

Forsythe Series

EAW KF850 Horn Loaded Sound Reinforcement System

SYSTEM FEATURES

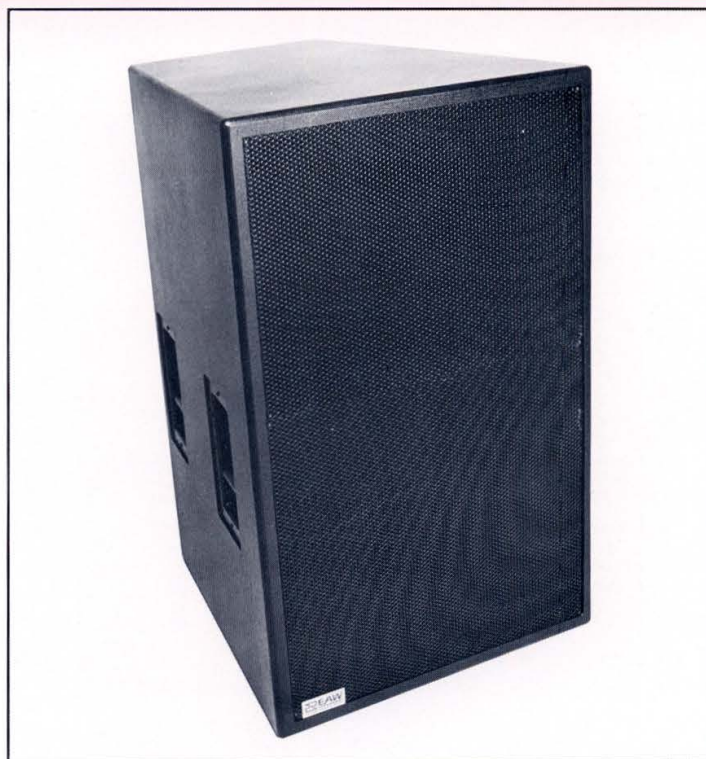
- New Generation Forsythe Designed large diaphragm (250mm) horn loaded mid-bass unit with compound flare and center displacement/phasing plug for flat power response and constant coverage.
- New Forsythe Designed Constant Coverage Bass Horn designed to precisely match the coverage and time offset of the mid-bass horn, while providing flat response down to 80 Hz.
- New Compound Flare Constant Coverage High Frequency Horn mounted in the mouth of the bass horn, provides precisely matched coverage beyond 20,000 Hz.
- "Two Box" System Ultra-Compact Package where the KF850 flies for best coverage and unmatched sight lines, and the subwoofers (EAW SB528) remain on the ground for optimum low frequency coupling.
- Absolute Response Linearity ± 2 dB 35 to 20,000 Hz with MX800 CCEP Crossover and SB528 Subwoofer, for true tonal accuracy.
- Virtual Array™ Design with true constant 55° horizontal coverage over the 200 to 20,000 Hz band and precisely angled trapezoidal shaped enclosures, enabling easy construction of idealized arrays and the total elimination of hot spots.
- True Horn Loading 100 to 20,000 Hz for unmatched pattern control and low distortion at high sound pressure levels.
- Outstanding Sonic Coherency due to truly flat power response and phase accuracy from 100Hz to above 20k Hz.

OVERVIEW

The KF850 has been developed as the result of Kenton Forsythe's 15 year effort to improve the sonic performance and physical packaging of concert sound loudspeaker systems. During this time the concepts behind the KF850 evolved from a unique integration of acoustical, electronic and mechanical engineering science and technologies. Every step of the way EAW has employed intensive laboratory testing and real world concert testing to refine the design principles, including the Virtual Array™ design, cone driven mid bass, flying hardware, and polyurethane reinforced wood construction techniques.

The history of Forsythe design leadership includes the first sound company dual fifteen inch bass horn in 1971, and the world's first cone driven horn loaded mid bass unit in 1976 and the world's first practical bent bass horn in 1978. Not to mention the world's first "One Box" horn loaded flying system in 1978.

The people at EAW have been supplying some of the world's top sound hire companies (Carlo Sound - Nashville, TN, Speeda Sound -Madera, CA; Stage Audio - Charlestown WV; Sun Sound - Northampton, MA; HPS -



Amsterdam, Holland and Unicus - Tokyo, Japan to name a few) and permanent installations (Sun Plaza - Tokyo, Grand Olde Opry - Nashville; Studio 54 - New York; Kennedy Space Center - Cape Canaveral, and The Academy Of Music - Philadelphia) with Forsythe designed loudspeaker systems and assemblies for well over a decade. EAW's reputation for sonic accuracy and field reliability is truly world renowned.

DESCRIPTION

The KF850 is a modular, easily arrayable loudspeaker system designed for the most demanding professional audio applications involving the accurate reproduction or reinforcement of music at high sound pressure levels.

It's a tri-amplified 3-way system consisting of a single 15-inch bass driver in a unique constant coverage horn enclosure; a proprietary 10-inch driver loaded into a constant coverage horn with center displacement/phasing plug; and a 4-in beryllium diaphragm compression driver on a constant coverage high frequency horn mounted in the low frequency horn's mouth.

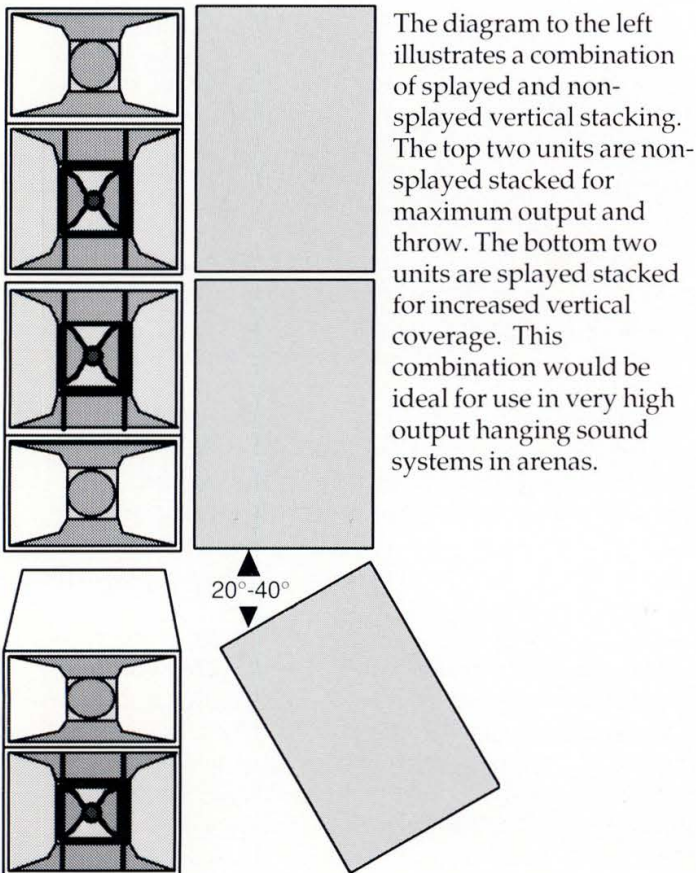
The exclusive Virtual Array™ design consists of trapezoidal shaped enclosures precisely angled to enable the construction of idealized arrays (in 55° increments) by simply stacking the cabinets next to each other. No other system can achieve this level of simplicity of setup without interfering with each other because no other system comes near to offering the KF850's true full bandwidth constant horizontal coverage.

VIRTUAL ARRAY™ DESIGN

The EAW KF850's unique true constant coverage design permits the easy construction of idealized arrays. When two KF850's are placed next to each other the angles of the cabinets are designed to match the (-6dB) coverage of the system enabling them to combine in the horizontal plane without interference. This makes it simple to create an array to cover most applications without the need for acoustical measurements or time consuming aiming of individual loudspeaker devices. The diagrams that follow show typical configurations and the resulting performance parameters.

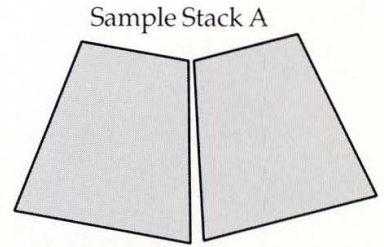
Vertical Configurations

Unlike the horizontal plane, vertical angles are not preset by the cabinet. There are two basic ways to stack vertically, splayed and non-splayed. For all but the longest throw or highest output applications a single KF850 will provide enough sound pressure level for a given 55° horizontal by 50° vertical area. When greater vertical coverage is required, two vertically stacked KF850's can be splayed by 20 to 40 degrees resulting in a total vertical coverage angle from 70° to 100°. For applications where maximum sound pressure levels are required two KF850's can be directly vertically stacked for increased output and directivity.

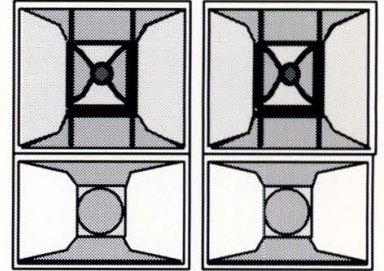


Horizontal Configurations

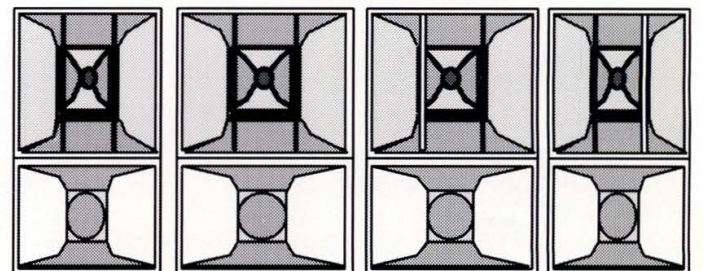
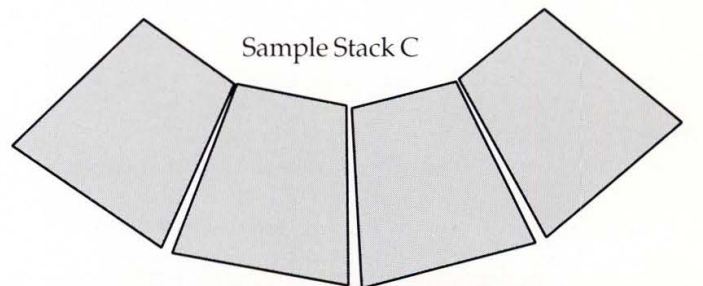
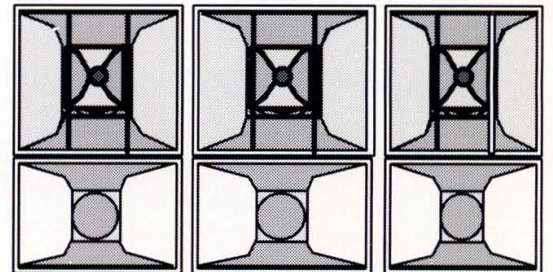
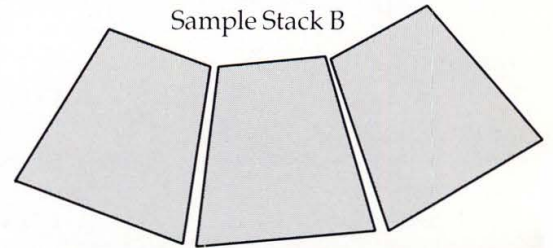
Sample Stack A
Simple Dual System
Horizontal Stack
Max SPL @ 1k: 132 dB
Horizontal Coverage: 110°



Sample Stack B
Three System
Horizontal Stack
Max SPL @ 1k: 134 dB
Horizontal Coverage: 165°



Sample Stack C
Four System
Horizontal Stack
Max SPL @ 1k Hz: 136
Horizontal Coverage: 220°



MX800 CCEP CROSSOVER

The KF850 is designed to operate in multiples with EAW SB5238 subwoofers and with the MX800 CCEP electronic crossover. The MX800 functions as an electronic crossover and distortion protecting system. The performance of the MX800 is closely coupled to the KF850 providing time/phase correction, asymmetrical equalized crossover slopes, subwoofer low frequency response

enhancement and distortion protection. The MX800 is programmed for the KF850 system by a plug-in card. While the MX800 is optimized for the KF850 it is not required for operation. Excellent results can be achieved with electronic crossovers from TAC and Rane provided that they are set in accordance with EAW specifications. When used without the MX800 no distortion protection or low frequency enhancement is provided.

KF850/SB528/MX800 Specifications

Acoustical KF850/SB528/MX800

Frequency Response:	35 to 20,000 +- 2 dB	
Coverage Angle (-6 dB)		
Horizontal	55° (200 to 20,000 Hz)	
Vertical	50° (200 to 20,000 Hz)	
Maximum SPL at 1 meter:	Long Term	Peak
At 50 Hz:	132 dB @ 600w	136 dB @ 2kw
At 200 Hz:	131 dB @ 200w	135 dB @ 500w
At 1k Hz:	132 dB @ 150w	137 dB @ 500w
At 10k Hz:	131.5 dB @ 70w	136 dB @ 200w

KF850 Loudspeaker System

Frequency Response:	100 to 20,000 Hz +- 2 dB	
Axial Sensitivity		
HF Subassembly:	113 dB SPL 1w @ 1m	
MF Subassembly:	110 dB SPL 1w @ 1m	
LF Subassembly:	108 dB SPL 1w @ 1m	
Power Handling		
HF Subassembly:	70w 100 Hour Sine Wave	200w AES
MF Subassembly:	150w 100 Hour Sine Wave	250w AES
LF Subassembly:	250w 100 Hour Sine Wave	500w AES
Nominal Impedance		
HF Subassembly:	16 Ω	
MF Subassembly:	8 Ω	
LF Subassembly:	8 Ω	

LF Horn Subassembly

Type:	Forsythe Designed Constant Coverage Straight Bass Horn
Construction:	Cross-Grain-Laminated Birch Plywood With High Density Polyurethane Foam Reinforcing
Driver:	RCF Laboratory Series L15/554K 380mm (15-in) Cone Driver With 100mm (4-in) Voice Coil

MF Horn Subassembly

Type:	Forsythe Designed Constant Coverage Horn Incorporating Center Phasing/Displacement Plug
Construction:	Cross-Grain-Laminated Birch Plywood With High Density Polyurethane Reinforcing And Cast Polyurethane Phase Plug.
Driver:	RCF Laboratory Series L10/750K 250mm (10-in) Cone Driver With 75mm (3-in) Voice Coil

KF850 Specifications Continued

HF Horn Subassembly

Type: Forsythe Designed Constant Coverage Horn
Construction: Wood Reinforced Hand Applied Fiberglass
Driver: TAD 4001 Beryllium Diaphragm With
100mm (4-in) Voice Coil

Additional Descriptive Data

Finish: Black Catalyzed Polyurethane Chemical Coating
Connectors: Dual Cannon EP-6 Males Plus Individual Banana
Plug Test Points On Each Driver. All Connectors
Are Wired To Internal Barrier Strip That In Turn Is
Connected To The Drivers For Easy Field
Reconfiguration Of The EP-6 Pins
Protective Grill: Heavy Gauge Vinyl Dipped Perforated Steel Grill
Screens With Black Cloth Covering
Rigging: Standard EAW Aircraft Type Fittings
Castors: Tee-Nuts Provided For Optional Swivel
Castors on Back, Removable Castor Palette Are Also
Available As An Option.
Dimensions: 42 in High, 27 in Wide, 29.75 in Deep.

MX800 CCEP Electronic Crossover Unit Specifications

Configuration: Stereo Three-Way Electronic Crossover With Mono
Subwoofer Output, Electronic Time/Amplitude
Compensation And Distortion Protection
Input Type: Active Balanced
Output Type: Active Balanced
Maximum Output: +10 dB into 600 Ω
Electronic Crossover Frequencies
SLF High Pass: 25 Hz, 18 dB/Octave
SLF/LF: 80-100 Hz (Switch Selectable), 24 dB/Octave
LF/MF: 250 Hz, 24 dB/Octave
MF/HF: 2,400 Hz, 24 dB/Octave
Note: Crossover Frequencies Specified Are Nominal
Values As Each Crossover Point Has Asymmetrical Slopes
Equalized To The Actual Subassembly's Acoustical
Performance
Distortion Protection Circuitry
Subwoofer Output: Multi Stage RMS Limiter
Low Frequency Output: Multi Stage RMS Limiter
Mid Frequency Output: Multi Stage RMS Limiter
High Frequency Output: Multi Stage RMS Limiter
Indicators
Power: Green LED
Protection (SLF,LF,MF,HF): Red LEDs
Controls:
Front Panel: AC on/off switch, Subwoofer Configuration Switch
Rear Panel: Screwdriver Output Level Calibrations
Adjustments
Connectors: XLR Type (3 pin)
Power: 120V AC Optional 240V AC
Dimensions: 19-in Wide, 3.5-in High, 6-in Deep



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