding posts

Pure oxygen-free copper, directly gold plated. Mounted on bottom.

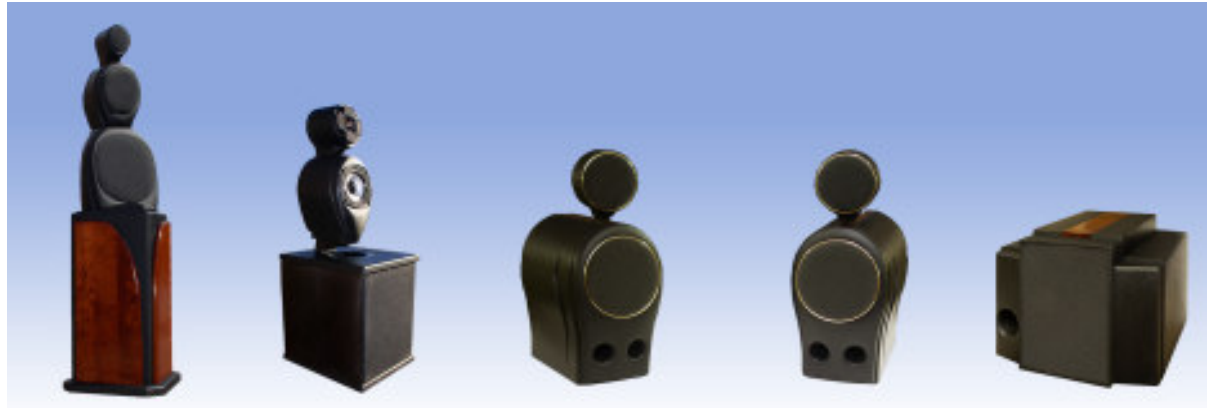
Pure oxygen-free copper, directly gold plated. Mounted on back.

Pure oxygen-free copper, directly gold plated. Mounted on back.

Pure oxygen-free copper, directly gold plated. Mounted on back.

Specifications

Overview | Woofers | Ports | Midranges | Tweeters | Wiring and Circuits | **Acoustic results** | Accessories in the box



Calypso HD

Pico Executive HD

Eos HD

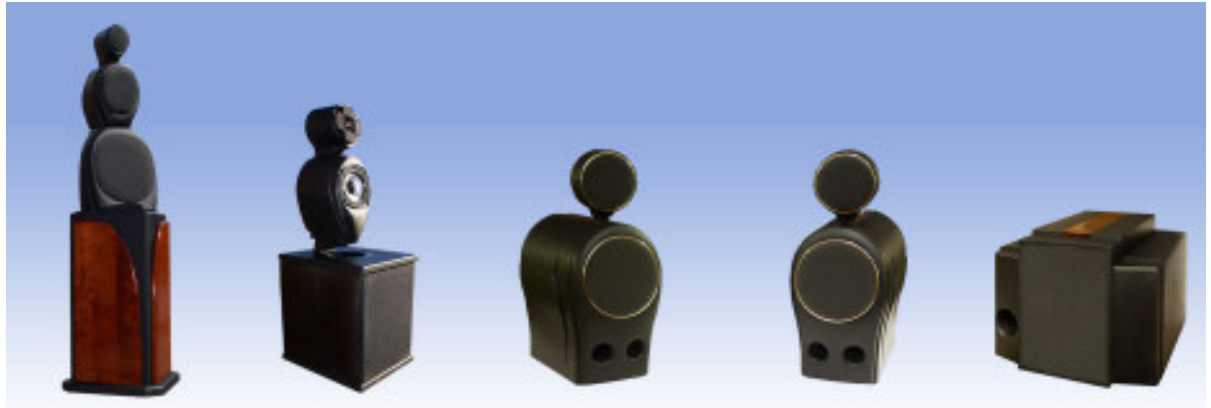
Eos

Aperture HD

	Calypso HD	Pico Executive HD	Eos HD	Eos	Aperture HD
Distortion (*I.M.D. is for any two frequencies separated by a 10:1 ratio.)	<0.5% harmonic 100Hz-12kHz, <1% intermodulation, both at 100dB at 1m*.	<0.5% harmonic 100Hz-12kHz, <1% intermodulation, both at 98dB at 1m*.	<0.5% harmonic 100Hz-12kHz, <1% intermodulation, both at 98dB at 1m*.	<0.5% harmonic 100Hz-12kHz, <1% intermodulation, both at 98dB at 1m*.	<0.5% harmonic 100Hz-12kHz, <1% intermodulation, both at 98dB at 1m*.
Phase Shift	+/- 3 degrees acoustically, from 220Hz to 8kHz. Does not vary with loudness.	+/- 2 degrees acoustically, from 220Hz to 8kHz. Does not vary with loudness.	+/- 2 degrees acoustically, from 200Hz to 8.5kHz. Does not vary with loudness.	+/- 2 degrees acoustically, from 200Hz to 8kHz. Does not vary with loudness.	+/- 2 degrees acoustically, from 200Hz to 8kHz. Does not vary with loudness.
Rise time	<10 microseconds, positive or negative input. Does not vary with loudness.	<10 microseconds, positive or negative input. Does not vary with loudness.	<10 microseconds, positive or negative input. Does not vary with loudness.	<10 microseconds, positive or negative input. Does not vary with loudness.	<10 microseconds, positive or negative input. Does not vary with loudness.
Polarity	Positive, over full bandwidth.	Positive, over full bandwidth.	Positive, over full bandwidth.	Positive, over full bandwidth.	Positive, over full bandwidth.
Dispersion	Omni at 40Hz, smoothly decreasing to cardioid at 10kHz.	Omni at 45Hz, smoothly decreasing to cardioid at 10kHz.	Omni at 47Hz, smoothly decreasing to cardioid at 12kHz.	Omni at 47Hz, smoothly decreasing to cardioid at 10kHz.	Omni at 47Hz, smoothly decreasing to cardioid at 10kHz.
Impedance	4.75 Ohms, +/- 0.75 Ohms 150Hz to 20kHz. Does not vary with loudness.	5.25 Ohms, +/- 0.75 Ohms 150Hz to 20kHz. Does not vary with loudness.	4.8 Ohms, +/- 0.75 Ohms 100Hz to 20kHz. Does not vary with loudness.	4.8 Ohms, +/- 0.75 Ohms 100Hz to 20kHz. Does not vary with loudness.	4.8 Ohms, +/- 0.75 Ohms 100Hz to 20kHz. Does not vary with loudness.
Sensitivity	88dB for 2.83V at 1m, at sea level. Dynamically linear within 0.5dB to 100dB.	90dB for 2.83V at 1m, at sea level. Dynamically linear within 0.5dB to 100dB.	90dB for 2.83V at 1m, at sea level. Dynamically linear within 0.5dB to 100dB.	90dB for 2.83V at 1m, at sea level. Dynamically linear within 0.5dB to 100dB.	90dB for 2.83V at 1m, at sea level. Dynamically linear within 0.5dB to 100dB.
Max SPL	105dB peak at 3m from a stereo pair, first-arrival (without room gain).	105dB peak at 3m from stereo pair, first-arrival (without room gain).	105dB peak at 3m from stereo pair, first-arrival (without room gain).	105dB peak at 3m from stereo pair, first-arrival (without room gain).	105dB peak at 3m from stereo pair, first-arrival (without room gain).
Pair matching	Amplitude +/- 0.25dB; impedance +/- 0.15 Ohms, 160Hz-8kHz; crossover parts +/- .15%.	Amplitude +/- 0.25dB; impedance +/- 0.15 Ohms, 160Hz-8kHz; crossover parts +/- .15%.	Amplitude +/- 0.25dB; impedance +/- 0.15 Ohms, 160Hz-8kHz; crossover parts +/- .15%.	Amplitude +/- 0.25dB; impedance +/- 0.15 Ohms, 160Hz-8kHz; crossover parts +/- .15%.	Amplitude +/- 0.25dB; impedance +/- 0.15 Ohms, 160Hz-8kHz; crossover parts +/- .15%.

Specifications

Overview | Woofers | Ports | Midranges | Tweeters | Wiring and Circuits | Acoustic results | **Accessories in the box**



Calypso HD

Pico Executive HD

Eos HD

Eos

Aperture HD

Accessories

EarSticks; nut driver; T-handle Allen wrench; adjustable cone feet with hardwood floor protectors, Ownership Guide.

EarSticks; nut driver; T-handle Allen wrench; adjustable cone feet with hardwood floor protectors; brush for dusting tweeter and midrange drivers; bottle of leather polish, Ownership Guide.

EarSticks; stick-on felt disks to protect furniture and bookshelves, Ownership Guide.

EarSticks; Allen wrench, Ownership Guide.



Note

The Ownership Guide will lead the owner through the steps of Receiving and Unpacking, Connecting and Conditioning, Positioning and Adjusting, Using the EarSticks, Fine-tuning the Sound, and Setting up a Home Theater. It will also include a copy of these Specifications; our Happy Ears for Life™ warranty, and the Product Registration card.