

PRELIMINARY INFORMATION



KEY FEATURES

- High power-density cardioid subwoofer with exceptional acoustic output
- Dual-driver pressure-gradient configuration with 24" and 21" neodymium transducers
- Single-cabinet cardioid and end-fire operation
- Extended low-frequency response: 31Hz – 90Hz (processed)
- 18mm reinforced phenolic birch plywood construction
- Passive design optimized for Q-NEX+ amplification and DSP processing
- Compatible with AUDIA control software when paired with Q-NEX+ amplifiers
- Compatible rigging hardware for integration with AX2022A and AX2022P line arrays
- Ground-stackable or flyable

TECHNICAL SPECIFICATIONS

SYSTEM

System's Acoustic Principle	Native Active Cardioid Subwoofer
Frequency Response (-3dB)	31 Hz – 90Hz (Processed)
Horizontal Coverage (-6dB)	Cardioid - Endfire (preset dependant)
Vertical Coverage (-6dB)	Cardioid - Endfire (preset dependant)
Sensitivity 2.83V	102dB SPL @1m
Maximum Peak SPL	146 dB SPL (AES 75 Standard) @1m

TRANSDUCERS

Front	24" (610mm) Diaphragm - 6" (152mm) Voice coil, Neodymium Subwoofer, 4Ω
Back	21" (260mm) Diaphragm - 4.5" (115mm) Tetracoil, Neodymium Subwoofer, 4Ω

INPUT CONNECTIONS

Connector Type	Neutrik® speakON™ NL4MP x 2
Wiring	FRONT = Pin 1+/1- BACK = Pin 2+/2-

POWER HANDLING

Input Power Rating (AES)	2500W Front + 1800W Back
Input Power Handling (Program)	5000W Front + 4000W Back

ENCLOSURE & CONSTRUCTION

Dimensions (W x H x D)	830 mm (W) x 1013 mm (H) x 800 mm (D)
Enclosure Material	18mm, reinforced Phenolic Birch
Paint	High resistance, water based paint
Flying System	External Frame suspension system, back hinge
Net Weight	160kg Kg (352.7 lbs.)



APPLICATIONS

The SW2421CFP is engineered for applications requiring maximum acoustic output, extended low-frequency response, and controlled directivity within a compact footprint. Conceived as a high power-density system low-frequency system, the SW2421CFP delivers exceptionally high SPL while maintaining accuracy and definition in demanding live sound environments.

The internally generated pressure-gradient configuration allows the SW2421CFP to operate in cardioid or end-fire modes through DSP presets, eliminating the need for reversing cabinets or setting up complex subwoofer array configurations. This approach is particularly valuable in applications where rear rejection, stage control, and low-frequency precision are critical.

Optimized for both ground-stacked and flown deployment, the SW2421CFP can serve as a high-impact foundation for large-format systems or be converted to a flyable subwoofer with optional rigging hardware. The system integrates seamlessly with AX2022A and AX2022P line arrays through compatible rigging, enabling combined suspension and predictable acoustic behavior across the full frequency range.

From touring productions and festivals to arenas and permanent installations, the SW2421CFP provides high-performance output with controlled low-frequency directivity.

DESCRIPTION

The SW2421CFP represents a new approach to low-frequency power density and directional control. The design is based on an advanced pressure-gradient configuration achieved within a single enclosure through the combination of a front-loaded 24-inch high-excursion transducer and a rear-mounted 21-inch transducer.

The 24-inch driver serves as the primary low-frequency radiator, optimized for maximum displacement and acoustic output at the lowest frequencies. The 21-inch driver operates as an active rear element, and through precise amplitude, phase, and delay management between the two transducers, directional radiation patterns are generated and controlled entirely through DSP presets.

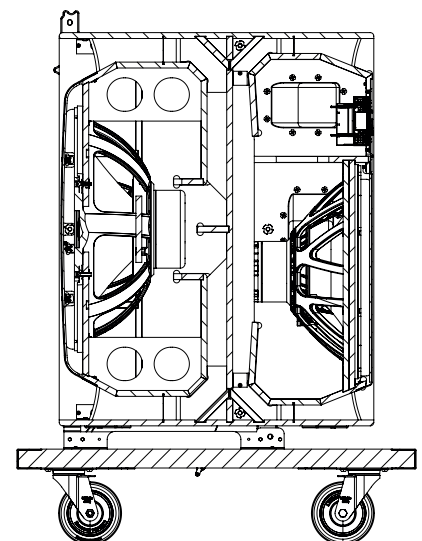
Unlike traditional cardioid systems that require specific cabinet positioning or array configurations, the SW2421CFP achieves directional control within a single enclosure. This simplifies deployment, improves consistency, and enables rapid mode switching without physical reconfiguration. The enclosure and internal loading are engineered to support very high acoustic pressure levels with minimal distortion while preserving transient response and definition across the operating bandwidth.

TRANSDUCERS

The SW2421CFP employs a dual-driver configuration centered around complementary high-excursion neodymium transducers: a front-loaded 24-inch driver with a 6-inch voice coil optimized for maximum displacement and acoustic output at the lowest frequencies, and a rear-mounted 21-inch driver with a 4.5-inch voice coil that operates as an active rear element in the pressure-gradient system.

Through precise amplitude, phase, and delay management, the interaction between these transducers generates directional radiation patterns fully managed by DSP presets. Three operating modes are available: Cardioid for maximum rear rejection and stage control, ideal for applications requiring minimal low-frequency spill; Hyper (Hypercardioid) for narrower forward coverage with stronger directional focus and moderate rear energy; and End Fire for maximum forward summation and output, suited to high-impact performances. Each mode can be selected through preset changes without cabinet reconfiguration.

This pressure-gradient approach achieves directional control within a single cabinet, eliminating the complexity and space requirements of traditional cardioid subwoofer arrays while providing fast mode switching adaptable to different venues and stage layouts.



SYSTEM CONCEPT AND SONIC PERFORMANCE

Constructed from 18mm reinforced phenolic birch plywood, the SW2421CFP features a robust enclosure developed to withstand the demands of both touring and permanent installation environments. The internal acoustic loading is engineered to support very high acoustic pressure levels with minimal distortion, preserving fast transient response and definition across the operating bandwidth.

The result is extended low-frequency response from 31Hz to 90Hz with controlled radiation and improved efficiency. Rear rejection in Gradient Cardioid mode reduces unwanted low-frequency energy on stage, while End Fire Cardioid mode prioritizes forward output and impact for maximum audience coverage.

The SW2421CFP can be deployed as a ground-stacked foundation for large-format systems or converted to a flyable configuration with optional external rigging hardware. When combined with AX2022A or AX2022P line arrays, the system provides fully compatible mechanical integration and predictable acoustic behavior across the entire frequency spectrum.

SYSTEM INTEGRATION

The SW2421CFP integrates seamlessly with Axiom's Q-NEX+ amplifier platform, which provides optimized DSP processing, comprehensive system protection, and scalable power delivery. This pairing ensures that the enclosure performs to specification across varying signal levels and deployment configurations, delivering repeatable results with minimal setup time.

When paired with Q-NEX+ amplifiers, the SW2421CFP benefits from the same advanced DSP platform, networking capabilities, and control features as the powered SW2421CA, including AVB-Milan audio networking and Ethernet-based system control through AUDIA software. Cardioid operating modes can be selected through DSP presets within AUDIA, allowing engineers to adapt the system to different venues and performance requirements without physical reconfiguration.

This guarantees identical sonic behavior, tuning philosophy, and system management across the entire AXIOM ecosystem, whether deploying passive or powered configurations.

HARDWARE

The integrated external rigging frame provides full compatibility with AX2022A and AX2022P line array systems in both ground-stacked and flown configurations, allowing combined deployment as a unified system.



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