HIGH-DEFINITION SOUND

Paradigm Reference *Signature* SUB 25

SUB 25 is big! Big in an elegant way. Like a Basso Profundo on stage at The Met. And just like a night at The Met, when SUB 25 starts to sing you know you're going to get every note, every nuance, every deep bass thrill you paid to hear. The bottomless rumble in a movie soundtrack. Explosive special effects. That note of menace. The portent of disaster. Recreated with such vivid realism! Such pinpoint accuracy. You're captivated. Floored. Speechless. Bass like you've never heard it before. Deeper and more refined. Smoother and oh, so rich. With perfect pace. Subtle texturing. Impact and weight. 3,000 watts of CONTINUOUS power! That's a full 4 horsepower! An insane amount of current.

And then there's the accuracy. SUB 25 is accurate down to a gruelling 9 Hz! In the average listening room it can reproduce an unbelievable 125 dB without audible distortion. And even at the highest output levels, the transition between SUB 25 and the other speakers in the system is deliciously seamless. The source of the bass, the SUB 25, simply disappears. There was a time when Paradigm's Servos ruled the lower octaves. Now there's a new voice on the big bass block … and it's destined for greatness.

An unbelievable 4 horsepower! … can reproduce an incredible 125 dB without audible distortion … *accurate right down to a gruelling 9 Hz*.

Model shown: SUB 25

Paradigm Reference *Signature* SUB 25 High-Excursion Driver

SUB 25's proprietary 15″ (380 mm) bass driver was designed, engineered and manufactured by Paradigm in North America. With unwanted resonances, standing waves and micro-distortions non-existent, SUB 25 displays breath-taking definition and awe-inspiring dynamics with lightning-fast speed and gut-wrenching power.

Mineral-Filled Co-Polymer Polypropylene Cone with RCR™ Resonance Control Ribs: Engineered for very high power, this 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 the lowest bass notes.

Advanced Multi-Layer Polyurethane-Composite Elliptical Surround and Dual Oversize Spiders: Optimized using Finite Element Analysis (FEA), a highly advanced tool for component design, the surround's multi-layer composite matrix with its high-tech surface treatment encourages extended cone excursion. A staggering 3″ (76 mm) peak-to-peak excursion, while maintaining exceptional linearity and cone control.

Massive Aluminum Shorting Ring: Situated around the voice coil, the ring not only improves linearity and heat dissipation, it helps reduce voice coil inductance as well as odd- and even-order harmonic distortion. The results are apparent in the SUB 25's lightning-fast transient response.

3″ (76 mm) 8-Layer Bifilar High-Temperature Aluminum Voice Coil: Wound on a high-temperature composite former in an oversize bifilar configuration, the aluminum coil provides exceptional stability and support for the extended cone excursion.

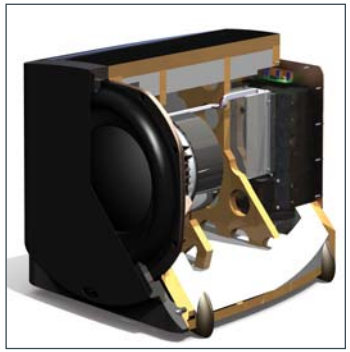
High-Pressure Die-Cast Aluminum Chassis: Controls flexing and ringing and since aluminum is non-magnetic, stray magnetic losses are eliminated.

Proprietary AVS™ Airflow Ventilation System Cooling: Massive built-in ribs increase heat dissipation surface, providing forced-air cooling during large musical transients and chassis convection cooling at all other times.

Extruded-Aluminum Center Heatsink: Provides internal forced-air cooling to drive heat away from the high-velocity low-turbulence pole piece, increasing power handling and reducing distortion.

Massive 37-lb (16.8 kg) Computer-Optimized Magnet/Motor Assembly with Balanced Field Geometry: Again using FEA, the SUB 25's massive magnet/motor structure has been optimized to produce an incredibly powerful high-density symmetrical magnetic forcefield while minimizing inductive distortion. The results are outstanding transient and phase-response, superb power handling and output linearity.

Eliminating the Possibility of Stray Noise … With a driver so large and so powerful, how do you prevent cabinet resonances and vibrations from coloring output? What about eliminating stray EMC/EMI and even radio frequency noise? Paradigm's answer? A redesigned 1″ (25 mm) thick solid MDF enclosure with extensive internal bracing, including 1-1/2″ (37.5 mm) baffle. Then a custom-designed isolation barrier separating amplifier and driver sections. Critically placed isolation inserts, a modified version of our patented IMS/SHOCK-MOUNT™ technology, keep the barrier preloaded. The result? Enclosure resonances and stray amplifier noises are simply non-existent.



Input and Control Facilities

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 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 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.

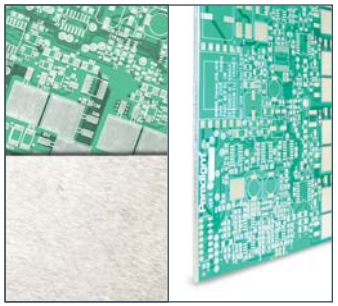
Bypass Option:
Bypass the subwofer's built-in cut-off control to let your preamp/processor's or receiver's internal bass management provide the crossover function.

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

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

USB Port/PBK Interface *(see right)*:
Allows for:
- Connection of the Paradigm Perfect Bass Kit, sold separately.
- Possible future upgrades to software installed in your subwoofer.

Gorgeous 3/8″ (9.5 mm) ultra-rigid aluminum panel provides revolutionary heatsinking and mechanical rigidity, improved isolation and lower noise.



Printed Circuit Board: 1/8″ (3.2 mm) thick

Paradigm Reference *Signature* SUB 25 Ultra-Class-D™ Amplifier

SUB 25's amplifier was designed, engineered and manufactured by Paradigm in North America: 7,500 watts Dynamic Peak power; 3,000 watts RMS Sustained. Cutting edge features include:

Comprehensive Heat Dissipation System! Our robust 1/8″ (3.2 mm) thick aluminum circuit board *(see inset)* is overlaid with insulated metal substrates. Using an aluminum base as opposed to the more typical fiberglass base, while more expensive, encourages exceptionally efficient cooling. Even more mechanically robust than copper or ceramic, the metal substrates increase power density, minimize thermal impedance and conduct heat more efficiently while offering greater mechanical durability. FR-4-rated circuit board designs, widely used because of their exceptional efficiency, typically require larger heatsinks. In the SUB 25 however, the combination of aluminum and overlaid metal substrates allows for a heatsink much reduced in size.

Power Factor Correction (PFC): PFC shapes the current so it is sinusoidal and continuous in time, allowing maximum power (95%) to be drawn and with far less noise on the line. To compare: A unit without PFC draws only 60 to 70% of the available power since the line current is switched on and off by the input rectifier (a noise-inducing process in itself!) at twice the frequency. Current flows at the peak of the line voltage only, effectively choking the line. PFC prevents over-heating/tripping of the circuit breakers. Add to this the highly efficient Ultra-Class-D™ design ensuring maximum output and the SUB 25's amplifier becomes an input/output powerhouse that is simply unbeatable.

No Power Transformer: The output stage is Direct-Connected™ to the power line to provide maximum power.

Advanced Output Stage: Increases switching speed and efficiency. Unlike conventional Class-D designs which use the slow built-in diodes of the output MOSFETS, our Ultra-Class-D™ design steers circulating currents to ultra-fast diodes (ten times faster!).

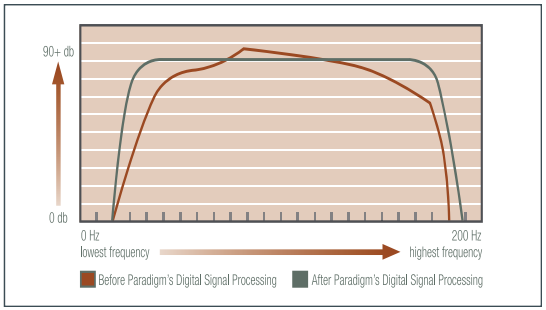
Opto-Coupled Inputs: Offer better isolation and lower noise.

Short-Circuit Protection: Reacts within 10 µs.

And as if all this wasn't enough, add …

Paradigm's Own Digital Signal Processing (DSP) Design: Monitors the line current and voltage, regulating the long-term average output power. But there's more to this design …

Sophisticated mathematical algorithms "shape" the frequency response, ensuring accurate, consistent, musical bass without distortion, even when SUB 25 is playing at the loudest level:



Paradigm's Own Digital Signal Processing Design

Design
Single high-excursion driver, sealed enclosure, patented built-in Ultra-Class-D™ power isolation amplifier with Power Factor Correction, USB port

NOTE: Due to the incredibly high power and tremendous output the SUB 25's grille is non-removable

Universal Input Power
SUB 25's Universal Input Power feature allows the subwoofer to operate connected to any line voltage between 108 volts and 265 volts. However, in order to achieve maximum continuous performance we highly recommend connecting to a 240-volt line. *(See Dealer for additional information.)*

SUB 25

Amplifier
High-Current Discrete-Output, 7,500 watts
Dynamic Peak / 3,000 watts RMS Sustained

Amplifier Features
Auto-on / off, Trigger-on / off, soft clipping, electrical shorting protection, thermal protection

Bass Driver
380-mm (15 in) RCR™ mineral-filled co-polymer polypropylene cone, oversize FEA-optimized elliptical surround, dual spiders, massive aluminum shorting ring, 76-mm (3 in) eight-layer bifilar voice coil, high-temperature composite former, 37-lb (16.8 kg) triple ceramic / ferrite magnet / motor structure, AVS™ die-cast heatsink chassis

Low-Frequency Extension*
9 Hz (DIN)

Subwoofer Cut-Off Frequency
Variable 35 Hz – 150 Hz, Bypass Option

Sub / Sat Phase Alignment
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

Line-Level Input Sensitivity
100 mV mono

Line-Level Input Impedance
RCA: 10k ohms, XLR: 20k ohms

AC Voltage *(see note on Universal Input Power below left)*
120v – 240v: 50/60 Hz

Height, Width, Depth†
51.0 cm x 46.0 cm x 55.0 cm
20-1/8 in x 18-1/8 in x 21-1/2 in

Weight (unpacked)
51.7 kg / 114 lb each

Finishes
Cherry, Natural Maple, Piano Black