

## The Benefits of A Semi-Active Speaker System

### These are not claims, just facts

- Complete control (remote) of bass level and other settings for ideal room integration (Level, Acoustic Q, Low Cut, High Cut)
- 1,000 Watt Class A/B power amplifier developed especially for this bass system. (No traditional, external amplifier can do this as well.)
- Electronic x-over
- Greater flexibility. Active bass takes a huge load off the mid/high amplifier, consequently, a smaller amplifier can be selected - the number of potential amplifiers is much higher.
- Less costly than traditional bi-amplification, which requires an additional external amplifier.
- No speaker cables for bi-amplification are required - The best cable in the world is no cable at all.
- No interconnect cables for bi-amplification are required. - The best cable in the world is no cable at all.
- Space saving

Most audiophiles understand that getting the bass exactly "right" is usually the single greatest challenge in setting up a speaker system.

Especially at the bottom end of the audio spectrum, room interaction has profound impact and the desired balance is extremely difficult to achieve.

Speakers with dual sets of input terminals invite people to experiment with bi-wiring using different cables for each frequency range or with bi-amping using special bass amps.

Gryphon actually coined the expression "vertical bi-amping" way back in the day, suggesting the use of two identical stereo amplifiers, one for each speaker, rather than traditional horizontal bi-amping, where one stereo amp handles left and right upper/mid frequencies, while a second amp, often of a different power rating and brand, handles left and right bass.

*However*, in many of the old school systems such as the big infinity's, the choice was often a favourite tube amplifier for the upper/mid and a big and bold solid state amplifier for the bass, because of the widespread notion that power was all that mattered in this application. To a surprisingly large extent, that misconception lives on today.

### **Specialist Bass Amplification**

When a manufacturer designs an amplifier, it is for an existence where it will face all kinds of speaker loads and ideally drive them all equally well. Since speaker systems are very, very different to drive (sensitivity, impedance, phase, tonality) such an amplifier must be universally

compatible. Rather than being a dedicated specialist, it must offer "one size fits all" functionality. And, naturally, it must be at its best from the very highest frequencies to the very lowest.

Now, imagine instead designing an amplifier that is conceived and born with a single purpose in life - to drive one specific speaker and never anything else. It will also be required only to give its best within a very narrowly defined frequency band. This is the specialist amplifier at its ultimate extreme and, when it is properly executed, any "normal" amplifier will inevitably fall short in comparison.

Because this amplifier is integrated in the "system" from its conception, it can also offer highly desirable features such as remote adjustment of bass level from the listening position, low and high cut filters and a less known, but equally valuable feature: user-selectable bass system Q, an extremely important factor as matching system Q to the listening room's own Q is the gateway to superior bass performance.

We all know the frustrations of struggling to control the bass by moving the speakers around the room to get the best bass performance. Unfortunately, that position often also provides the poorest soundstage or a less coherent tonal balance.

Gryphon has always been a firm believer in smaller bass drivers with bigger "motors" (built to Gryphons specs) as vastly superior to the traditional large bass drivers that often are slow to start and slow to stop, resulting in "overhang" or an area where the driver is doing something other than what it is instructed to do by the amp. To ensure that the cone surface area is sufficient to generate the appropriate quantity and quality of deep bass, multiple bass drivers are employed.

With Gryphon's special, (fully analogue) bass amplifier, capable of delivering 1,000 Watts continuously to the drivers, the bass drivers are held in an iron grip at all times. This system responds with such exceptional speed that conventional bass systems appear sluggish and "wet" in comparison.

With the bass well in hand, the owner has the added bonus of far greater freedom in selecting an amplifier for the rest of the system, which becomes so much easier to drive. Most amplifiers greatly appreciate being relieved of bass duties, allowing them to shine within a more limited range.

## **Gryphon Pendragon and Trident II Reference Loudspeaker Systems**

### **with Integral Self-Powered Bass System, Q Controller and Active Crossover Bias**

Like every loudspeaker ever made by Gryphon, the critically acclaimed top of the range Pendragon and Trident II incorporate specially developed constant phase technologies to ensure that all drivers are in phase at all frequencies at all times.

The Gryphon Pendragon and Trident II systems both take full advantage of our ground-breaking semi-active configuration with specially developed bass amplification as an integral part of system design. As one of the very few High End manufacturers of complete system solutions from source components to amplification to loudspeakers, Gryphon has a uniquely valuable perspective on all relevant compatibility/synergy issues.

Unlike compromised, universal external amplifiers, Pendragon and Trident II purpose-built, on-board bass amps are conceived and built exclusively for optimal integration with our custom-built drive units, advanced crossover networks, handmade crossover components, non-resonant

enclosures and proprietary, user-adjustable room integration parameters. This extraordinary degree of integration delivers a level of performance unattainable via any standard mix-and-match approach.

Gryphon Pendragon and Trident II bass amps incorporate custom developed parts, the finest Sanken high current bipolar output transistors, linear power supply, large capacitor banks, DC servo-coupling, no output relays, output coupling via massive copper bussbars, decoupled transformer castings, military spec. double-sided printed circuit boards and Holmgren toroidal transformers with internal magnetic shielding. Ultra-wide bandwidth and zero negative feedback contribute to extreme speed and unconditional stability. For extended headroom, available peak power is approximately 4,000 Watts or 4.5 horsepower. The dedicated, Gryphon bass power amplifier weighs in at 70 kg per speaker!

In addition, Pendragon and Trident II both employ Gryphon Q Controller room-adaptive technology that allows user adjustment of the total system resonance frequency and of system Q for ideal coupling to any room.

As a theoretical concept, active Q control was discussed in the 1950's by Linkwitz and Greiner, but never successfully implemented prior to the breakthrough Gryphon Cantata stand-mount loudspeaker in 2002, offering powerful new opportunities for extensive low-frequency adjustment and room integration.

Bass parameters can be optimised for fast, seamless integration of the bass section with the upper/mid in any listening room.

Set-up of the Gryphon Q Controller via remote control is simplicity itself with a separate display that can be placed for clear visibility from the listening position.

### **Active Crossover Bias**

In addition to increasing low-frequency extension for a given cabinet volume and improving bass control by direct-coupling the driving amp to the drivers, the Gryphon active approach also provides permanent 28 V biasing of crossover capacitors to eliminate crossover distortion at zero electric potential. Originally introduced in the Gryphon Cantata, where bias voltage was applied by battery, the considerable benefits include improved stability, body, tonal colour and image coherence.

This extraordinary level of coordination and integration ensures an exceptional degree of bass control all the way down to the notes that are felt more than heard. The signature of a Gryphon active deep bass system is absolute control and speed.

Thanks to the development and implementation of active, integrated bass amplification, Q control and active crossover bias, Gryphon Pendragon and Trident II elegantly and effectively resolve electrical, mechanical and acoustical issues, delivering extended deep bass with articulation, force and authority, independent of the acoustic environment.

### **Gryphon Pendragon - Above and Beyond**

Gryphon's greatest loudspeaker achievement yet, the semi-active, four-tower Gryphon Pendragon consists of dual two meter tall bass towers (eight custom-built 8" bass drivers per channel driven by on-board Gryphon Class A/B amplification) and two open baffles fitted with a two meter long dipolar planar magnetic thin-film ribbon (covering the 200 Hz – 18 kHz with no crossover in its operating range) alongside a vertical array of four lightning-fast dipolar Air Motion Transformer super-tweeters, specified to beyond 32 kHz.

The system's extremely wide and even horizontal dispersion with virtually nil vertical dispersion creates a large, stable sweet spot with none of the floor and ceiling reflections that muddy the sound of conventional multi-way systems.

### **Gryphon Trident II – Laser-Sharp Clarity, Alacrity and Precision**

The Trident II self-powered bass system employs four 8" drivers in a single, massively braced, stylish enclosure per channel with precisely contoured baffle and driver surrounds and baffle covering carefully selected and applied to eliminate baffle reflections and diffraction phenomena.

The massive air displacement of the bass system is complemented by two extensively modified Danish 5" midrange units and the Air Motion Transformer high frequency driver with minimal mass and virtually instantaneous response in a symmetrical vertical array for an ideal point source presentation of the musical event with unparalleled speed and accuracy.