



PARADIGM REFERENCE

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www.paradigm.com

PARADIGM REFERENCE

The success of Paradigm® Reference since its introduction has been nothing short of astonishing! Never before has a range of high-end speakers been so quickly embraced by listeners and critics.

Perhaps not apparent at first, quite often the most demanding aspect of speaker design is daring to change. It would be easy, coddled by the accolades and awards, to become complacent and rest on the laurels of critical favor. However, in true audiophile fashion, our engineers persist, seeing room for improvement and opportunity for refinement in the planning and design of each new generation of Paradigm Reference speakers.

From the beginning, we have taken a cost-no-object approach to speaker design in our Reference collection, using only the most sophisticated technologies. Our success can be heard in every sound, every glorious note! Paradigm Reference speakers are supremely neutral, natural, detailed and clear. Imaging is spacious and open. Localization is unerringly precise and timbral accuracy is solid across the model line.

For music or home theater there is no more sonically coherent choice than Paradigm Reference. Our speakers transcend an assembly of enclosed high-end components to bring you closer to the original sound than you ever thought possible.



Only Paradigm has been rated #1 by the distinguished publication **inside track** twenty times.*

*#1 Best Price/Value. An annual independent nationwide survey of consumer electronics specialist retailers and custom installers.

For more information visit our website at
www.paradigm.com

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MILLENNIA ONE

“If I were looking for a compact lifestyle system, this one would be at the top of my list.”

Roger Kanno, SoundStage!



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Shown in White:
MilleniaOne system (White Gloss)
with MilleniaSub (Satin White)
Anthem Electronics



MILLENIA ONE *(cont'd)*

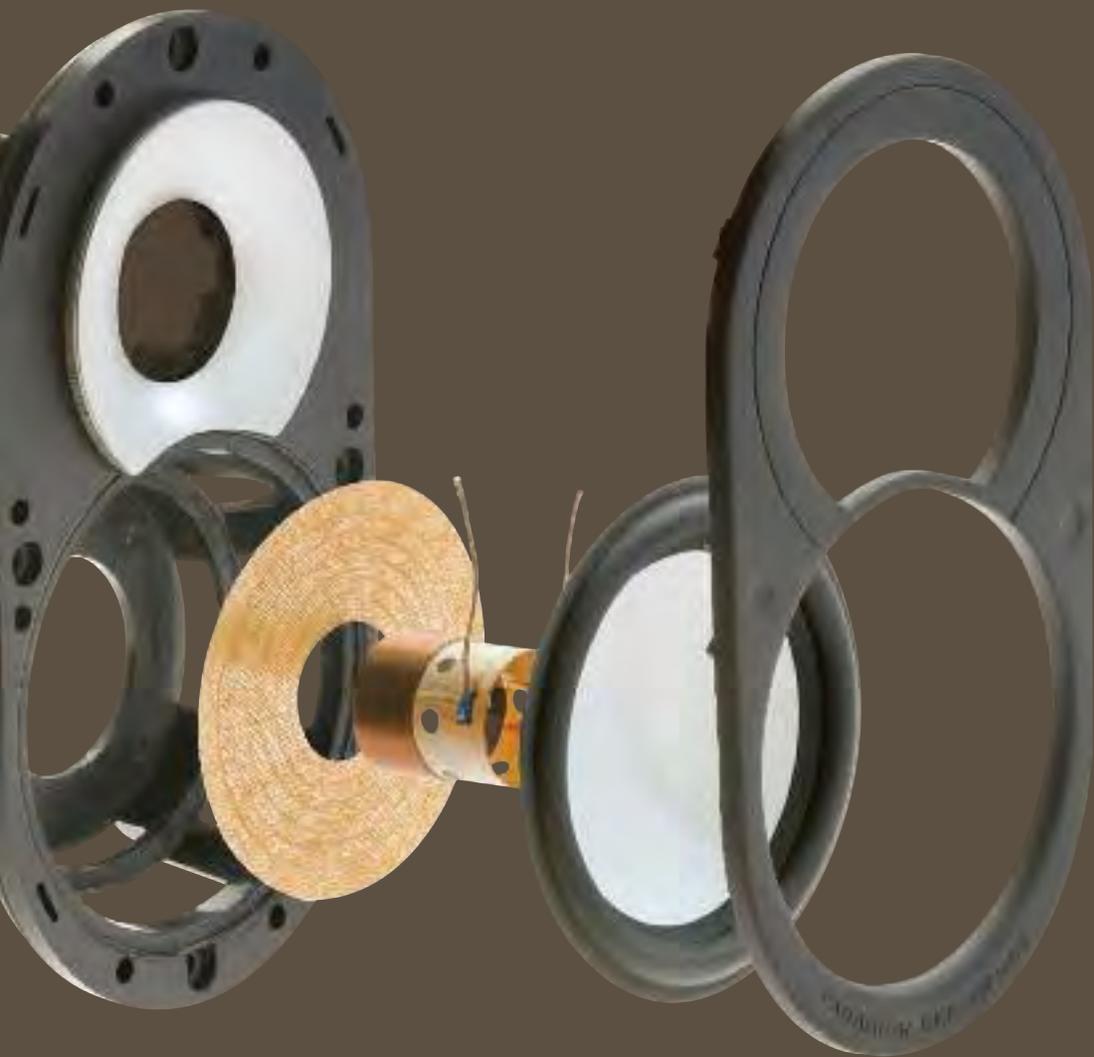


Designed for **easy finger tightening.**

Self-guiding cable channels
for optimum wire management.

Ridged mounting bracket prevents sagging
since this speaker is very solid and heavy.

Stand and wall-mounting bracket included with system.



Who said serious audio can't look seriously funky? And who said serious audio can't be delivered by a system of pixie proportions. Our MilleniaOne music and home theater system, as part of our Reference collection, is a step down in size but a step up in sound from typical petite systems on the market. Shop around! Compare! We know you'll come back to Paradigm Reference! Our compact MilleniaOne system offers cost-no-object technology that simply doesn't exist in any other compact high-end system out there.

It's **The Paradigm Difference** and the difference it will make to your music and home theater experience can't be put into words. But you'll see it, you'll hear it and you'll feel it. Paradigm speakers put you in the moment and keep you there! Paradigm sound takes you beyond funky little satellite speakers to a place where you're absolutely lost in the music or movie you're watching. Choose a stereo music system, a music system for your computer, or build a "7.0" knock-'em-dead full surround-sound system. Whichever type of system you choose ...

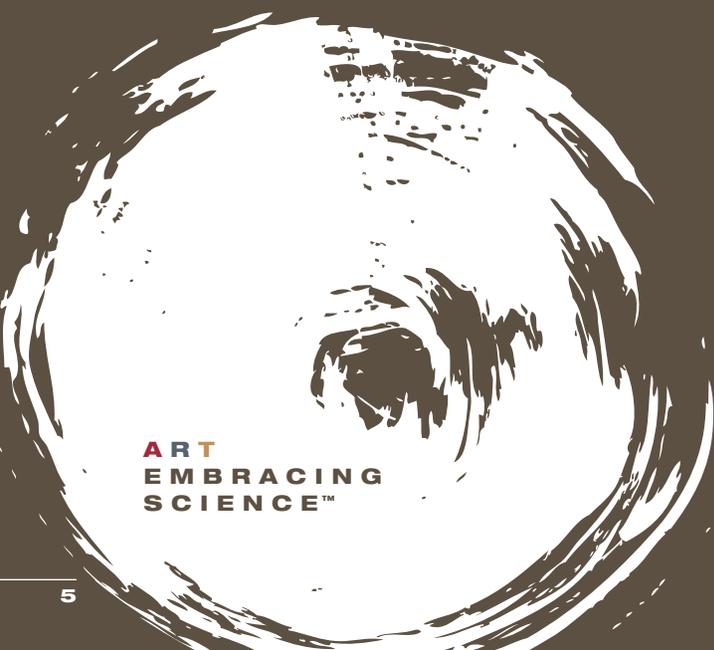
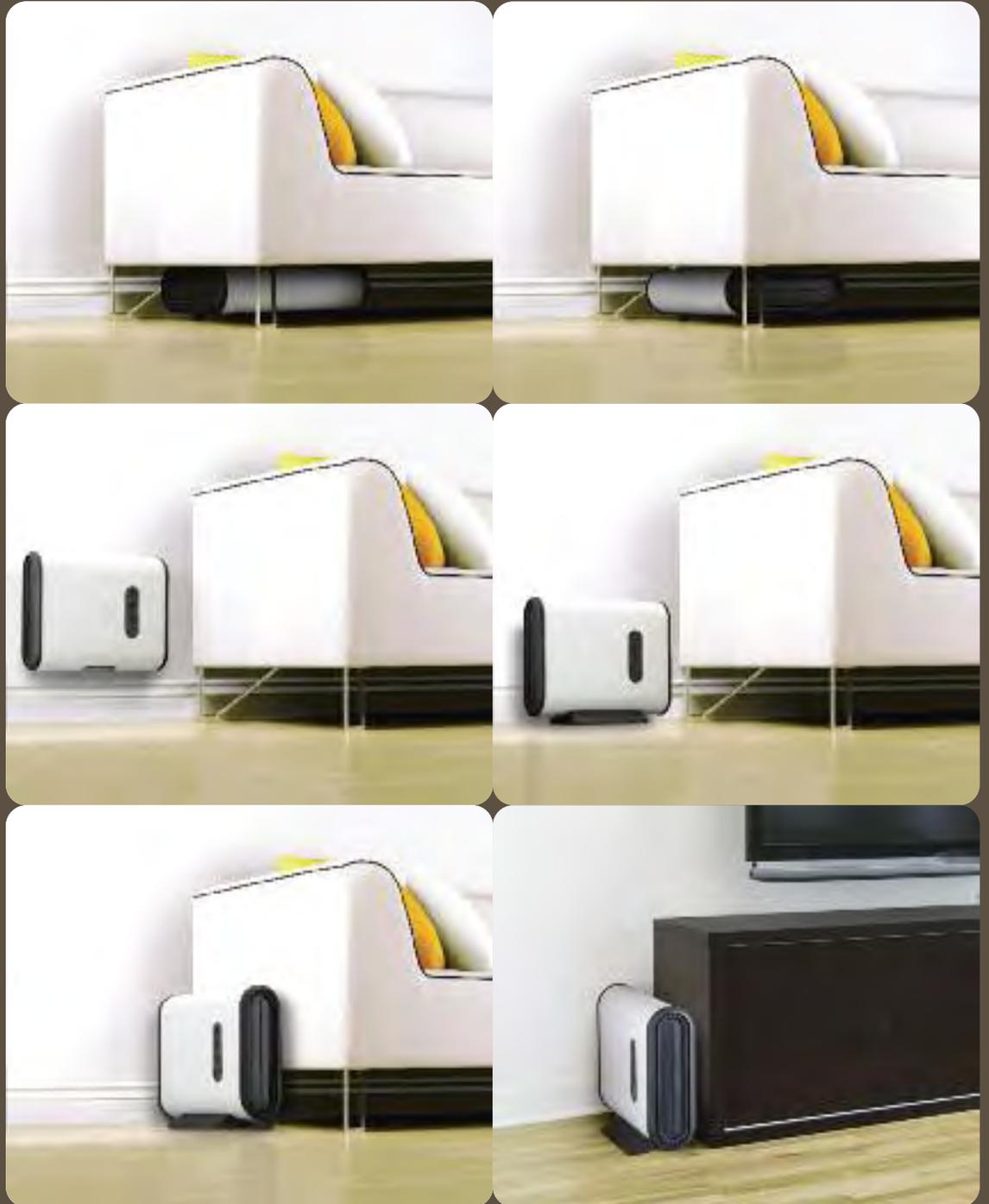
We guarantee you won't be able to keep **The Paradigm Difference** a secret. In fact, we hope you don't. Talk about your Paradigms. BRAG about them! Play them and let others listen! Our mission is to rid the world of bad sound ... and by 'bad' we mean the kind you find in a five-compact-speakers-in-a-box promotion at your local big box store.

- **S-PAL™ Satin-Anodized Pure-Aluminum Domes:** Powerful motor structures and oversize ferrite magnets. Vocals are smooth, clear and superbly realistic with stratospheric highs. Audibly better high-frequency performance than anything else its size and price on the market.
- **S-PAL™ Satin-Anodized Pure-Aluminum Bass/Midrange Cones:** More bass than you're ready for from a pixie package. Any system sinks or swims on its midrange — it's the part of the frequency spectrum our ears hear best. Sure, most true high-end little systems have a good midrange, only a few have a great one! One listen and you'll agree, the MilleniaOne midrange falls into the category of fabulous. Vocals, instruments, they all sound great. We guarantee open-mouthed astonishment on your part ... a great big OH. And then an OMG!
- **Sculpted Die-Cast Aluminum Cabinets:** Integrated baffle and chassis allow larger, more powerful drivers than typically found in petite systems. All part of the grand Paradigm design to bring you the sonic benefits of a larger speaker, in a pixie package.
- **Bookshelf/Tabletop Stands and Wall Brackets:** All included!
- **Low-Diffraction Grilles:** Maximize imaging and ensure smooth dispersion.

MILLENNIA SUB



Talk about sub yoga ... the most flexible Paradigm subwoofer ever. Dual chakras of power and more positioning options than a swami teaching yoga in an ashram!



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It will turn you on,
bliss you out and
rock your soul to the
core. Think of it as
the mind/body/bass
connection!

Paradigm Design Team

Bipolar Woofers ... High-Excursion Dual-Cone Architecture!

An inherently vibration-cancelling design with almost a full inch of travel per cone! Woofers fire in opposite directions resulting in a physical cancellation of vibrations and a massive reduction in unwanted cabinet and internal resonances to compromise sound quality.

- **Dual 14" (355 mm) x 3" (76 mm) Reinforced Co-Polymer Polypropylene Cones in Unique 'Monocoque' Design:** The outer skin of the woofer cone bears the brunt of the motion stress brought on by the extended cone excursion. Single cone construction allowed us to improve the cone modal vibration pattern and bingo ... better frequency response immediately. Cones are FEA-optimized for maximum strength-to-weight ratio.
- **Single-Piece Cone Structure:** Anodized silver color finish. Single-piece construction allowed us to improve the cone modal vibration pattern and then, bingo — better frequency response immediately!
- **Overmolded Corrugated Santoprene® Surrounds:** Well-known performance advantages like high-excursion and symmetrical compliance as well as increased longevity and you-can-bank-on-it performance reliability. The design geometry is reminiscent of our Reference RVC-12SQ in-wall sub, meaning higher output with minimal (inaudible!) distortion. Every bass note sounds distinct.
- **Radical Dustcap Design:** Braced through the center and adhered using high heat to the cone's edge, allowing us to move primary breakup mode to outside the woofer's operating band. Reduced distortion and improved frequency response are the result. Not to mention, it just looks *totally* cool!
- **1" (25 mm) Voice-Coil Construction:** High-temperature wire (adhesive rated to 450 F/232° C) ensures long-term reliability and exceptionally efficient power handling.
- **AVS™ Airflow Ventilation System Cooling:** Forced-air cooling during large musical transients, chassis convection cooling at all other times.
- **Computer-Optimized Magnet Assembly with Balanced Field Geometry:** More attention to detail in the optimizing of the structure than anything found in a big box store ... and anything else claiming to be high-end quality for that matter!
- **Die-cast Aluminum Cabinets:** A thicker wooden cabinet (same external dimensions) wouldn't have allowed us to fit the large, powerful drivers. And since aluminum is a superb conductor of heat, the sub's enclosure also functions as a heatsink.



Unique shape of 5-mm thick die-cast aluminum cabinet allows us room to tuck in all of the crazy state-of-the-art techy stuff you love!

“... the coolest product of the show ... sleek, capsular cabinet ... oodles of resonance-free oomph.”

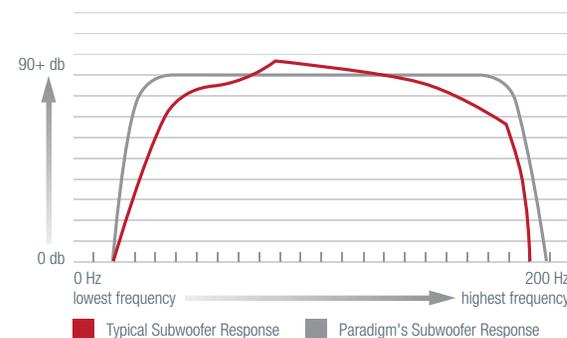
Dennis Burger, Home Entertainment at the Custom Electronics Design & Installation Association show

State-of-the-Art Ultra-Class-D™ Power Amplifier

- **Innovative Ultra-Class-D™ Amplifier with Switching Power Supply:** More than 90% efficiency! Total output: 900 watts of Dynamic Peak Power; 300 watts of RMS Sustained Power.
- **Big Power, Compact Package:** Our low-noise, ultra-high-power compact transformer boasts an ETD-core developed particularly for applications that require high power in a tiny format. The switched-mode power supply benefits from highest quality MOSFET transistors, noise-suppression networks and an advanced control circuit. The result is tremendous current with ultra-quiet operation.
- **Full-Bridge Ultra-Class-D™ Design Output Stage:** Operates from split power supply rails ensuring exceptionally low distortion. Not only does this design increase the speed of the switching, it dramatically increases switching efficiency.
- **Precision Components and Dual-Sided Military Spec (FR-4 rated) Glass/Epoxy Circuit Boards:** Superior 'Reference' quality performance with a degree of reliability that makes our competitors nervous.
- **Unique Temperature Sensors:** Maintain safe operating temperature,
- **Paradigm's Digital Signal Processing (DSP) Design:** Sophisticated mathematical algorithms "shape" frequency response, ensuring accurate, consistent and musical bass without audible distortion, even when the subwoofer is playing at its loudest level (see graph.)
- **Thermal Monitoring of the Voice Coil's Temperature:** Despite the conductivity of copper, the insulation layer around the copper is still prone to excess heat when the driver is working at maximum output. The MillenniaSub's thermal monitoring feature works in tandem with our DSP design to reduce output when it senses the potential for overheating, maintaining overall reliability and consistency in performance.
- **Advanced Short-Circuit Protection:** The Digital Signal Processing Design monitors current through the Class-D output stage MOSFETs. Should the current exceed the internally preset limit, the DSP disables the power amplifier for 5 seconds then re-enables it. If the over-current condition still exists, the disable/re-enable cycle is repeated. Reaction time is less than 10 μ s.

- **Novel Adaptive PWM (Pulse Width Modulation) Power Processor:** Minimizes distortion and optimizes efficiency. Conventional Class-D designs have very low power supply rejection. Paradigm's Ultra-Class-D™ design inherently rejects variations in the power supply.
- **Wireless Connectivity! Using Paradigm's PT-2 Wireless Transmitter** (sold separately).

Digital Signal Processing Design



Input Facilities

Low-Level Input – RCA: Allows connection from the RCA (S/E) Left and Right or Sub/LFE Outputs of your Preamplifier/Processor or other suitable low-level source.

Line-Level Input from Sub/LFE Output: For use with a receiver, processor or subwoofer control unit that has a sub-out/LFE-out jack.

Control Facilities

Auto On/Off: Eliminates the need for a manually operated power switch. Turns the subwoofer on when there is an input signal. If no signal is present, after a period of time it turns off.

Trigger On/Off: Allows the subwoofer's power on/off to be controlled by components that have a trigger output (preamp/ processor, etc.).

Subwoofer Cut-Off with Bypass Option: (Continuously variable 35 Hz – 150 Hz.) Controls the subwoofer's upper frequency cut-off and can be set to match the low-frequency roll-off characteristics of your system's speakers.

Bypass Option allows you to bypass the subwoofer's built-in cut-off control to let your preamp/processor's or receiver's internal bass management system provide the crossover function.

Subwoofer Level Control: Balances the subwoofer level with that of the other speakers in your system.

Phase Alignment: (Continuously variable 0° – 180°.) Accurately synchronizes your subwoofer and front speakers through their bass frequency overlap region.

Built-In Wireless RF Receiver: For use when wireless option is desired. Requires PT-2 Transmitter (*sold separately, see below*).

USB Port / PBK Interface:

Allows for:

- Connection of the **Paradigm Perfect Bass Kit** digital room correction system (*sold separately*). Details pg. 31;
- Potential upgrades to software installed in your subwoofer.

PT-2 WIRELESS TRANSMITTER



Latency Switch: Adjusts for the natural time delay as sound passes from speaker to speaker

Look Ma, No Wires!

Although correct room placement plays a key role in optimizing subwoofer performance, it can impose the inconvenience (not to mention the unsightliness) of running long lengths of cable through walls, along baseboards or under floors and carpets. Since the MilleniaSub offers so many marvellous and unusual placement options, many customers choose to take advantage of its wireless option ... no cables, no clutter, crazy placement freedom!

The PT-2 Transmitter is a 2.4 GHz digital design that automatically adjusts for best wireless connection while constantly monitoring the integrity of the data stream. It can be used with up to **four** Paradigm Reference subwoofers and boasts a Zone 2 option, allowing you to control a subwoofer in a second zone (i.e., another room of your home.) In a typical listening room the PT-2 Transmitter has a maximum unobstructed range of 50' (15 m).

For more information on going wireless using the optional PT-2 Transmitter visit us at www.paradigm.com or see your dealer.

MILLENNIA SERIES



Shown in Black Chrome:
Millenia 300
Millenia 30
Anthem Electronics

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“Towers of Power. A swanky high-performance system that works in even the most style-conscious homes.”

Michael Trei, Sound & Vision

Millenia speakers offer sophisticated state-of-the-art Paradigm Reference technology wrapped in a sleek lifestyle design to complement today's flat-panel televisions.

Just like their more traditionally styled counterparts, Millenia speakers offer breathtaking music reproduction that lays bare the very essence of the original performance! And that complex mix of dialog, music and action effects that make up a movie's soundtrack? Millenia delivers it with a realism that no other high-end lifestyle system can! *Sound & Vision* magazine had this to say: "... beautiful and chic ... dynamic and powerful ... quick and highly detailed ... superb imaging ... dialog remained resolutely clear ... no sign of distress even in the most dynamic passages."

The slim Millenia 20 Trio (*below*) takes lifestyle design a step farther! Three main speakers in one fabulously sleek lifestyle cabinet—a left front speaker, a right front speaker and a center channel—a superb single-cabinet alternative for those who want to streamline and simplify their music and home theater setup without sacrificing even an ounce of high-end sound quality.

Although the Trio can hold its own when it comes to delivering the lower frequencies with clean, clear, well-extended bass performance, just like all Millenia speakers it is designed to be used with a subwoofer. For a truly unforgettable music and home theater experience, pair it with a Paradigm Reference Seismic 110.



Shown in Black Chrome:
Millenia 20 Trio

High-Frequency Drive Units

Like all Paradigm Reference high-frequency drivers, Millenia drivers exhibit breath-taking timbral clarity and a transparency that is comparable to the very best electrostatic or ribbon designs. Exceptionally smooth, vividly detailed and free of any spurious resonances, their performance is essentially unmatched in high-end lifestyle speaker design.

- **S-PAL™ Satin-Anodized Pure-Aluminum Domes:** Deep-anodized for exceptional rigidity and paired with a low-mass treated textile suspension. Highs are spacious, clear, silky smooth and exceptionally well extended.
- **Rigid High-Pressure Die-Cast Aluminum Chassis:** Eliminate mechanical flexing and ringing and effectively dissipate heat—a tweeter's foremost adversary.
- **Critical Coupling of Phase-Alignment Bridge and Elevated Dome:** Extremely flat frequency response with optimal off-axis dispersion.
- **Dual Magnets and Advanced Motor Structures:** Computer-optimized using Finite Element Analysis (FEA), a highly advanced tool for component design that helps us model a structure with an intense magnetic field force in the gap. Power handling and output linearity are superb under all conditions.
- **High-Power Apical™ Formers:** High-power, high-temperature voice coils and ventilated Apical™ formers ensure high-power handling, low distortion and long-term reliability.



High-frequency driver

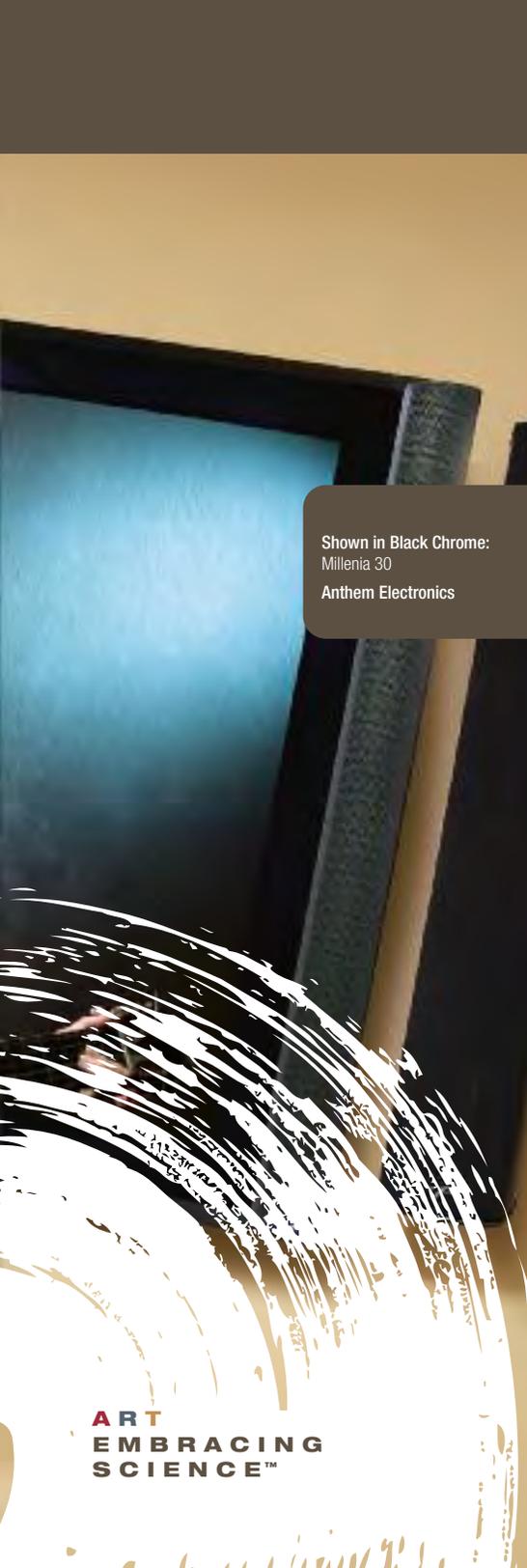


Bass/midrange driver



Bass driver





Shown in Black Chrome:
Millenia 30
Anthem Electronics

Midrange and Bass Drive Units

Our ears are particularly attuned to lower treble and midrange frequencies—we instinctively recognize sound anomalies, deviations from what is ‘natural.’ Paradigm engineers know this and in their exhaustive testing, re-testing, listening and learning they have developed drivers that have no equal in the high-end lifestyle speaker category ...

- **MLP™ Mica-Loaded-Polymer Midrange and Bass/Midrange Cones:** High stiffness-to-mass ratio of polypropylene and the exceptional damping properties of the injected mica ensure performance that is accurate, lifelike, wonderfully detailed and critically revealing.
- **HTD™ Heat Transfer and Dissipation System—Our Proprietary Design:** High-pressure die-cast aluminum chassis cradles the entire neodymium magnet structure. The resulting increase in surface area provides for exceptional heat transfer and dissipation. Exterior heatsink fins reinforce the cooling and dissipation process.
- **Solid-Aluminum Phase Plugs:** Not only do they look “swell”, they maintain absolutely linear response while also playing a crucial role in improving airflow, allowing for significant gains in heat dissipation.
- **Overdesigned Nitrile-Butadiene Rubber (NBR) Surrounds and Nomex™ Spiders:** NBR is known industry-wide for its excellent damping properties and reliability (particularly under extreme conditions). The Nomex™ polyamide spider helps promote extended, very linear excursion and ultra-low distortion.
- **Precision-Engineered Mineral-Filled Polypropylene Bass Cones:** The injection of mineral into the polypropylene ensures a high stiffness-to-mass ratio and excellent internal damping. What you get is very high output with minimal distortion and excellent extension—free of cone standing waves and micro distortions.
- **Oversize Magnet Assemblies with Symmetrical Focused Field Geometry:** Low distortion and unparalleled linearity.
- **Advanced Motor Structures:** Lightweight high-temperature copper-clad aluminum-wire voice coils. A rigid, low-mass design wound on vented Kapton® polyamide formers. Excellent linear response regardless of the cone excursion.

High-End Touches

- **Ultra-Slim Extruded-Aluminum Enclosures:** At a fraction of the thickness of typical wood enclosures, the extruded design affords all the benefits of a larger speaker in a significantly slimmer package, with no noticeable cabinet resonances. The dramatic side curvature not only adds a touch of class, it’s extremely functional, providing additional structural integrity.
- **Premium Finish:** Polished Black Chrome.
- **High-Velocity Low-Noise Aluminum Ports:** Bass efficiency and minimal turbulence distortion for cleaner, exceptionally articulate bass response.
- **Magnetically Attached Speaker Grilles!**
- **Tempered Glass Base on Floorstanding Models.**

Millenia speakers are designed to be used with a subwoofer. For truly unforgettable music and home theater performance, add a Paradigm Reference Seismic 110 for deep, articulate, room-shaking bass.



Shown in Black/Dark Gray:
Millenia ADP

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**“Paradigm Studios do so much right . . .
huge soundstage . . . well-defined
images . . . full-bodied warmth . . .
they are just that good!”**

Brian Kahn, hometheaterreview.com

Paradigm Reference Studio speakers offer a standard of technological excellence that results in a breathtaking quality of music reproduction that captures the very essence of the original sound.

For music, they have no equal in this category, but equally important is their performance in home theater. Movie soundtracks are a complex mix of dialog, music and action effects. This requires a level of articulation and spatial representation that few movie theaters are capable of reproducing. Studio speakers exceed typical high-end home theater sound by expanding the sheer size, scale and dynamics of the acoustic soundstage. While listening to a Paradigm Reference Studio system *The Perfect Vision* magazine puts it best: “It’s just like being at the movies—except the sound is a lot better.”*

*Nicholas Bedworth, *The Perfect Vision on the Studio 100*



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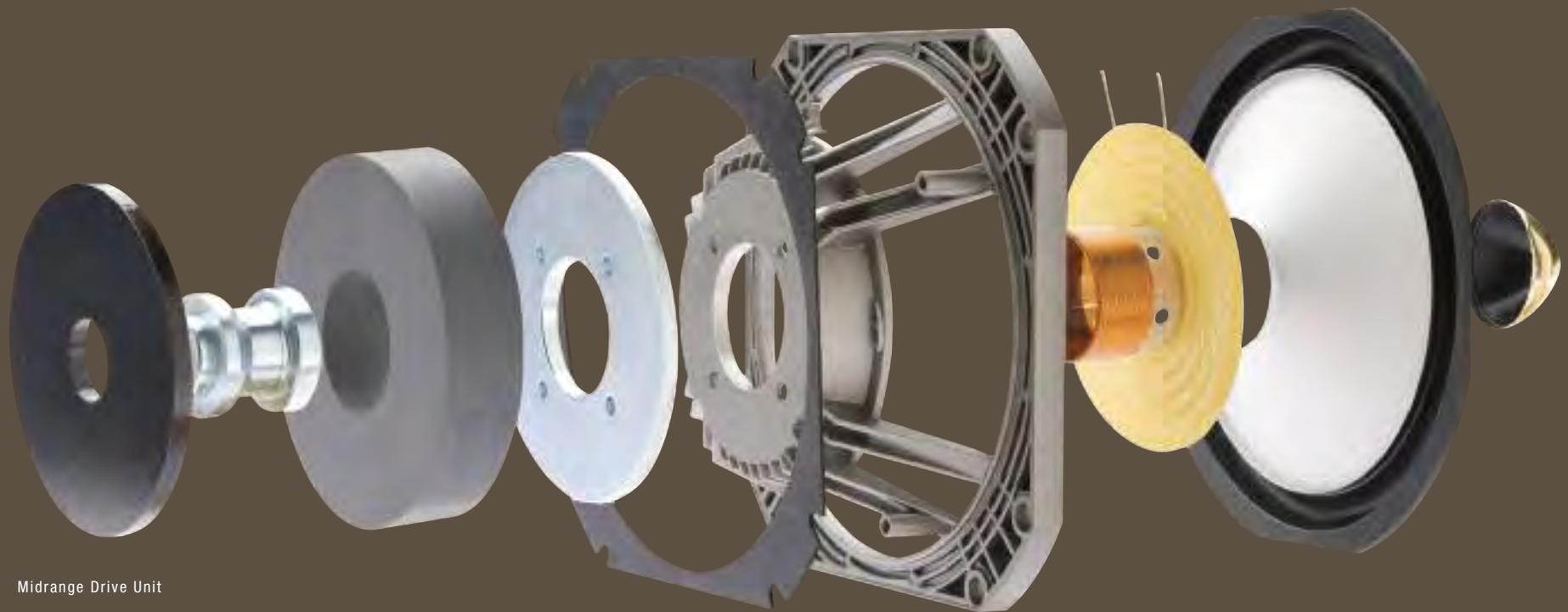
Shown in Rosenut:
Studio 60
Studio CC-590
SUB 12
Anthem Electronics



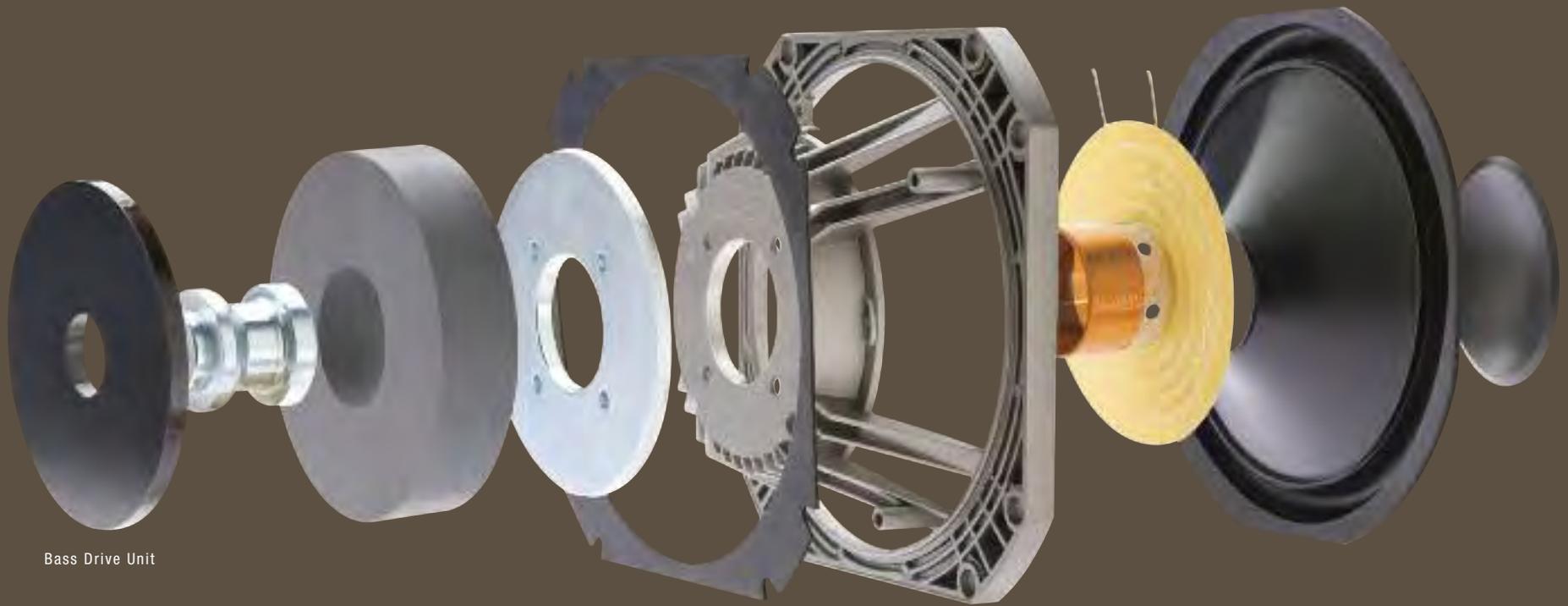
STUDIO SERIES *(cont'd)*

Midrange and Bass Drive Units

These highly refined drivers are virtually free of unwanted vibrational resonances, cone standing waves and micro distortions. They offer stunning midrange clarity, superb resolution of inner details and outstanding definition and dynamics.

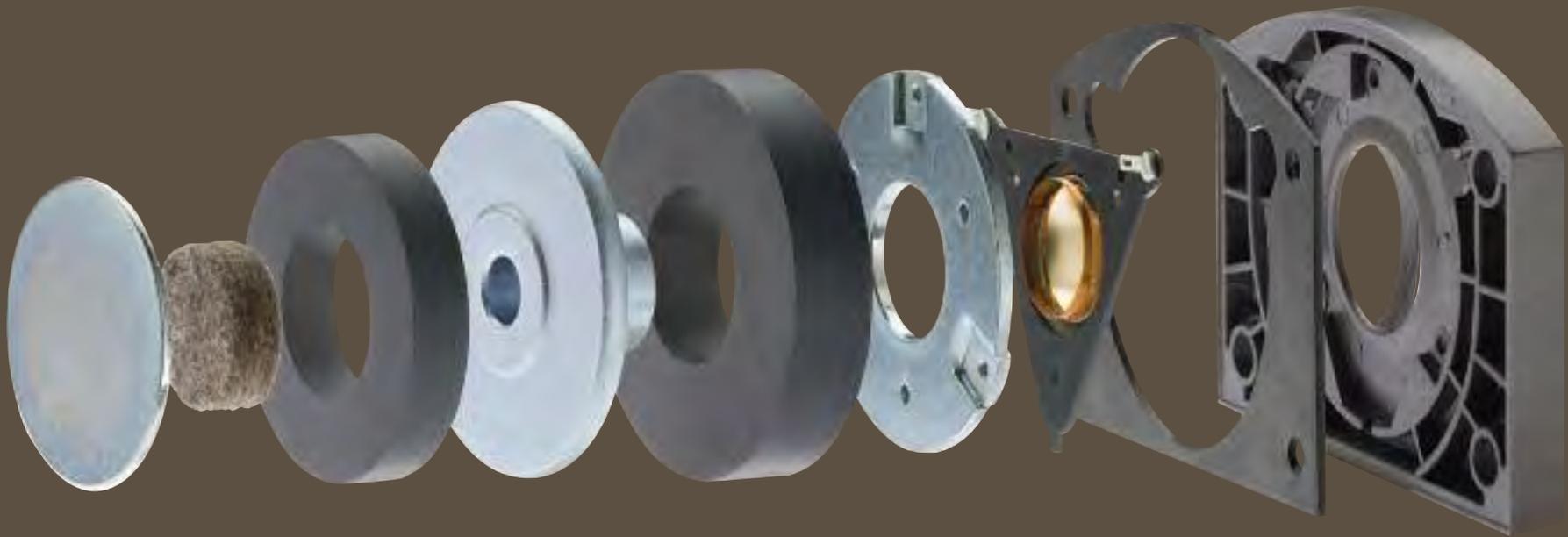


Midrange Drive Unit



Bass Drive Unit

- **S-PAL™ Satin-Anodized Pure-Aluminum Midrange and Bass/Midrange Cones:** Very high stiffness-to-mass ratio and outstanding internal damping. The result? Remarkable midrange clarity, superb extended bass response and freedom from unwanted resonances and distortions.
- **Advanced Mineral-Filled Polypropylene Bass Cones:** Highly damped and tremendously rigid, the cones provide tight, well-defined low-frequency response with a weight and authority that does justice to even the most challenging music and movie material.
- **Advanced Santoprene® Rubber and Synthetic Butyl Suspensions:** The elliptical-shaped Santoprene® rubber suspensions allowed us to achieve even lower levels of distortion with deeper and louder bass performance. Extreme linearity, the finest yet in Studio Series, is an important aspect of this design.
- **Heatsinks and AVS™ Airflow Ventilation System Cooling:** Improve high-power handling, ensure ultra-low distortion and result in greater long-term reliability.
- **High-Pressure Die-Cast Aluminum Chassis:** Control mechanical flexing and ringing. Since aluminum is non-magnetic, the possibility of magnetic loss is eliminated.
- **Satin-Anodized Solid-Aluminum Phase Plugs:** The phase plug design promotes better airflow for improved cooling and increased power handling while fostering extended frequency response. Critically shaped to further contribute to the exceptionally accurate phase response and wide dispersion.
- **Die-Cast Aluminum Rear Damping Chambers:** Asymmetrically tapered shape eliminates internal standing waves. (Dedicated midrange drivers only.)
- **Oversize Magnet Assemblies with Symmetrical Focused Field Geometry:** Low distortion and exceptional linearity even under extreme conditions.
- **Advanced Motor Structures:** High-temperature multi-layer voice coils with ventilated Apical™ formers provide tremendous accuracy, reliability and excellent linear response.



High-Frequency Drive Units

These remarkable drivers exhibit the timbral clarity and transparency otherwise associated with the best electrostatic or ribbon designs. Sonic reproduction is exceptionally smooth, detailed and completely free of spurious resonances.

- **G-PAL™ Gold-Anodized Pure-Aluminum Domes:** Exceptionally rigid low-mass domes with treated textile suspensions ensure remarkably uniform and instantaneous power response. The elevated position of the dome provides better 'air' and frequency response that is smooth, pure and clear.
- **Die-Cast Aluminum WaveGuide™ Chassis and Phase Alignment Bridge:** Promote maximally flat response, wide dispersion and accurate phase across a wide listening window.
- **High-Pressure Die-Cast Aluminum Chassis:** Eliminate mechanical flexing and ringing and provide a heatsink for superior power handling.
- **Dual High-Power Ferrite/Ceramic Magnets:** Powerful ferrite/ceramic magnet structures promote an extremely high field force in the magnetic gap and increase overall thermal mass for greater power handling.
- **Advanced Motor Structures:** Ferro-fluid cooling and damping, high-temperature voice coils and ventilated Apical™ formers ensure superb accuracy and reliability, as well as exceptionally linear response.

'Reference' Crossovers

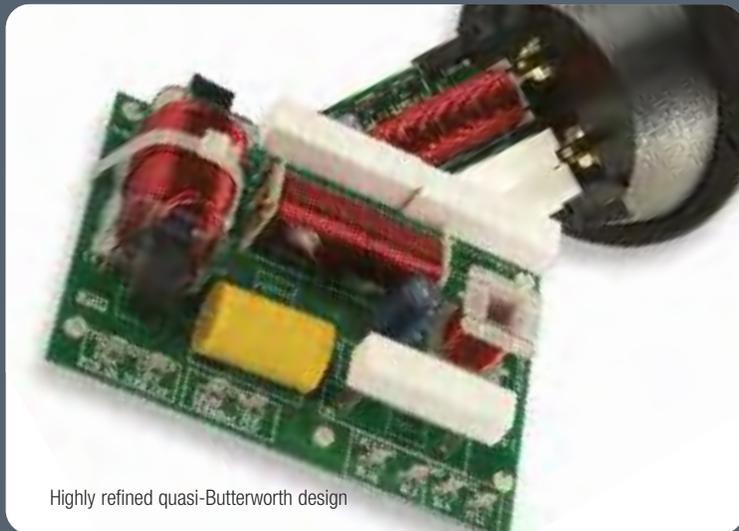
Paradigm designs, engineers and manufactures drive units with ideal response characteristics. This allows for minimal crossover networks. While this 'simple' approach requires greater R&D time, it always produces speakers with superior sonic performance.

Paradigm Reference crossovers are highly refined phase-coherent quasi-Butterworth designs, using only hand-selected close-tolerance components. These include:

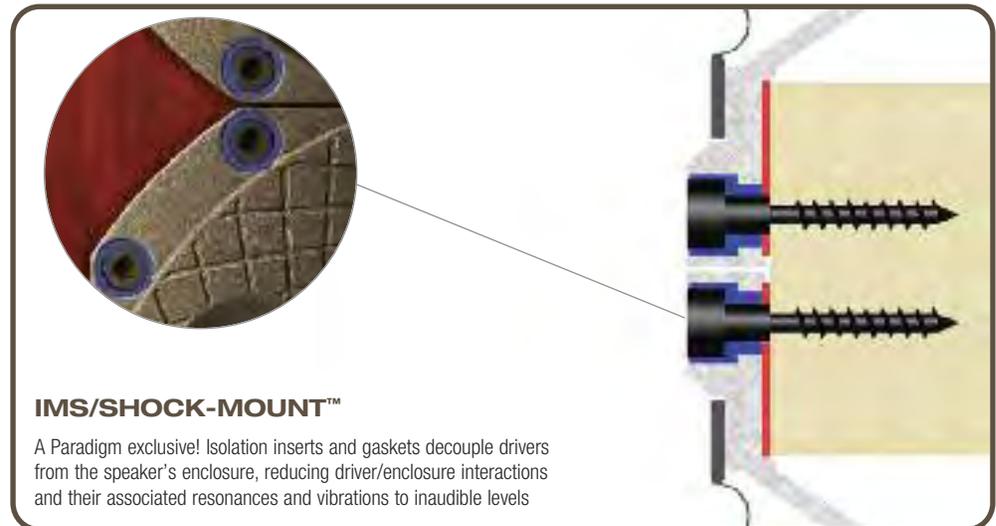
- Polypropylene capacitors
- Precision high-power ceramic resistors
- Air-core and laminated silicon steel-core inductors

Drivers and crossovers are internally connected using superior heavy-gauge HPC™ High-Purity Copper wire. High-frequency and low-frequency crossover sections are physically separated to prevent any component interaction. Slopes and crossover points are selected for seamless driver integration, thereby preserving the complex timbral and spatial information of the original performance.

Speaker inputs allow for bi-wiring or bi-amplifying using high-power gold-plated input terminals with heavy-duty jumper bars.



Highly refined quasi-Butterworth design



IMS/SHOCK-MOUNT™

A Paradigm exclusive! Isolation inserts and gaskets decouple drivers from the speaker's enclosure, reducing driver/enclosure interactions and their associated resonances and vibrations to inaudible levels

Skin Deep Beauty and Deeper!

- **Beautifully Sculpted Cabinets with Real Wood Veneer Finishes:** Add a whole new dimension to the classic appeal of this series. Seven coats of the highest quality lacquer, hand-sanded between coats. Available in three luxurious real wood veneer finishes.
- **IMS/SHOCK-MOUNT™ Isolation Mounting System:** This unique butyl-rubber driver fastening system found on all Studio Series drivers is a progressive system of critically placed isolation inserts and gaskets that decouple drivers from the speaker enclosure itself. This leading-edge 'baffle-less' technology reduces driver/enclosure interactions to inaudible levels.
- **Removable Grille Assemblies:** The latest generation of Paradigm Reference speakers is designed to sound every bit as clean, clear and transparent when playing with the grilles on or off.
- **High-Velocity Low-Noise Aluminum Ports:** Bass efficiency and minimum turbulence distortion for cleaner and more articulate bass response.
Model Feature Tip! Studio 10 features an elliptical port, a functional touch that allowed us to gain a little more and a little deeper bass response, in fact, far more than is typical in such a compact design.
- **Outrigger Feet, Optional Spikes and Stability Cradles:** Outrigger feet on floorstanding models add stability and refined visual appeal. Optional spikes are included with all floorstanding models. On center-channel models, cradles provide additional stability.

SEISMIC™ 110



Shown in Satin Black:
Seismic 110

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“Despite its adorable good looks, the Seismic 110 boasts one bodacious bark and just as big a bite.”

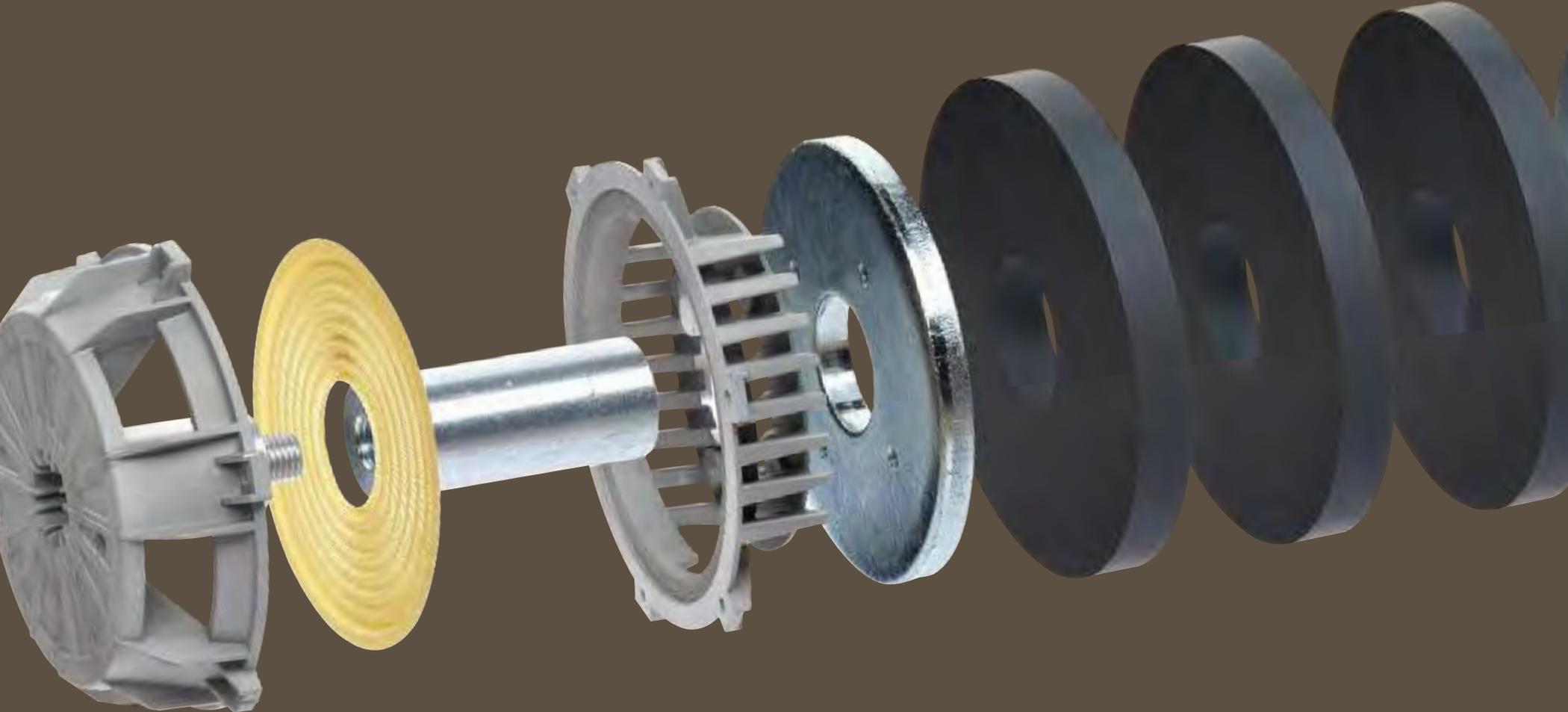
Dennis Burger, Home Entertainment

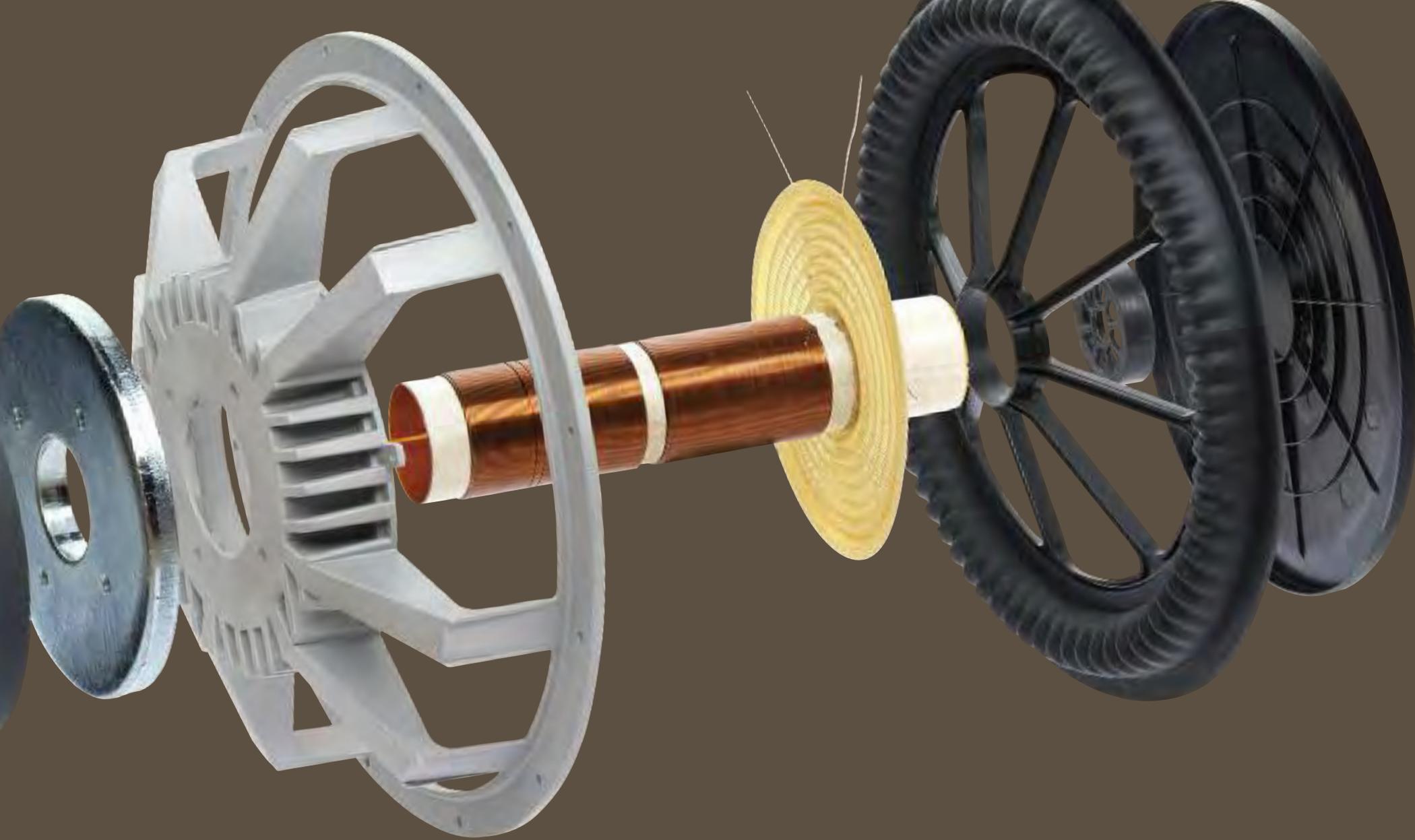
Design Innovation Achieves Maximum Performance from a Minimal Footprint!

It's all about form following function. Getting the maximum performance from the smallest envelope required a bass driver custom-designed in every aspect ...

- **Unique Two-Part Cone Construction:** The low-profile cone geometry is achieved through a two-part construction. Using the principle of triangulation to lend maximum strength to a compact form factor, the cone is built in two sections: A support cone with I-beam cross-sectional support arms locks the flat outer cone to the voice-coil. The surround is then over-molded to the outer edge which becomes an area of high strength when bonded to the outer cone.
- **Over-molded Inverted Corrugated Santoprene® Surround:** Derived from research performed on our award-winning Signature Series speakers, the corrugations allow for extreme excursion while retaining stability and exceptional centering characteristics. The inverted surround contributes to the compact low-profile form factor of the overall cone assembly.
- **Extreme Long-Winding-Width Voice Coils:** Almost 60 mm per coil! Allow 2" (50 mm) of extremely linear excursion with vanishing low levels of distortion.
- **1-1/2" (38-mm) Split Voice-Coil Construction** (see inset center picture, below): Oppositely wound turns on each coil effectively eliminate motor non-linearity. High temperature wire (adhesive rated to 450 F/232° C) ensures long-term reliability and very high power handling. **Apical™ formers** contribute to high stiffness.
- **10" (254 mm) Mineral-Filled Co-Polymer Polypropylene Cone:** With RCRTM resonance control ribs on the underside.
- **Dual Spider Suspension:** Keeps the voice-coil perfectly centered during extreme excursion.
- **AVSTM Airflow Ventilation System Cooling:** Forced-air cooling during large musical transients, chassis convection cooling at all other times.
- **10-lb (4.5 kg) Computer-Optimized Triple Magnet Assembly with Balanced Field Geometry:** Optimized to produce a powerful high-density symmetrical magnetic forcefield while minimizing inductive distortion.
- **Low-Profile High-Pressure Die-Cast Aluminum Chassis:** Control flexing and ringing. Aluminum is non-magnetic so stray magnetic losses are eliminated. Shallow basket designed to perfectly accommodate the low-profile cone, reinforcing the overall compact form factor.
- **Two 1/2-Inch (12 mm) Thick Steel Top Plates:** Provide plenty of close-contact heat-dissipating surface area and thermal mass to maximize power handling.







No Off-the-Shelf Parts: A successful collaboration between industrial, mechanical, electronic and acoustic design demonstrating just how good it gets when form follows function.

Components and Amplifier are purpose-designed and appointed to ensure the highest power and greatest level of reliability and stability from the smallest physical envelope.

Split Voice-Coil Design with an extremely long winding width allows for 2" of cone excursion with vanishing low levels of distortion. Shallow die-cast basket and 2-piece flattened cone design contribute to the compact footprint.

Fully Integrated Amp supports the low-profile design. The amplifier is mounted directly to the amplifier plate to provide EMI and shock protection. Preamp cover eliminates any possibility of air leaks.



Input Facilities

Low-Level Input – RCA: Allows connection from the RCA (S/E) Left and Right or Sub/LFE Outputs of your Preamplifier/Processor or other suitable low-level source.

Low-Level Input – Balanced XLR: Allows connection from the Balanced XLR Sub/LFE Output of your Preamplifier/ Processor or other suitable low-level source. This input provides the lowest noise and distortion. It is important for long cable runs where noise and distortion could degrade performance.

Control Facilities

Auto On/Off: Eliminates the need for a manually operated power switch. Turns the subwoofer on when there is an input signal. If no signal is present, after a period of time it turns off.

Trigger On/Off: Allows the subwoofer's power on/off to be controlled by components that have a trigger output (preamp/processor, etc.).

Subwoofer Cut-Off with Bypass Option: (Continuously variable 35 Hz – 150 Hz.) Controls the subwoofer's upper frequency cut-off and can be set to match the low-frequency roll-off characteristics of your system's speakers.

Bypass Option allows you to bypass the subwoofer's built-in cut-off control to let your preamp/processor's or receiver's internal bass management system provide the crossover function.

Subwoofer Level Control: Balances the subwoofer level with that of the other speakers in your system.

Phase Alignment: (Continuously variable 0° – 180°.) Accurately synchronizes your subwoofer and front speakers through their bass frequency overlap region.

USB Port / PBK Interface:
Allows for:

- Connection of the **Paradigm Perfect Bass Kit** digital room correction system (*sold separately*). Details pg. 31;
- Potential upgrades to software installed in your subwoofer

To 18 Hz: "... an unbelievably deep voice for such a petite frame."

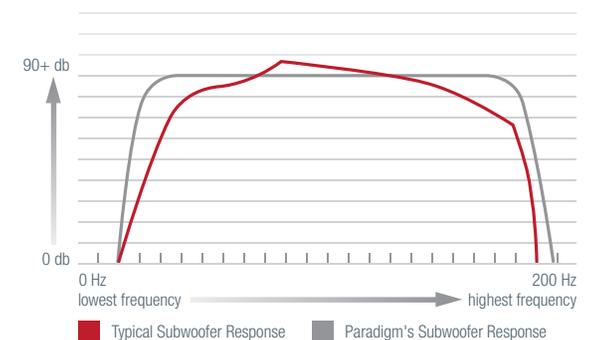
All quotes in section by **Dennis Burger**, Home Entertainment



State-of-the-art Ultra-Class-D™ amplifier housed inside the gorgeous industrial design cabinet. Form following function is once again the guiding principle ...

- **Innovative Ultra-Class-D™ Amplifier with Switching Power Supply:** More than 90% efficiency! Prodigious total output: 1,700 watts of Dynamic Peak Power; 850 watts of RMS Sustained Power.
- **Big Power from a Compact Package:** Our low-noise, ultra-high-power, compact transformer (0.4 lb / 0.18 kg) boasts an ETD-core developed particularly for applications that require high power in a small format. The switched-mode power supply benefits from: highest quality MOSFET transistors, noise-suppression networks and an advanced control circuit. The result is tremendous current with ultra-quiet operation.
- **The Full-Bridge Ultra-Class-D™ Design Output Stage:** Operates from split power supply rails ensuring exceptionally low distortion. Not only does this design increase the speed of the switching, it dramatically increases switching efficiency.
- **Precision Components and Dual-Sided Military Spec (FR-4 rated) Glass/Epoxy Circuit Boards:** Superior 'Reference' quality performance with an enviable degree of reliability.
- **Unique Temperature Sensors:** Maintain a safe operating temperature, even under extreme operating conditions.
- **Advanced Short-Circuit Protection:** Should current through the MOSFETs exceed an internally preset limit, a Silicon Controlled Rectifier (SCR) disables the output stage. Essentially a 'latching' device, the SCR will not allow the output stage to be re-enabled until power is reset. Reaction time is typically within 10 μ s.

- **Novel Adaptive PWM (Pulse Width Modulation) Power Processor:** Minimizes distortion and optimizes efficiency. Conventional Class-D designs have very low power supply rejection. Paradigm's Ultra-Class-D™ design inherently rejects variations in the power supply.
- **Paradigm's Digital Signal Processing (DSP) Design:** Sophisticated mathematical algorithms "shape" the frequency response, ensuring accurate, consistent and musical bass without audible distortion, even when the subwoofer is playing at its loudest level.

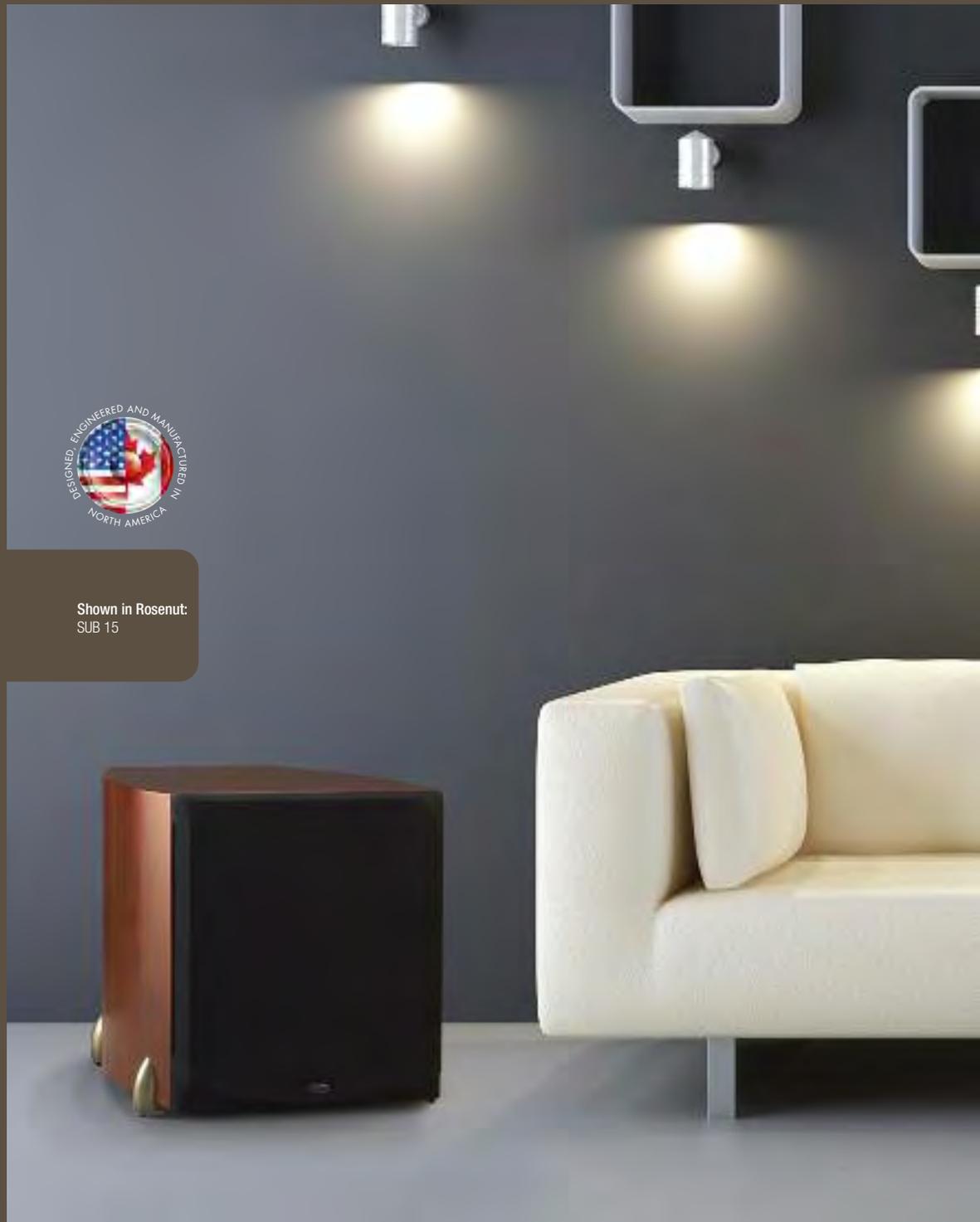


“The three ‘L’s’ are the driving force behind Paradigm’s subwoofer research . . . Louder, Lower-Frequency, Lower-Distortion Bass.”

Paradigm’s Design Team



Shown in Rosenut:
SUB 15



High-end gear has a reputation for being outrageously priced, but don't kid yourself. Sometimes, even the priciest gear delivers performance that is nothing to write home about. Today more than ever the Price-to-Performance ratio of a product must remain top of mind—and that's where Paradigm shines and why we have been voted the #1 Speaker Brand* twenty times. Our SUB 12 and SUB 15 are perfect examples of an unbeatable 'P to P' ratio ...

A natural evolution in our lineup of award-winning subwoofers, they benefit from our more than 25 years of research into the mechanics of producing louder, lower-frequency, lower-distortion bass. In fact, the three 'L's' are the driving force behind our ongoing commitment to refining and improving the performance of our subwoofers with each new generation and each new offering in the reference category (*all categories for that matter!*).

The unique amplifier/driver configuration in SUB 12 and SUB 15 allows the subs to play louder and lower than any other subwoofers in their price range and despite all the involved technology, dollar for dollar, they still cost less! Unlike many designs on the market, not a hint of low-frequency extension or output was sacrificed to keep their size compatible with today's living spaces while a comprehensive range of input and control facilities make setting them up a snap.

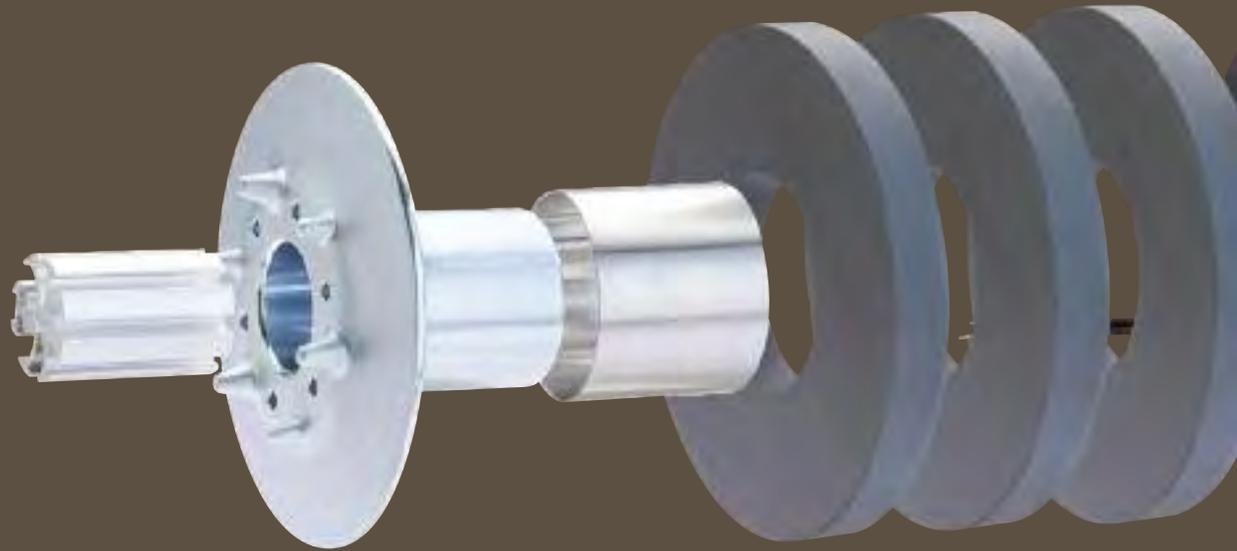
Finally, since the room itself (dimensions, dead spots, archways, even furniture!) can have a dramatic negative impact when even the finest subwoofers are perfectly positioned in a room, Paradigm offers a solution! SUB 12 and SUB 15 can be used with the critically acclaimed **Paradigm Perfect Bass Kit**, our own digital room correction system which scientifically adjusts for the room's negative effects on bass quality.

*#1 Best Price/Value. Inside Track Dealer Survey. An annual independent nationwide survey of consumer electronics specialist retailers and custom installers.

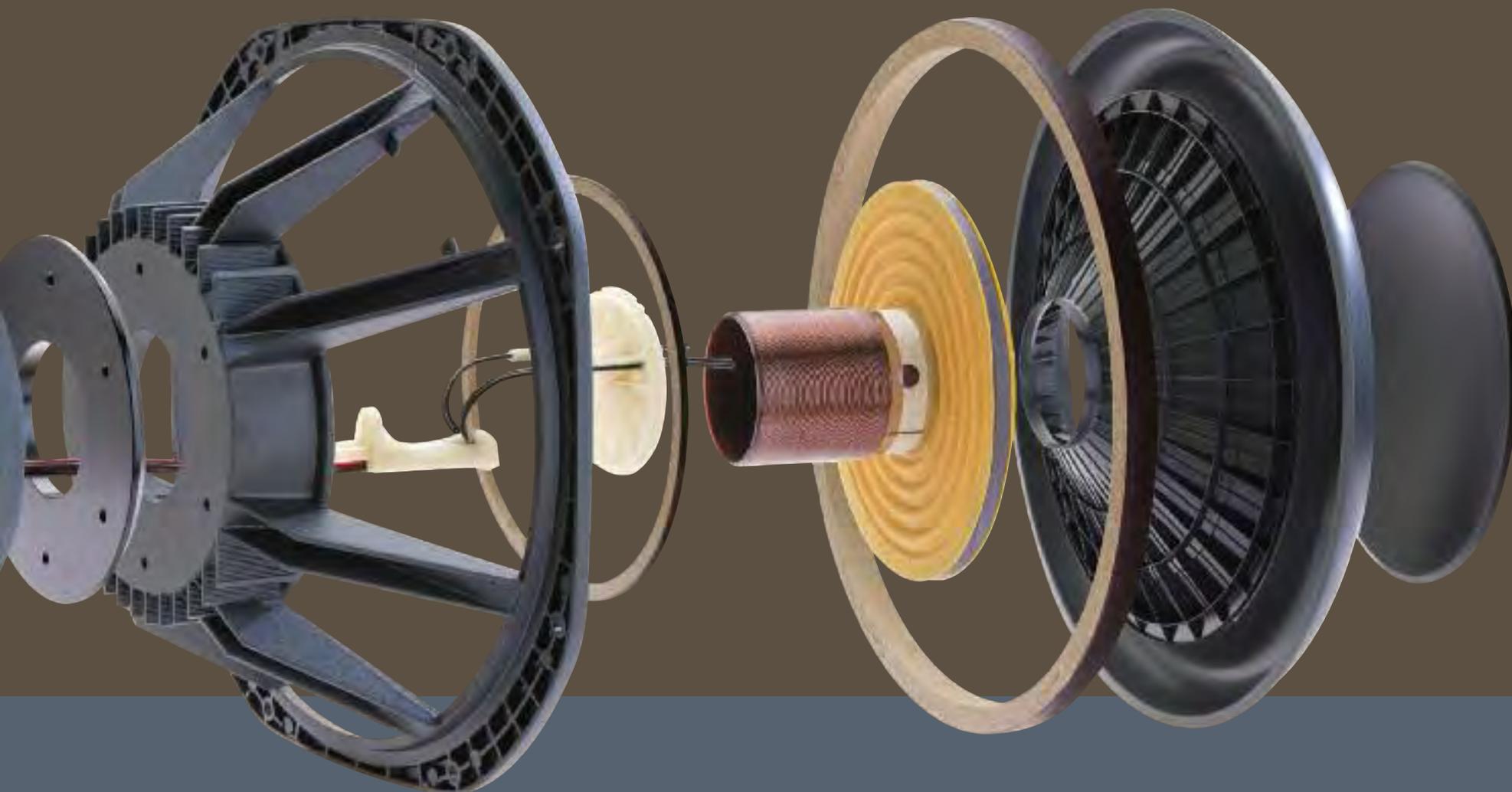
ART
EMBRACING
SCIENCE™

High-Excursion Bass Drivers

12" (308 mm) driver in the SUB 12 and 15" (380 mm) in the SUB 15. With unwanted resonances, standing waves and micro-distortions non-existent, these subwoofers display incredible definition, awe-inspiring dynamics, lightning-fast speed and gut-wrenching power.



- **Mineral-Filled Co-Polymer Polypropylene Cones with RCR™ Resonance Control Ribs:** Engineered for very high power, the high-stiffness design is intrinsically low in distortion, allowing the bass cone to respond instantly to the starts and stops of even the leading edge of changing bass notes.
- **Large High-Pressure Die-Cast Aluminum Chassis**
- **Dual-Voice-Coil Design! 3-Inch (76 mm) Aluminum Voice Coils:** Wound on high-temperature Kapton® formers in an oversize configuration, the multi-layer voice coils provide exceptional linearity and motor strength.
- **Advanced Multi-Layer Polyurethane-Composite Elliptical Surrounds and Dual Oversize Spiders:** Optimized using Finite Element Analysis (FEA), a highly advanced tool for component design, the surrounds' multi-layer composite matrix, with its high-tech surface treatment, encourages staggering peak-to-peak excursion—with exceptional linearity and cone control.
- **Large Aluminum Shorting Rings:** Situated around the voice coil, the rings not only improve linearity and heat dissipation, they also help reduce voice coil inductance and distortion.
- **Proprietary AVS™ Airflow Ventilation System Cooling:** Large built-in ribs increase the heat dissipation surface, providing forced-air cooling during large musical transients and chassis convection cooling at all other times.
- **Extruded-Aluminum Center Heatsinks:** Provide internal forced-air cooling to drive heat away from the FEA-optimized pole piece, increasing power handling while reducing distortion.
- **35-lb (15.8 kg) Magnet Assemblies Boast Balanced Field Geometry:** FEA-optimized to produce a powerful high-density symmetrical magnetic forcefield while minimizing inductive distortion. Transient and phase response, power handling and output linearity are all exceptional.



Input Facilities

Low-Level Input – RCA: Allows connection from the RCA (S/E) Left and Right or Sub/LFE Outputs of your Preamp/Processor or other suitable low-level source.

Low-Level Input – Balanced XLR: Allows connection from the Balanced XLR Sub/LFE Output of your Preamp/ Processor or other suitable low-level source. This input provides the lowest noise and distortion. It is particularly important for long cable runs where noise and distortion could degrade performance.

Control Facilities

Auto On/Off: Eliminates the need for a manually operated power switch. Turns the subwoofer on when there is an input signal. If no signal is present, after a period of time it turns off.

Trigger On/Off: Allows the subwoofer's power on/off to be controlled by components that have a trigger output (preamp/processor, etc.).

Subwoofer Cut-Off with Bypass Option: (Continuously variable 35 Hz – 150 Hz) Controls the sub's upper frequency cut-off and can be set to match the low-frequency roll-off characteristics of your system's speakers.

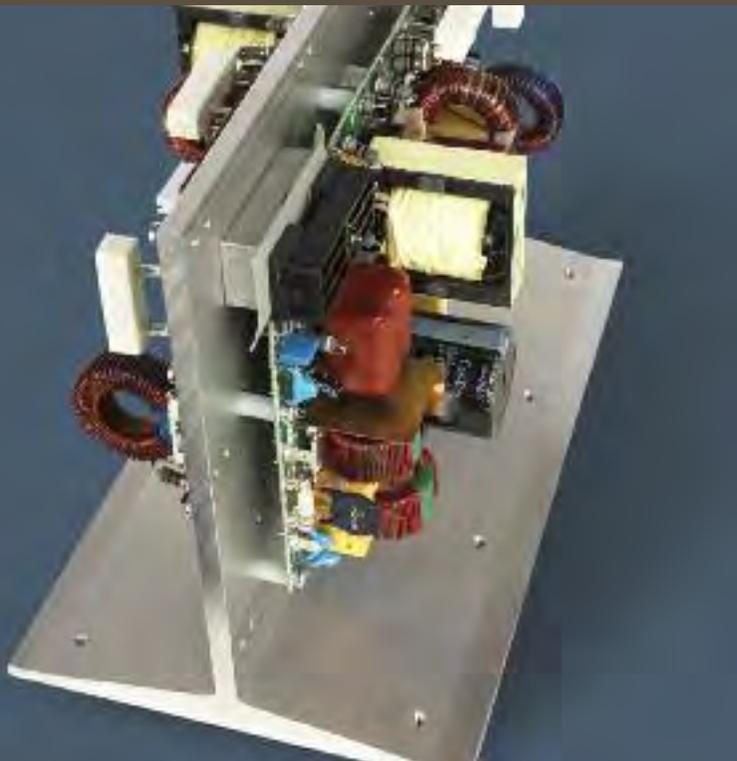
Bypass Option allows you to bypass the built-in cut-off control to let your preamp/processor's or receiver's internal bass management provide the crossover function.

Subwoofer Level Control: Balances the subwoofer level with that of the other speakers in your system.

Phase Alignment: (Continuously variable 0° – 180°) Accurately synchronizes your subwoofer and front speakers through their bass frequency overlap region.

USB Port. Allows for:

- Connection of the optional **Paradigm Perfect Bass Kit (PBK)** (sold separately). Details pg. 31;
- Potential upgrades to software installed in your subwoofer.



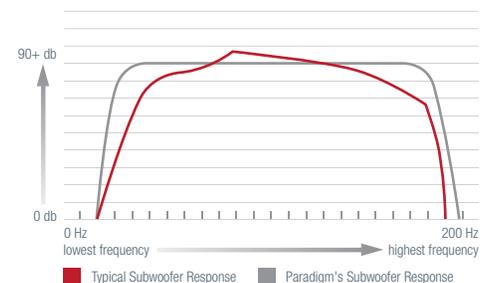
DUAL ULTRA-CLASS-D™ AMPLIFIERS

Small Form Factor. BIG POWER!

Designed, engineered and manufactured by Paradigm in North America, this unique design features dual state-of-the-art Ultra-Class-D™ amplifiers housed inside one cabinet. State-of-the-art component parts:

- Dual Efficient Ultra-Class-D™ Amplifiers with Switching Power Supplies:** Boast more than 90% efficiency! Optimized to completely control the operation of the bass driver. Prodigious total output: 3,400 watts of Dynamic Peak Power; 1,700 watts (850 watts each amplifier) of RMS Sustained Power.
- More Power from a Smaller Package. How to achieve this?** One of the things to consider is the choice of transformer. Our low-noise, ultra-high-power, yet compact transformer (0.4 lb / 0.18 kg) is ideal. Unlike the large and heavy transformers in a linear power supply, it boasts an ETD-core developed particularly for applications that require high power in a small format. Yet the transformer is only part of the advanced system on each of these amplifiers. The switchmode power supply benefits from: highest quality MOSFET transistors, noise-suppression networks and an advanced control circuit. The result is tremendous current with ultra-quiet operation.
- Proprietary Amplifier Temperature Sensors:** Maintain the safe operating temperature of the dual amplifiers, even under extreme operating conditions.
- Advanced Short-Circuit Protection:** If current through the MOSFETs exceeds an internally preset limit, a Silicon Controlled Rectifier (SCR) disables the output stage. Essentially a 'latching' device, the SCR will not allow the output stage to be re-enabled until power is reset. Reaction time is typically within 10 μ s.
- Novel Adaptive PWM (Pulse Width Modulation) Power Processor:** Minimizes distortion and optimizes efficiency. Conventional Class-D designs have very low power supply rejection. Paradigm's Ultra-Class-D™ design inherently rejects variations in the power supply.
- Paradigm's Own Digital Signal Processing (DSP) Design:** Sophisticated mathematical algorithms 'shape' the sub's frequency response, ensuring accurate, consistent and musical bass without audible distortion, even when the subwoofers are playing at the loudest levels:
- Full-Bridge Ultra-Class-D™ Design Output Stage:** Operates from split power supply rails ensuring exceptionally low distortion. The high-quality output filter inductors with super-efficient toroidal cores, four high-quality MOSFET transistors on each amplifier (each capable of carrying 65 amps of continuous current), and a noise-suppression network play a significant role. Not only does this design increase the speed of the switching, it also dramatically increases switching efficiency.
- Precision Components and Dual-Sided Military Spec (FR-4 rated) Glass/Epoxy Circuit Boards:** Superior 'Reference' quality performance with an enviable degree of reliability over the long term.

USB interface for optional Paradigm Perfect Bass Kit and future updates to software installed on your subwoofer



OPTIMIZING THE DESIGN



Less Heat, More Power, No Noise!

It's one thing to house two 850-watt Ultra-Class-D™ amplifiers in a single cabinet, it's quite another to ensure that all of that power is harnessed for effective and efficient delivery, without a maelstrom of unwanted sonic side effects.

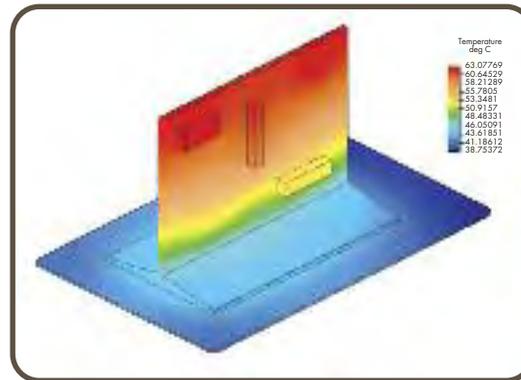
Our sophisticated R&D facilities held the answer. We enjoy a number of highly advanced tools for component design. One of these is Finite Element Analysis (FEA), an invaluable process when monitoring a design for efficient heat dissipation or performing stress analyses.

Using FEA, the 'T-shape' center aluminum extrusion to which each amplifier is attached was optimized to obtain exceptional heat dissipation away from the amplifiers (see diagram below). An FEA modal frequency analysis was also done to ensure the entire assembly is free of unwanted resonances and vibrations.

Even the correct size and thickness (3.2 mm) of the amplifier panel was calculated to obtain optimal heat dissipation-to-size ratio. Finally, a fully sealed preamplifier board cover (inset bottom left) eliminates the possibility of air leaks.

Close-up of unique 7-mm thick FEA-optimized high-grade aluminum 'T-extrusion' (see left)

'T-extrusion' shown below without amplifiers to illustrate heat dissipation effectiveness ...



Cross-Cut Tunnel Bracing™

Conventional enclosures store energy. At various frequencies, the enclosure vibrates (like a tuning fork) at audible levels for a short period of time. These uncontrolled vibrations smear the sound, resulting in a loss of accuracy and clarity. Superior high-end bass performance, the caliber for which Paradigm Reference subwoofers are known, requires a supremely rigid and sonically inert cabinet. But how to achieve this in a cabinet slated to hold not one, but two ultra-powerful amplifiers, as well as a large state-of-the-art driver? The solution ...

- Medium Density Fiberboard (MDF) composition throughout;
- A thick 1" MDF front baffle provides additional rigidity;
- Critically placed internal damping fiber provides excellent absorption of stray rear wave or internal standing wave energy;
- The fully veneered cabinet also adds rigidity.

Finite Element Analysis (FEA) played a major role, yet again:

- Size, thickness and location of the tunnel bracing in relation to overall size and weight of the cabinet were optimized using FEA;
- Size and position of the cross-cuts along each brace were also FEA-optimized to obtain the most effective 'strength-to-air' surface area.

Driver chassis and amplifier panel were physically recessed into the cabinet to maintain the clean lines.

PARADIGM PERFECT BASS KIT

PBK shown in a 5.1 setup with primary listening position marked

1

1

ART
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Paradigm's Perfect Bass Kit (PBK) is a derivative of the critically acclaimed Anthem Room Correction (ARC) system based on research conducted by the National Research Council, of which Paradigm was a participant. Our NRC's goal was to identify the correct 'in-room' target response for a loudspeaker (in this case, the subwoofer) and develop a way to achieve that same response in the average listening room. Using proprietary processing, PBK measures your subwoofer's frequency response and then computes the target response to yield optimal bass performance in your room. Each PBK can be used with all USB equipped Paradigm subwoofers.

(NOTE: 1 microphone and stand included; photo depicts the mic in five different listening positions.)



“Audibly better bass through science.”

Chris Martens, AV Guide

Paradigm Perfect Bass Kit

Even when the world's finest subwoofers are perfectly placed, the room can still have a dramatic impact on performance. Room dimensions, dead spots, archways, and even furniture placement can turn a room into an additional instrument, playing alongside musicians or movie scores with unwanted contributions of coloration and resonance. Bass can sound bloated or boomy, with poor definition. Paradigm's Perfect Bass Kit is the answer ...

- **PBK is unlike anything previously available:** With the Paradigm Perfect Bass Kit, the negative effects of room boundaries on sound quality are a thing of the past. This state-of-the-art 'bass perfecting' system analyzes the subwoofer's response in your room, then sets the correct equalization parameters to attain optimal sound.

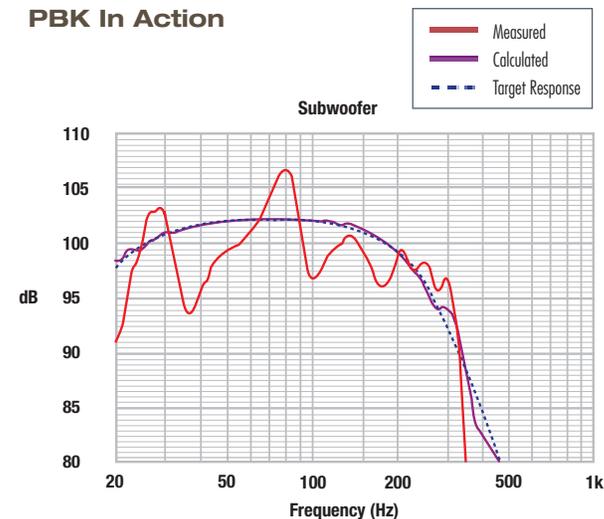
The frequency response of each PBK microphone is measured precisely and the data is used to create the microphone's calibration file included on the PBK software disk.
- **PBK applies Super-Efficient Infinite Impulse Response (IIR) Filters in addition to Paradigm's Custom Filter Topology:** This minimizes delay and reduces processing gain noise. The combined approach of limiting the width of IIR filters and applying custom topology means that any artifacts that might have resulted from the filtering process are so small as to be completely inaudible.
- **PBK allows for Multiple Microphone Measurements:** Most room equalization methods work from a single point source, taking one measurement at the primary listening position. PBK however, provides for multiple user-selected measurement points (we suggest a minimum of five, but up to ten positions can be measured).

- **Unlike many 'Room EQ' systems, PBK applies Correction to Peaks (modes) and Dips (anti-modes):** Tackling both allows us to achieve a far more accurate and natural room response. And to limit the demands on the amplifier as well as maximize signal-to-noise ratio, PBK applies appropriate limits to this correction.
- **PBK is Ultra-Accurate:** The connected PC's 64-bit floating-point processor does the hard work of calculating the correction curves, which greatly minimizes the rounding errors of a less sophisticated 'calculator'.
- **It's Easy-to-Use (at least your part is!):** Three years of intensive research and development on our part have made it a snap to attain 'Perfect Bass' performance in any room! All that's required is a PC running Windows XP or Vista, two USB ports and the Paradigm Perfect Bass Kit. Paradigm even includes the two USB cables you'll need: one for the PBK microphone and one for the subwoofer.

How does PBK do what it does?

The process begins when your computer signals the subwoofer to play the test signal, which is then picked up by the individually calibrated microphone. The system puts the subwoofer through a frequency sweep to highlight problem areas and determine necessary adjustments. It asks you to position the microphone in at least five different locations. Configurations are then saved on the connected PC. The optimized solutions are calculated, then uploaded to the subwoofer and the calculated room corrections are put in place. An audiophile solution to the problem of 'the room'!

PBK In Action



SPECIFICATIONS



MilleniaOne



Millenia 20



Millenia 30

Design	2-driver, 2-way vented die-cast aluminum enclosure with integrated baffle and chassis. Includes stands and mounting hardware	5-driver, 2-way acoustic suspension, LCR, on-wall / stand / shelf-mounted	5-driver, 2-way acoustic suspension, LCR, on-wall / shelf-mounted
Crossover(s)	3rd-order electro-acoustic at 2.2 kHz	2nd-order electro-acoustic at 2.0 kHz	2nd-order electro-acoustic at 2.0 kHz
High-Frequency Driver(s)	25-mm (1 in) S-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis	25-mm (1 in) S-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis	25-mm (1 in) S-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis
Bass / Midrange Driver(s) (Midrange for ADP)	115-mm (4 in) S-PAL™ cone, 25-mm (1 in) voice coil, AVS die-cast heatsink chassis	Two 115-mm (4-1/2 in) MLP™ cones, 25-mm (1 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis	Two 140-mm (5-1/2 in) MLP™ cones, 38-mm (1-1/2 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis
Bass Driver(s)	n/a	Two 115-mm (4-1/2 in) mineral-filled polypropylene cones, 25-mm (1 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis	Two 140-mm (5-1/2 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis
Low-Frequency Extension*	76 Hz (DIN)*	77 Hz (DIN)*	76 Hz (DIN)*
Frequency Response: On-Axis 30° Off-Axis	±2 dB from 120 Hz – 20 kHz ±2 dB from 120 Hz – 18 kHz	±2 dB from 110 Hz – 20 kHz ±2 dB from 110 Hz – 18 kHz	±2 dB from 110 Hz – 20 kHz ±2 dB from 110 Hz – 18 kHz
Sensitivity – Room / Anechoic	89 dB / 86 dB	92 dB / 89 dB	94 dB / 91 dB
Suitable Amplifier Power Range	15 – 100 watts	15 – 150 watts	15 – 200 watts
Maximum Input Power†	50 watts	110 watts	130 watts
Impedance	Compatible with 8 ohms	Compatible with 8 ohms	Compatible with 8 ohms
Dimensions: Enclosure (h x w x d) (Height for 200/300 includes base/spikes/cones) Glass Base (w x d)	19.5 cm x 11.5 cm x 14.5 cm 7-3/4 in x 4-1/2 in x 5-3/4 in n/a	65.8 cm x 13.0 cm x 11.7 cm 25-7/8 in x 5-1/8 in x 4-5/8 in n/a	90.0 cm x 15.1 cm x 13.7 cm 35-3/8 in x 5-7/8 in x 5-3/8 in n/a
System Weight (Unpacked)	2.45 kg / 5.4 lb each (unpacked, not including stand/hardware) 2.96 kg / 6.5 lb each (unpacked, including stand/hardware)	5.7 kg / 12.6 lb each	8 kg / 17.6 lb each
Finish(es)	Gloss Black, Gloss White	Black Chrome	Black Chrome
Speaker Stands / Accessories Included	Tabletop / Shelf Stands and Wall Mounting Brackets	LS-18	n/a



Millenia 20 Trio

9-driver, 3-channel, 2-way acoustic suspension, on-wall / shelf-mounted

2nd-order electro-acoustic at 2.0 kHz, 2nd-order electro-acoustic at 800 Hz (bass drivers on Left and Right channels)

Three 25-mm (1 in) S-PAL™ domes, ferro-fluid damped / cooled, die-cast chassis

Four 115-mm (4-1/2 in) MLP™ cones, 25-mm (1 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis

Two 115-mm (4-1/2 in) mineral-filled polypropylene cones, 25-mm (1 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis

80 Hz (DIN)*

±2 dB from 120 Hz – 20 kHz
±2 dB from 120 Hz – 18 kHz

90 dB / 87 dB

15 – 150 watts

90 watts / channel

Compatible with 8 ohms

13.0 cm x 105.0 cm x 12.0 cm
5-1/8 in x 41-1/8 in x 4-5/8 in
n/a

8.2 kg / 18 lb each

Black Chrome

n/a



Millenia 200

6-driver, 2-1/2-way bass reflex, floorstanding design

2nd-order electro-acoustic at 2.0 kHz, 2nd-order electro-acoustic at 800 Hz (bass drivers)

25-mm (1 in) S-PAL™ dome, ferro-fluid damped / cooled, die-cast chassis

Two 115-mm (4-1/2 in) MLP™ cones, 25-mm (1 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis

Three 115-mm (4-1/2 in) mineral-filled polypropylene cones, 25-mm (1 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis

55 Hz (DIN)*

±2 dB from 87 Hz – 20 kHz
±2 dB from 87 Hz – 18 kHz

92 dB / 89 dB

15 – 150 watts

130 watts

Compatible with 8 ohms

120.0 cm x 13.0 cm x 15.0 cm
47-1/4 in x 5-1/8 in x 5-7/8 in
23.8 cm x 22.8 cm / 9 in x 9-3/8 in

11.6 kg / 25.6 lb each

Black Chrome

n/a



Millenia 300

6-driver, 2-1/2-way bass reflex, floorstanding design

2nd-order electro-acoustic at 2.0 kHz, 2nd-order electro-acoustic at 200 Hz (bass drivers)

25-mm (1 in) S-PAL™ dome, ferro-fluid damped / cooled, die-cast chassis

Two 140-mm (5-1/2 in) MLP™ cones, 38-mm (1-1/2 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis

Three 140-mm (5-1/2 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis

54 Hz (DIN)*

±2 dB from 87 Hz – 20 kHz
±2 dB from 87 Hz – 18 kHz

94 dB / 91 dB

15 – 200 watts

150 watts

Compatible with 8 ohms

133.3 cm x 15.1 cm x 17.5 cm
52-1/2 in x 5-7/8 in x 6-7/8 in
25.4 cm x 24.1 cm / 10 in x 9-1/2 in

13 kg / 28.5 lb each

Black Chrome

n/a



Millenia ADP

5-driver, 3-way acoustic suspension, cast-aluminum / ABS enclosure, surround / rear, on-wall / bookshelf / stand-mounted

1st-order electro-acoustic at 2.0 kHz, 2nd-order electro-acoustic at 300 Hz (bass driver)

Two 25-mm (1 in) S-PAL™ domes, ferro-fluid damped / cooled, die-cast chassis

Two 102-mm (4 in) MLP™ cones, 25-mm (1 in) dual-layer voice coils, HTD™ system die-cast heatsink chassis

150-mm (6 in) mineral-filled polypropylene cone, 38-mm (1-1/2 in) dual-layer voice coil, HTD™ system die-cast heatsink chassis

62 Hz (DIN)*

±2 dB from 95 Hz – 20 kHz
(Reverberant Soundfield)

88 dB / 85 dB

15 – 200 watts

100 watts

Compatible with 8 ohms

20.9 cm x 30.4 cm x 17.6 cm
8-1/4 in x 12 in x 7 in
n/a

6.0 kg / 13 lb each

Black / Dark Gray, White / Light Silver

GS-30

SPECIFICATIONS



Studio 10



Studio 20



Studio 60



Studio 100

	Studio 10	Studio 20	Studio 60	Studio 100
Design	2-driver, 2-way, bookshelf / stand-mounted	2-driver, 2-way, bookshelf / stand-mounted	4-driver, 2-1/2-way, floorstanding	5-driver, 3-way, floorstanding
Crossover(s)	2nd-order electro-acoustic at 2.0 kHz	2nd-order electro-acoustic at 2.0 kHz	2nd-order electro-acoustic at 2.0 kHz, 2nd-order electro-acoustic at 500 Hz (lower bass drivers)	3rd-order electro-acoustic at 2.0 kHz, 3rd-order electro-acoustic at 300 Hz (bass drivers)
High-Frequency Driver	25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™	25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™	25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™	25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™
Midrange Driver(s)	n/a	n/a	n/a	178-mm (7 in) S-PAL™ cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™
Bass / Midrange Driver(s)	140-mm (5-1/2 in) S-PAL™ cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	178-mm (7 in) S-PAL™ cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	140-mm (5-1/2 in) S-PAL™ cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	n/a
Bass Driver(s)	n/a	n/a	Two 140-mm (5-1/2 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™	Three 178-mm (7 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™
Low-Frequency Extension*	37 Hz (DIN)*	36 Hz (DIN)*	29 Hz (DIN)*	25 Hz (DIN)*
Frequency Response: On-Axis 30° Off-Axis	±2 dB from 62 Hz – 22 kHz ±2 dB from 62 Hz – 20 kHz	±2 dB from 54 Hz – 22 kHz ±2 dB from 54 Hz – 20 kHz	±2 dB from 45 Hz – 22 kHz ±2 dB from 45 Hz – 20 kHz	±2 dB from 44 Hz – 22 kHz ±2 dB from 44 Hz – 20 kHz
Sensitivity – Room / Anechoic	89 dB / 86 dB	90 dB / 87 dB	92 dB / 89 dB	93 dB / 90 dB
Suitable Amplifier Power Range	15 – 150 watts	15 – 180 watts	15 – 220 watts	15 – 350 watts
Maximum Input Power†	90 watts	110 watts	170 watts	230 watts
Impedance	Compatible with 8 ohms	Compatible with 8 ohms	Compatible with 8 ohms	Compatible with 8 ohms
Height, Width, Depth (Heights include spikes or outrigger feet; widths exclude feet)	30.3 cm x 20.0 cm x 30.1 cm 12 in x 7-7/8 in x 11-7/8 in	37.2 cm x 22.5 cm x 33.5 cm 14-5/8 in x 8-7/8 in x 13-1/8 in	101.8 cm x 20.0 cm x 30.1 cm 40-1/8 in x 7-7/8 in x 11-7/8 in	112.0 cm x 24.1 cm x 43.1 cm 44-1/8 in x 9-1/2 in x 17 in
Weight (Unpacked)	8.0 kg / 18 lb each	10.7 kg / 24 lb each	22.7 kg / 50 lb each	35.4 kg / 78 lb each
Finishes	Cherry, Rosenuit, Black Ash, Piano Black	Cherry, Rosenuit, Black Ash, Piano Black	Cherry, Rosenuit, Black Ash, Piano Black	Cherry, Rosenuit, Black Ash, Piano Black
Speaker Stand(s)	J-29	J-29	n/a	n/a



Studio CC-490

4-driver, 3-way, center channel

2nd-order electro-acoustic at 2.1 kHz, 2nd-order electro-acoustic at 500 Hz (bass drivers)

25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™

89-mm (3-1/2 in) S-PAL™ cone, ferro-fluid damped / cooled, 25-mm (1 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

n/a

Two 140-mm (5-1/2 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

43 Hz (DIN)*

±2 dB from 65 Hz – 20 kHz
±2 dB from 65 Hz – 18 kHz

90 dB / 87 dB

15 – 200 watts

150 watts

Compatible with 8 ohms

21.1 cm x 48.8 cm x 28.9 cm
8-3/8 in x 19-1/4 in x 11-3/8 in

12.2 kg / 27 lb each

Cherry, Rosenut, Black Ash, Piano Black

J-18C



Studio CC-590

4-driver, 3-way, center channel

2nd-order electro-acoustic at 2.5 kHz, 2nd-order electro-acoustic at 400 Hz (bass drivers)

25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™

115-mm (4-1/2 in) S-PAL™ cone, ferro-fluid damped / cooled, 25-mm (1 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

n/a

Two 178-mm (7 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

36 Hz (DIN)*

±2 dB from 55 Hz – 20 kHz
±2 dB from 55 Hz – 18 kHz

91 dB / 88 dB

15 – 220 watts

170 watts

Compatible with 8 ohms

23.7 cm x 66.6 cm x 32.0 cm
9-3/8 in x 26-1/4 in x 12-5/8 in

17.7 kg / 39 lb each

Cherry, Rosenut, Black Ash, Piano Black

J-18C



Studio CC-690

6-driver, 3-way, center channel

2nd-order electro-acoustic at 3.0 kHz, 2nd-order electro-acoustic at 500 Hz (bass drivers)

25-mm (1 in) G-PAL™ dome, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™

115-mm (4-1/2 in) S-PAL™ cone, ferro-fluid damped / cooled, 25-mm (1 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

Two 178-mm (7 in) S-PAL™ cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

Two 178-mm (7 in) mineral-filled polypropylene cones, 38-mm (1-1/2 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

32 Hz (DIN)*

±2 dB from 47 Hz – 20 kHz
±2 dB from 47 Hz – 18 kHz

93 dB / 90 dB

15 – 300 watts

210 watts

Compatible with 8 ohms

25.3 cm x 94.5 cm x 41.9 cm
10 in x 37-1/4 in x 16-1/2 in

31.8 kg / 70 lb each

Cherry, Rosenut, Black Ash, Piano Black

J-18C



Studio ADP-590

5-driver, 3-way, surround / rear, reverberant soundfield, wall-mount bracket included

1st-order electro-acoustic at 2.1 kHz, 2nd-order electro-acoustic at 300 Hz (bass driver)

Two 25-mm (1 in) G-PAL™ domes, ferro-fluid damped / cooled, die-cast heatsink chassis, IMS/SHOCK-MOUNT™

Two 89-mm (3-1/2 in) S-PAL™ cones, ferro-fluid damped / cooled, 25-mm (1 in) voice coils, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

n/a

178-mm (7 in) mineral-filled polypropylene cone, 38-mm (1-1/2 in) voice coil, AVS™ die-cast heatsink chassis, IMS/SHOCK-MOUNT™

60 Hz (DIN)*

±2 dB from 85 Hz – 20 kHz
(reverberant soundfield)

88 dB / 85 dB

15 – 180 watts

130 watts

Compatible with 8 ohms

22.0 cm x 37.5 cm x 17.0 cm
8-3/4 in x 14-3/4 in x 6-5/8 in

7.9 kg / 17 lb each

Black, White

J-29, S-26

SPECIFICATIONS



Seismic 110



SUB 12



SUB 15

Design	Single high-excursion driver, sealed enclosure, patented built-in Ultra-Class-D™ power amplifier, USB port / PBK interface	.Single high-excursion driver, sealed enclosure, patented built-in Ultra-Class-D™ power amplifier, USB port / PBK interface	Single high-excursion driver, sealed enclosure, patented built-in Ultra-Class-D™ power amplifier, USB port / PBK interface
Amplifier: High-Current, Discrete Output	High-Current Discrete-Output: 1,700 watts Dynamic Peak / 850 watts RMS Sustained	3,400 watts Dynamic Peak / 1,700 watts RMS	3,400 watts Dynamic Peak / 1,700 watts RMS
Amplifier Features	Auto-On/Off; Trigger-On/Off; soft clipping; electrical shorting protection; thermal protection	Auto-On / Off, Trigger-On / Off, soft clipping, electrical shorting protection, thermal protection	Auto-On / Off, Trigger-On / Off, soft clipping, electrical shorting protection, thermal protection
Bass Driver(s)	254-mm (10 in) high-excursion mineral-filled co-polymer polypropylene cone with RCR™ resonance-control ribbing on underside; FEA-optimized overmolded, inverted Santoprene® surround; 38-mm (1-1/2 in) diameter split voice-coil construction (60-mm coil lengths); dual Nomex® spiders; high-temperature Apical™ formers; dual 12-mm-thick top plates; 10-lb (4.5 kg) triple ceramic (hard ferrite) magnet structure; AVS™ die-cast heatsink chassis	305-mm (12 in) RCR™ mineral-filled co-polymer polypropylene cone with RCR™ resonance-control ribbing; FEA-optimized multi-layer polyurethane-composite elliptical surround, 76-mm (3 in) dual-aluminum high-temperature multi-layer voice coil wound on high-temperature Kapton® formers; dual oversize Nomex® spiders; large aluminum shorting ring; 35 lb (15.8 kg) ceramic (hard ferrite) magnet structure; AVS™ die-cast heatsink chassis	380-mm (15 in) RCR™ mineral-filled co-polymer polypropylene cone with RCR™ resonance-control ribbing; FEA-optimized multi-layer polyurethane-composite elliptical surround, 76-mm (3 in) dual-aluminum high-temperature multi-layer voice coil wound on high-temperature Kapton® formers; dual oversize Nomex® spiders; large aluminum shorting ring; 35 lb (15.8 kg) ceramic (hard ferrite) magnet structure; AVS™ die-cast heatsink chassis
Low-Frequency Extension*	18 Hz (DIN)	16 Hz (DIN)*	12 Hz (DIN)*
Subwoofer Cut-Off Frequency	Variable 35 Hz – 150 Hz; Bypass Option	Variable 35 Hz – 150 Hz; Bypass Option	Variable 35 Hz – 150 Hz; Bypass Option
Sub / Sat Phase Alignment	Variable 0° – 180°	Variable 0° – 180°	Variable 0° – 180°
Line-Level Input	RCA (S/E) Left and Right or Sub-Out / LFE or Balanced XLR. From Sub-Out / LFE-Out of preamp/processor or other line-level source	RCA (S/E) Left and Right or Sub-Out / LFE or Balanced XLR. From Sub-Out / LFE-Out of preamp/processor or other line-level source	RCA (S/E) Left and Right or Sub-Out / LFE or Balanced XLR. From Sub-Out / LFE-Out of preamp/processor or other line-level source
Line-Level Input Sensitivity	100 mV mono	100 mV mono	100 mV mono
Line-Level Input Impedance	RCA: 10k ohms; XLR: 20k ohms	RCA: 10k ohms; XLR: 20k ohms	RCA: 10k ohms; XLR: 20k ohms
Height, Width, Depth (Heights include feet for SUB 12 and SUB 15)	34.3 cm x 29.8 cm x 32.0 cm 13-1/2 in x 11-3/4 in x 12-9/16 in	44.3 cm x 40.7 cm x 54.6 cm 17-7/16 in x 16 in x 21-1/2 in	49.5 cm x 49.5 cm x 55.9 cm 19-1/2 in x 19-1/2 in x 22 in
Weight (Unpacked)	16.8 kg / 37 lb each	39.9 kg / 88 lb each	46.7 kg / 103 lb each
Finish(es)	Satin Black	Cherry, Rosenuit, Piano Black, Black Ash	Cherry, Rosenuit, Piano Black, Black Ash
Accessory (sold sep.)	Paradigm Perfect Bass Kit™	Paradigm Perfect Bass Kit™	Paradigm Perfect Bass Kit™

SPECIFICATIONS



MilleniaSub



Wireless Option
(Using Paradigm PT-2 Transmitter)

Design

Dual driver, sealed cabinet, vibration-cancelling, built-in Ultra-Class-D™ power amplifier, built-in wireless RF receiver for wireless option, USB port for PBK equalization.

RF Frequency

2.4 GHz

Amplifier: High-Current, Discrete Output

High-Current Discrete-Output: 900 watts Dynamic Peak / 300 watts RMS Sustained

Latency

Selectable (15 / 20 / 25)

Amplifier Features

Auto-on; soft clipping; thermal monitoring

Transmission Range

50' / 15 m

Bass Driver(s)

Two 355-mm x 76 mm (14 x 3 in) high-excursion reinforced co-polymer polypropylene cones in unique monocoque design, FEA-optimized overmolded corrugated Santoprene® surrounds; 25-mm (1 in) diameter voice-coil construction; Nomex® spiders; high-temperature Apical™ formers; rare-earth neodymium magnet structure; AVS™ die-cast heatsink chassis

Sampling Frequency / # Bits

48 KHz / 16 bits

Low-Frequency Extension*

21 Hz (DIN)

Connectivity

Up to four subwoofers per transmitter (Paradigm brand subwoofers only)

Subwoofer Cut-Off Frequency

Variable 35 Hz – 150 Hz; Bypass Option

Sub / Sat Phase Alignment

Variable 0° – 180°

Line-Level Input

RCA Sub-Out / LFE-Out of receiver, preamp/processor or other line-level source

Height, Width, Depth (Horizontal, including feet)

13.75 cm x 46.5 cm x 35.5 cm
5-1/2 in x 18-3/8 in x 14 in

Height, Width, Depth (Vertical, including stand)

38.25 cm x 12.5 cm (stand width 17.9 cm) x 46.5 cm
15 in x 4-7/8 in (stand width 7 in) x 18-3/8 in

Height, Width, Depth (On-wall, including hardware)

35.6 cm x 46.5 cm x 15.0 cm
14 in x 18-3/8 in x 5-7/8 in

Weight (Unpacked, not including stand/hardware)

10.9 kg / 24 lb each

Weight (Unpacked, including stand/hardware)

11.2 kg / 24.5 lb each

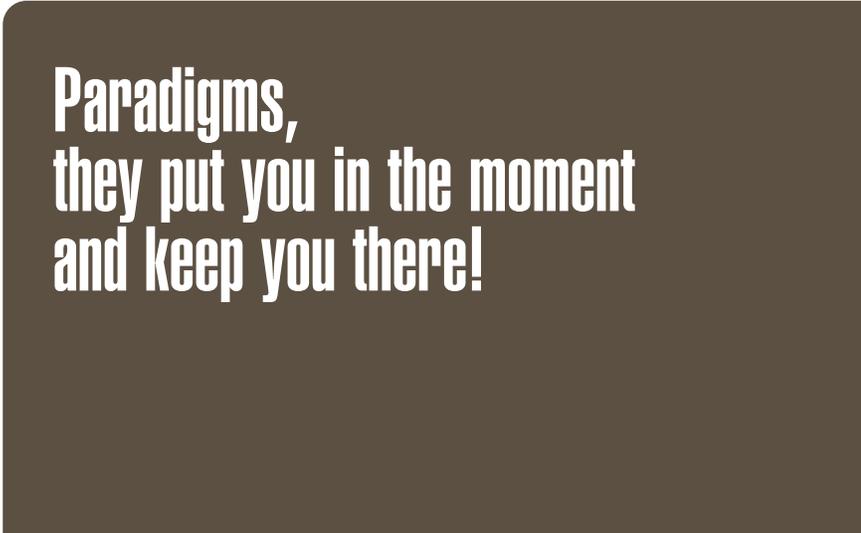
Finish(es)

Satin Black, Satin White

Accessories (sold sep.)

MilleniaSub Wall-Mount Bracket System
Paradigm PT-2 Wireless Transmitter
Paradigm Perfect Bass Kit™

*DIN 45 500. Indicates -3 dB in a typical listening room.



PREMIUM FINISHES



White Gloss

Black Gloss

MilleniaOne™



Black Chrome



White /
Light Silver
(ADP)

Black /
Dark Gray
(ADP)

Millenia™ Series



Cherry

Rosenut

Black



White
(ADP)

Black
(ADP)

Studio Series Speakers / SUB 12 and SUB 15



Satin Black

Seismic™ 110



Satin White

Satin Black

MilleniaSub™

RECOMMENDED SYSTEMS

Fronts	Type	Center	Surrounds	Rears	Subwoofer(s)
Studio 10	Bookshelf / Stand-Mounted	CC-490 / SA-LCR 3	ADP-590	ADP-590	Seismic 110 / MilleniaSub
Studio 20	Bookshelf / Stand-Mounted	CC-490 / SA-LCR 3	ADP-590	ADP-590	Seismic 110 / SUB 12
Studio 60	Floorstanding	CC-590 / SA-LCR 3	ADP-590	ADP-590	SUB 12 / SUB 15
Studio 100	Floorstanding	CC-690 / SA-LCR 3	ADP-590	ADP-590	SUB 15
Millenia 20	On-Wall / Stand / Shelf-Mounted	Millenia™ 20	Millenia™ ADP	Millenia™ ADP	MilleniaSub / Seismic 110
Millenia 20 Trio	On-Wall / Shelf-Mounted	Included	Millenia™ ADP	Millenia™ ADP	MilleniaSub / Seismic 110
Millenia 30	On-Wall / Shelf-Mounted	Millenia™ 30	Millenia™ ADP	Millenia™ ADP	MilleniaSub / Seismic 110 / SUB 12
Millenia 200	Floorstanding	Millenia™ 20	Millenia™ ADP	Millenia™ ADP	MilleniaSub / Seismic 110 / SUB 12
Millenia 300	Floorstanding	Millenia™ 30	Millenia™ ADP	Millenia™ ADP	MilleniaSub / SUB 12 / SUB 15
MilleniaOne	Bookshelf / Stand-Mounted	MilleniaOne	MilleniaOne	MilleniaOne	MilleniaSub



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