



# Concert Pro-Ax Series Model CPX-1250



## General

The CONCERT PRO-AX is an arrayable and flyable three-way trapezoidal speaker system. The heart of the system is the horn-loaded coaxial mid/hi section. A 4" voice coil 600-watt 10" transducer is used for the band of frequencies from 250 Hz to 1,250 Hz. High frequencies are reproduced by a 2" throat with 3" titanium diaphragm compression driver. The horn is a constant dispersion design with a 60° x 40° pattern. This combination gives a frequency response from 1,250 Hz to 18,000 Hz. Because of the coincidental alignment of the mid and high frequencies, the Pro-Ax section effectively reproduces the frequencies from 250 Hz to 18,000 Hz as a true point source device. Because of the horn loading, the Pro-Ax section gives high efficiency and pattern control in the frequency range it covers. The design is so unique that Dr. Eugene Patronis of the Georgia Institute of Technology was awarded a patent on the design on April 2, 1991. This design is based on that patent.

One of the challenges of designing compact high spl speaker systems is the reproduction of low frequencies without the use of supplemental speaker systems. To accomplish just that, OAP Audio has employed a technique called SELECTED FREQUENCY TUNING (SFT). To maximize efficiency, the dual 800-watt 15" woofers use a special design enclosure that is tuned in such a way to reproduce only the frequencies required. This design also greatly reduces unwanted harmonic distortion. Because of SFT, the low-frequency section is optimized for the 45 Hz to 250 Hz range.

## Application

The CPX-1250 should be used when a high-output full-range "one box" speaker system is needed for installed or portable use. Most of the commercially available high-output speakers cannot be used without supplemental low-frequency speaker systems. This drawback adds considerably to the actual cost and size of the completed speaker system. The CPX-1250 has a 3 dB down-point of 45 Hz which is more than adequate for many low-frequency applications and requirements in large venues. If additional low-frequency reproduction is needed for effect, then true "subwoofers" with crossover points of 60 Hz and lower can be used. Because of the integral rigging hardware and trapezoid shape, the CPX-1250 can be used for suspended arrays.

## Construction

Because of the rigors of touring and the tremendous energy reproduced by the low-frequency section, only the finest materials are used for construction. Thirteen-ply Baltic birch 3/4", (19 mm) is used for construction with double top and bottom panels for structural integrity.

All panels are glued and nailed with internal bracing throughout. All external surfaces are filled and sanded. Two coats of smooth paint, and two coats of textured paint are applied for durability and attractive finish. In addition, an unpainted surface is available for user supplied finishes.

For suspended operation the CPX-1250 utilizes six steel rigging points (3 top, 3 bottom) that use aircraft type fittings. These six points are connected top to bottom with four pieces of 1/4" threaded rod. Transducer protection is accomplished with a 16-gauge perforated carbon steel grill that is epoxy coated. Optional color textile grills are available without the perforated grill for advanced decor matching when the steel grill is not needed for protection. (i.e., theatres, houses of worship, etc.)

## Flying Operation

**WARNING!!!** RIGGING AND SUSPENDING THE CPX-1250 SHOULD BE DONE BY PERSONS FAMILIAR WITH STANDARD RIGGING PRACTICES. IF YOU ARE NOT FAMILIAR WITH THESE PRACTICES, PLEASE CONSULT THE FACTORY, YOUR DEALER, THE LOCAL STAGE HANDS UNION, OR A RIGGING SUPPLY COMPANY IN YOUR AREA. The CPX-1250 is easily suspended or "flyable" via six rigging points. Three points are located on the top of the enclosure, and three points are located on the bottom of the enclosure. Each rigging point is constructed of an internal 3/16" thick carbon steel plate and connected to another carbon steel plate with 1/4" threaded rod running from the "top" points to the "bottom" points. This technique eliminates any stress on the wooden enclosure. There are two 1/4" 28-thread inserts installed in each of the steel plates. These thread inserts are used to secure the optional Flying Hardware Kits (FHKS) to the internal rigging. An FHK consists of one flying hardware plate model FHP, one flying hardware tie-down model FHT, and two 1/4" 28-thread machine screws. The screws secure the FHP to the internal rigging. The FHT is an indexing ring that slides and locks into the plate and is held in place with a spring. For additional protection, a safety latch pin is inserted into the shaft of the FHT that protects the FHT from being removed by accident or by "shock load" when lifting multiple enclosures. The FHT's ring is 1.12" in diameter and can be used with standard rigging hardware. You must use at least three FHK to suspend a CPX-1250.

## Warranty

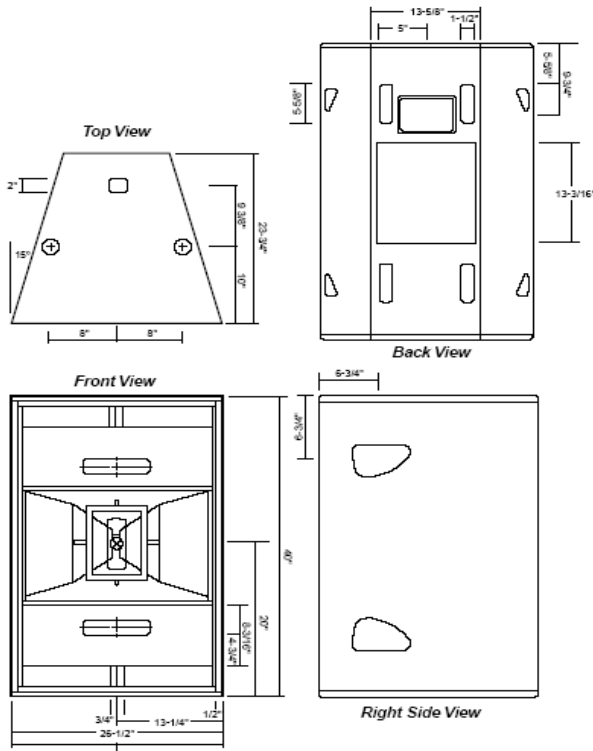
OAP Audio Pro Ax Series loudspeakers are guaranteed against failure due to workmanship and materials for a period of five (5) years from date of purchase and is limited to original purchaser. If such failure does occur, unit will be replaced or repaired (at the discretion of OAP Audio) without charge for labor or materials. Unit must be delivered to OAP Audio or one of its authorized service facilities prepaid. In warranty items will be returned prepaid. Items not covered by warranty includes finish or appearance items, burned coils, or failure due to operation under other than specified conditions. This warranty also does not include any incidental or consequential damages. Repair by other than OAP Audio or an authorized service facility will void this guarantee.

Rev. D (05/13)



## CPX-1250

All dimensions are in inches.



## Architectural Specifications

The loudspeaker shall be of the three-way type and trapezoid shape (15° taper). The loudspeaker shall incorporate two 15", woofers to cover the frequency range from 45 Hz to 250 Hz. The mid-range and high-frequency section shall be coincidental in design and horn loaded for pattern control. The mid-range transducer shall be a 10" piston and reproduce the frequency range of 250 Hz to 1,250 Hz. The high frequency device shall be a large-format type with a 3" titanium diaphragm and a 2" throat coupled to a 60° X 40° constant dispersion horn. This combination shall reproduce the frequencies of 1,250 Hz to 18,000 Hz. The high frequency horn and driver shall be mounted in an aerodynamic fairing and placed in the throat and mouth of the midrange horn in such a manner and position that this combination becomes the compression loading device for the 10" mid-range driver and makes the mid- and high-frequency section coaxial. The system shall have a frequency response of 45 Hz to 18,000 Hz +3 dB -6 dB and an axial sensitivity of 110.28 dB at 1 watt @ 1 meter averaged between 125 Hz to 8,000 Hz. The system shall have a maximum output of 132.2 dB measured at 1 watt @ 1 meter and averaged between 125 Hz and 8,000 Hz.

The system shall be constructed of 13-ply 3/4" (19 mm) void free birch plywood. All exposed corners shall be rounded and all hardware recessed for damage resistance. Six rigging points shall be provided for suspended operation with optional aircraft type rigging fittings - The top and bottom shall be reinforced with steel plates and connected together with 1/4" threaded rod to facilitate rigging one system to another. The speaker system shall be the OAP Audio CPX-1250.

NOTE: As a research and development corporation, OAP Audio reserves the right to change specifications to improve performance.

## Specifications

Frequency Response	45 Hz to 18,000 Hz +3 -6 db
Dispersion	60° x 40°
System Sensitivity	110.28 db averaged between 125 Hz and 8000 Hz 1 watt @ 1 meter. 132.2 db at maximum rated input and averaged between 125 Hz and 8,000 Hz.
Hi-Frequency Driver	2" throat with 3" titanium diaphragm. 120 watts continuous program power. 8 ohm.
Hi-Frequency Horn	Constant dispersion type with 60° x 40° dispersion
Mid-Range Horn & Driver	10" piston with 4" edge-wound copper ribbon voice coil on 5 layer spider suspension and 17 lb. Magnetic assembly. 600 watts continuous program power, 60° x40° constant dispersion horn.
Low-Frequency Drivers	Dual 15" pistons with 4" edge-wound copper ribbon voice coil with 5 layer spider suspension and 17 lb. magnetic assembly. 1600 watts combined continuous program power at 4 ohm, 800 watts each at 8 ohm.
Dimensions	26.5" W x 40" H x 23.75" D
Weight	218 lbs.
Trapezoid Taper	15°
Flypoints	Six: 3 on top and 3 on bottom
Color	Black texture is standard with gray, white and unfinished optional
Grill	Black epoxy 16 gauge steel perforated standard with white, pumice, wheat or black textile-type grill optional.

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