



TECHNICAL SPECIFICATIONS KF400a

DESCRIPTION

The KF400a Powered Virtual Array™ Loudspeaker System optimizes performance and reliability for a wide range of portable and permanently-installed sound reinforcement applications. The internal Close Coupled Power Module provides ample distortion-free amplification as well as sophisticated, transparent driver/amplifier protection circuitry and signal processing.

EAW's VA™ loudspeaker system design philosophy sets the world standard for arrayability and performance by applying advanced horn-loading concepts to the three-way loudspeaker configuration. The cone-loaded midrange horn's flare follows a complex mathematical function (not straight lines) allowing for smooth expansion of the wavefront. The newly designed phase plug – the first example of EAW's next generation of phase plug designs – ensures coherent summation of the wavefront in the horn throat, enhancing both the smooth sound character and arrayability of the system.

CLOSE COUPLED POWER™

The Close Coupled Power concept integrates amplification with the loudspeaker system to maximize performance, reliability and efficiency. Precisely matching the amplifier design to the specific system's driver/horn/enclosure characteristics provides a substantial amount of headroom without compromising reliability. State-of-the-art protection systems - actuated by real-time current and voltage monitors – apply complex compressor/limiters and soft clipping circuitry for virtually transparent protection of both the amplifier and the drivers, even when driven to the highest output levels. Modular input design allows for future system upgrades.

Authorized service professionals can access many elements of the Close Coupled Power Module simply by removing the back panel. When necessary the CCPM can be removed as a self-contained unit.

APPLICATIONS

The KF400a provides the greatest user-benefit to sound reinforcement applications utilizing the distributed loudspeaker system approach. Distributed amplifier/processor racks and their associated logistical/compatibility problems are eliminated from the design. Determine the appropriate loudspeaker system placement to meet your application's SPL and coverage requirements, deliver audio and AC feeds, and enjoy the results. The loop-through audio chain allows for the immediate creation of arrays from a single audio feed.

The KF400a features a six year warranty on loudspeaker enclosure and components, four years on active electronics.

Applications include:

- | | |
|----------------------|--------------------|
| Corporate Events | Convention Centers |
| Ballroom Events | Band PA |
| Small Worship Spaces | Live Music Club |



DESCRIPTIVE DATA

Configuration	3-way, Full Range	
Powering	Internal/Bi-amplified (passive LF/MF crossover)	
LF Subsystem	1x 15-in, Vented	
MF Subsystem	1x 8-in Cone, Horn-Loaded	
HF Subsystem	1x 1.4-in exit/75mm voice coil Compression Driver on Constant Directivity Horn	
Coverage Angles	65° (h) x 45° (v)	
Cabinet Type (shape)	Trapezoidal	
Enclosure Materials	Baltic Birch Plywood	
Finish	Black Polyurethane	
Connectors	1x Neutrik PowerCon (AC mains); XLR female (audio input); XLR male (audio output) Pin 2 Hot	
Suspension Hardware	(5) 3-Position Flytracks with Integral 3/8"-16 Threaded Mounting/Suspension Points (2 top and 3 bottom)	
Grill	Vinyl Coated Perforated Steel	
Options	Flyclip w/Ring (179001) Flyclip w/Hook (179002)	
Dimensions	inches	millimeters
Height	36.50	927
Width (Front)	19.75	502
Width (Rear)	12.79	325
Depth	19.75	502
Trapezoid Angle	10° per side	
Weights	pounds	kilograms
Net Weight	160	72.7
Shipping Weight	168	76.4





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CLOSE COUPLED POWER™ MODULE

Fault LED

Indicates that protection circuitry has shut down the unit to avoid damage to drivers or electronic devices.

Power ON LED

Indicates that the unit is powered and ready for operation.

HF/LF Output Current LEDs

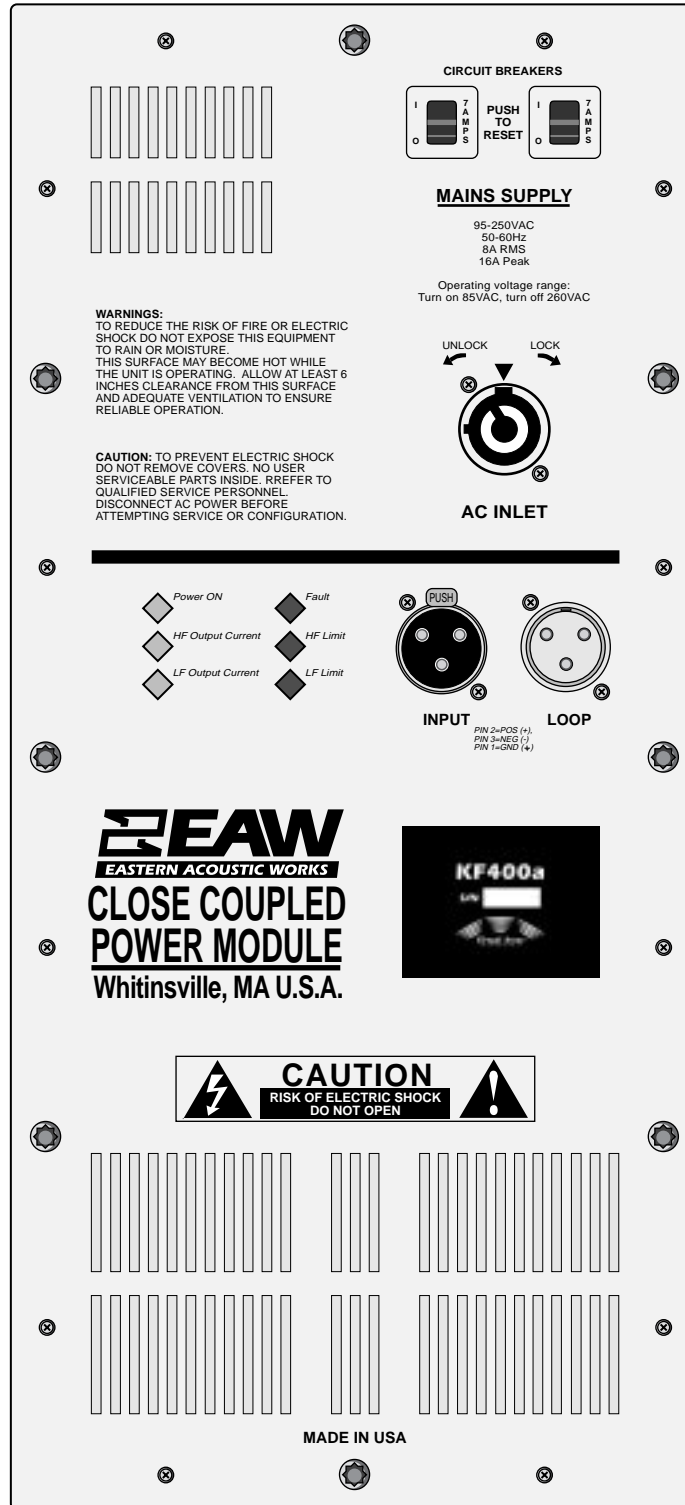
Indicates output current for both the high and low amplifier channels.

HF/LF Limit LEDs

Indicates that protection circuitry is actively limiting output to protect the drivers or electronic components.

Rear Exhaust Grills

The fan exhaust grills are the main exits for air drawn into the unit for cooling. Avoid blocking air flow.



Circuit Breakers

The AC Circuit Breakers protect the unit from power line faults and electronics failure.

AC Input

Neutrik PowerCon locking AC connector provides AC power connection. Auto-sensing power input operates from 95-125 VAC and 190-250 VAC.

Audio Signal Input

A balanced, 3-pin, female XLR connector is provided for the audio signal input connection.

Audio Signal Loop Output

A balanced, 3-pin, male XLR connector provides a hardwired loop out of the input signal.

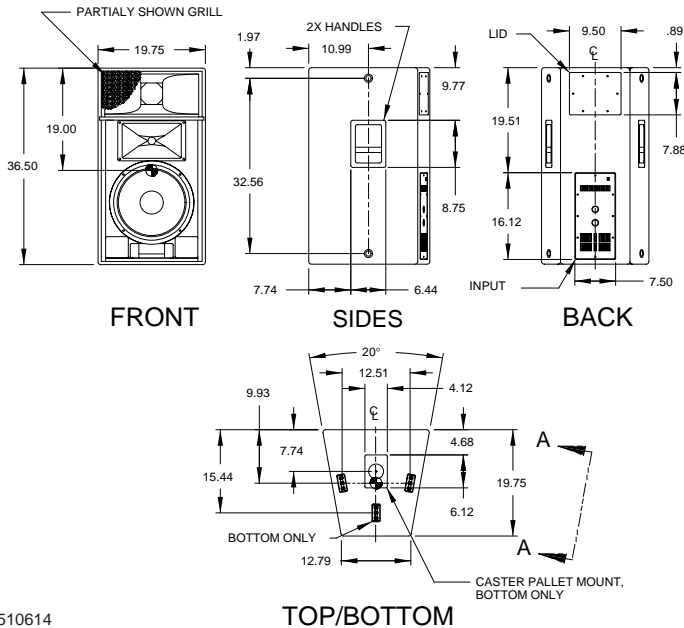


TECHNICAL SPECIFICATIONS KF400a

DIMENSIONAL DRAWING

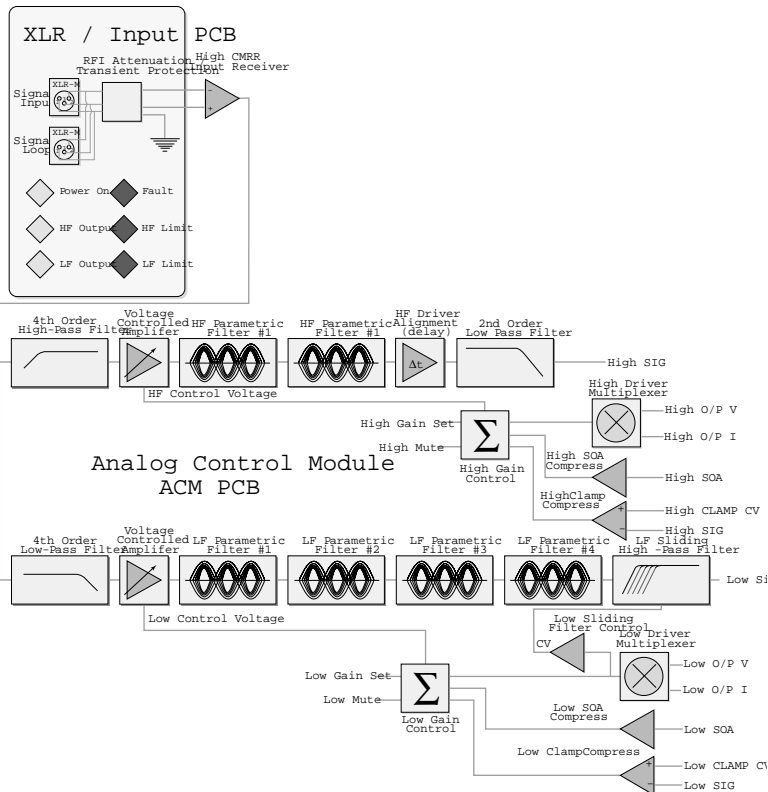
KF400a

● INDICATES MOUNTING POINT, 1/4-20 THREADED HOLE.
 ○ INDICATES CENTER OF BALANCE.
 ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED



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 exp 2/2/99 dpm

CCPM™ INPUT SECTION BLOCK DIAGRAM





TECHNICAL SPECIFICATIONS KF400a

NOMINAL DATA

Frequency Response (1 Watt @ 1m)	
±3 dB	62Hz to 20kHz
-10 dB	45 Hz
Calculated Maximum Output (dB SPL @ 1m)	
Full Range Peak	126.0
Full Range Long Term	122.0
Nominal Coverage Angle/-6 dB points (degrees)	
Horizontal	65
Vertical	45
Close Coupled Power™ Module	
Topology	Class H, linear power supply, vertical N-channel MOSFET output devices
AC mains voltage	Auto-sensing, 95 – 250 VAC, 47/66 Hz
AC power requirement (max)	1800 W peak, 950 W continuous
AC wiring	Ground, plus two hot lines or hot plus neutral
Input Sensitivity	0.775 V
Input Impedance (Ohms)	600
Protection	Short Circuit, Latch-up, device Safe Operating Area, overtemperature, Soft Clip, soft turn-on, turn-off, fault mute, driver thermal protection, driver excursion limiting. The KF400a must be disconnected from the AC mains in order for the Fault trip to reset.
CMRR	90 dB (typical)
LED Indicators	Power On, LF Current, HF Current, LF Limit, HF Limit, Fault
Maximum Ambient Temperature For Full Output	50° C
Altitude	6500 ft
Humidity	10% to 95%, non-condensing

SERVICE ITEMS

LF: Complete Cone Driver	
EAW Part No.	804083
MF: Complete Cone Driver	
EAW Part No.	804086
HF: Complete Compression Driver/Tweeter	
EAW Part No.	803040
HF: Diaphragm Assembly	
EAW Part No.	804023
Close Coupled Power™ Module: Complete Assembly	
EAW Part No.	230002

ARCHITECTURAL SPECIFICATIONS

The self-powered, bi-amplified 3-way full range loudspeaker systems shall incorporate a 15-in LF transducer, an 8-in MF cone and a 1.4-in exit/75mm voice coil HF compression driver.

The LF driver shall be mounted in a vented enclosure tuned for optimum low frequency response. The MF driver shall be loaded into a midrange horn constructed of 3mm birch plywood backed with high density polyurethane foam that shall incorporate a conical/hexagonal displacement/phase plug. The HF driver shall be loaded on a constant directivity horn with a nominal coverage pattern of 65° (h) x 45° (v). An internal passive filter network shall provide fourth order acoustical crossover and system equalization between the LF and MF subsystems.

System frequency response shall vary no more than ±3 dB from 62 Hz to 20 kHz measured on axis. The system shall be capable of producing a peak output of 126.0 dB SPL on axis at 1 meter.

The internal active signal processing shall provide complex, asymmetrical LF/MF to HF crossover. The internal amplification module shall provide class H amplifier topology, linear power supply and vertical N-channel MOSFET output devices each of which is load-matched to the subsystem it powers. Amplifier power shall provide substantial headroom such that transient peaks are reproduced with the appropriate dynamic range.

Driver/amplifier protection systems shall be actuated by sensors continuously monitoring Voltage and current in real time. Driver/amplifier protection systems shall gradually apply compressor/limiter-based soft clipping circuitry to minimize changes to the output sound characteristics when engaged.

The amplifier module shall be designed so that most components shall be accessed by removing the rear panel. The input circuitry shall be of a modular design to allow for future upgrades. The entire amplifier module shall be easily removable as a discreet unit.

The loudspeaker enclosure shall be trapezoidal in shape. It shall be constructed of 15mm thickness void-free cross-grain-laminated Baltic birch plywood and shall employ extensive internal bracing. It shall be finished in black polyurethane.

The AC power input connector shall be Neutrik PowerCon. Auto-sensing power input shall operate from 95-125 VAC and 190-250 VAC. The audio input connector shall be a female XLR (pin 2 hot) chassis-mount connector. A complementary male XLR chassis-mount connector (pin 2 hot) shall be provided for audio output (loop through). Five (5) 3-position flytracks (2 top and 3 bottom) shall be installed in the enclosure. The front of the loudspeaker shall be covered with a powder-coated perforated steel grill.

The self-powered, bi-amplified 3-way full range loudspeaker shall be the EAW model KF400a.