



# EAW COMMERCIAL APPLICATIONS GUIDE

Your Guide to Installing  
EAW Commercial Audio Products



## Small Hotel / Motel

VOLUME #1

# EAW Commercial

## The New Standard in Commercial Audio

*For more than 25 years, touring and installation professionals have turned to EAW for the world's finest loudspeaker systems. And musicians and engineers have long known Mackie for its great sounding, ultra-reliable mixers, amplifiers and speakers. So once EAW set its sights on the commercial audio market, the natural partnership was obvious.*

### ***Introducing EAW Commercial Systems***

A new brand of high-performance commercial audio solutions from the professionals at EAW and Mackie. The new EAW Commercial line includes DSP matrix mixers, amplifiers, ceiling speakers, and a full range of loudspeakers. These products are ideal for permanent installations in a wide range of venues requiring better sound, higher flexibility and greater overall integration.

### ***The EAW Commercial Difference***

Because EAW Commercial can draw upon the world-class engineering and manufacturing resources of EAW, Mackie, SIA Software and Acuma Labs, we've been able to bring cutting-edge technology to commercial audio. EAW engineers designed digitally steerable arrays which combines our formidable digital signal processing, analog amplifier and professional loudspeaker technology into a single breakthrough product.



But all the technology in the world doesn't mean a thing if it doesn't give your clients great sound and years of reliability. So all EAW Commercial products adhere to EAW and Mackie's same rigorous design principles. We follow the same meticulous engineering processes. Most importantly, we pay attention to all the details—such as quality materials, construction, and ease of installation—so you won't have to. And thanks to our vast manufacturing resources and sheer buying power, these products give your customers a significant step-up in quality, without a step-up in price.

### ***Now and In the Future...***

Based on the solid foundations of EAW and Mackie, EAW Commercial looks forward to a bright future. Put simply, we aim to bring you the best performance and value on the market. We invite you to grow with us.

# Installing High-Impact Audio Systems in Small Hotels and Motels.

*Hotels, motels, and conference facilities present unique challenges for the audio and paging installer. Namely, these venues often require the seamless*

*integration of distinct smaller systems within the larger overall control network. Here's how EAWC can help.*



The facility shown on p.4 is typical of many small hotels or motels. The public areas include a main lobby; a ballroom for receptions, parties

and large meetings; additional meeting/conference rooms; a fitness center; a pool; a restaurant/sports bar, and two smaller meeting rooms that can be combined as needed.

Audio input sources for this facility include digital satellite service; a CD player; two wireless microphone systems for use in the ballroom and for the meeting rooms (or at poolside); telephone paging in multiple locations; a paging microphone in the front office; and a line input from the ballroom room, allowing "overflow" attendees to hear the proceedings.

## **The Equipment Rack**

The hotel manager wants all electronics and amplifiers to be centralized in a single equipment rack located behind the check-in counter. The rack consists of one DX810 Digital Matrix Mixer—the central router and processor for all audio—and ten power amplifiers. Thankfully, the DX810 mixer has the horsepower to bring all the audio together in an efficient and easy-to-use system. We can perform routing from the various audio input sources into any combination of the rooms. And audio can be equalized and further customized for each of the rooms, thanks to the DX810's programmable EQ, crossovers, noise gates, compressors, duckers and loudspeaker

delays. (Of course this also eliminates the need for multiple processors in the rack.) The DX810 also has a provision for 24V DC backup, so the paging system can fulfill emergency requirements in the event of a power failure or blackout.

## **The Lobby**



Background music and paging (with automatic "ducking" and override functions programmed into the DX810) are delivered via CIS400 Ceiling Speakers, driven on a 100V line that is powered by a CXA120 Amplifier. (The CIS400 includes a built-in transformer as well as complete mounting hardware.) This 100V system allows a single amplifier to deliver the same audio across all the speakers in the system. The eight CIS400 speakers are tapped at 7.5 watts, which provide plenty of extra headroom from the CXA120 amplifier.

## **The Ballroom**



The ballroom features a CAZ2500 Amplifier powering two VR51 Loudspeakers. A bridged CAZ1400 drives a VRS12 Subwoofer, with DX810 providing limiters and a crossover division for the subwoofer. A wall input panel in the ballroom allows an audio source to be supplied from within the room, such as a DJ for a reception or a microphone for training sessions. While this audio source feeds the DX810, it is isolated for delivery into the ballroom. The DX810 feeds the CIS400 ceiling speakers run from a CAM150 mixer amplifier, allowing extra inputs to be sent to the ceiling speakers for background music when the foreground system is not needed. A DX-SW4 wall switch allows audio from the ballroom to be sent to the other meeting rooms as needed. Separate DX-RVC wall panel volume controls are located in each room for individual volume control.

## The Meeting Rooms



The meeting rooms use a combination of surface-mount SMS4 loudspeakers and CIS400

Ceiling Speakers, with CAM60 Mixer/Amplifiers allowing connection of additional sources like podium microphones, audiovisual playback systems, etc. Each CIS400 will be tapped at 7.5 watts and each SMS4 will be tapped at 10 watts to give them a little extra volume and focus toward the front of the room. The speakers put a 50-watt load on the CAM60 with 10 watts to spare. Since these rooms won't be run at high volume levels the extra 10 watts are more than enough.

Each zone features a DX-RVC for local volume adjustment and a DX-SW4 remote control for selection of appropriate presets. The audio in the two rooms can be combined for larger presentations or tie into the audio from the main ballroom. This is all done through presets in the DX810 matrix mixer.

## The Fitness Room



For background music plus paging in the fitness room, a CXA120 Amplifier drives a 100V line to the built-in transformers on the surface-mount speakers. The SMS4 surface-mount speakers were chosen to project the sound across

the entire fitness room for an aerobics class. A wall panel can provide an input for an additional audio source, such as a CD player or a microphone, along with a separate volume control.



**Studio monitor-quality sound in the ceiling. That's why we call the new CIS400 a "ceiling monitor." Wide frequency response, combined with extremely controlled dispersion, give the CIS400 unrivaled sound quality.**

## INSTALLATION NOTES:

**Loudspeaker Placement** – Determining the number of speakers needed in an installation is not always an easy formula. Trying to apply various published formulas often mislead the designer into thinking that everything will come out fine. Note that our Applications Guide doesn't specify ceiling height, listener positions, required SPL levels or other major variables needed for the best sounding system.

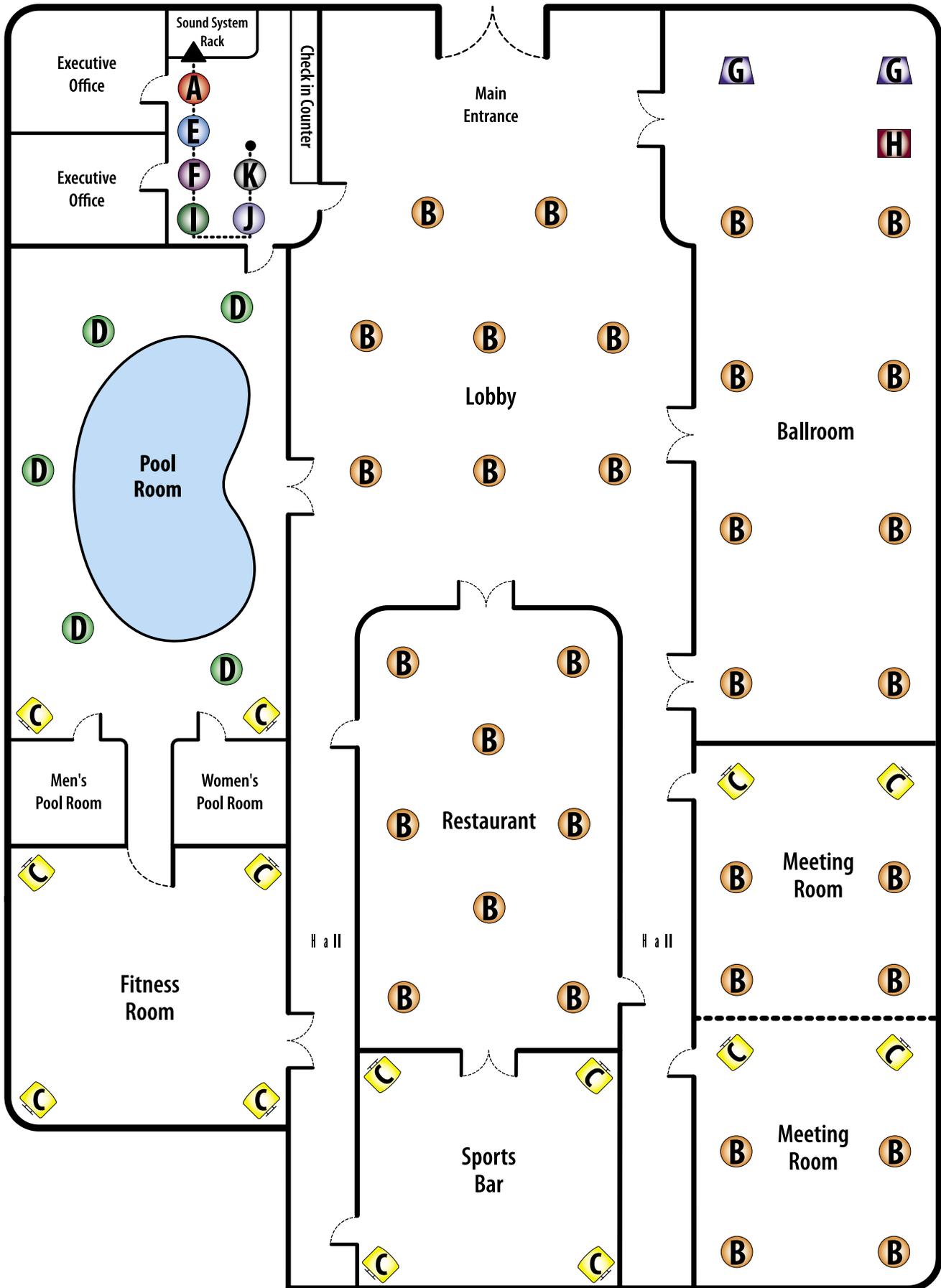
**Wattage Allotments** – Our Applications Guide uses both low impedance systems and constant voltage systems. Most misunderstood of the two are constant

voltage systems. Choosing an amplifier for a 100V system is easy because you can add up all the transformer taps that you want to use on each speaker. For example, eight CIS400 ceiling speakers tapped at 7.5 watts would ask for 60 watts. A simple rule of thumb is to allow 20% more wattage than needed to handle variations in the volume and material.

The benefits of using a distributed 100V system is that each speaker only pulls the amount of wattage assigned it on the transformer taps, so you can add many speakers to a single amplifier without having to calculate the maximum impedance. You only have to pay attention to the wattage maximum. You can also mix and match different tap settings to have some of the speakers louder in volume than other speakers in the same system.

This Applications Guide was created by EAW Commercial to demonstrate a basic sound system application using EAW Commercial products. As such, we do not include details such as room dimensions, ceiling heights, building materials, types of use, etc.—all of which will have a profound affect on the total system performance.

# Hotel Main Floor



## DIGITAL MATRIX MIXER

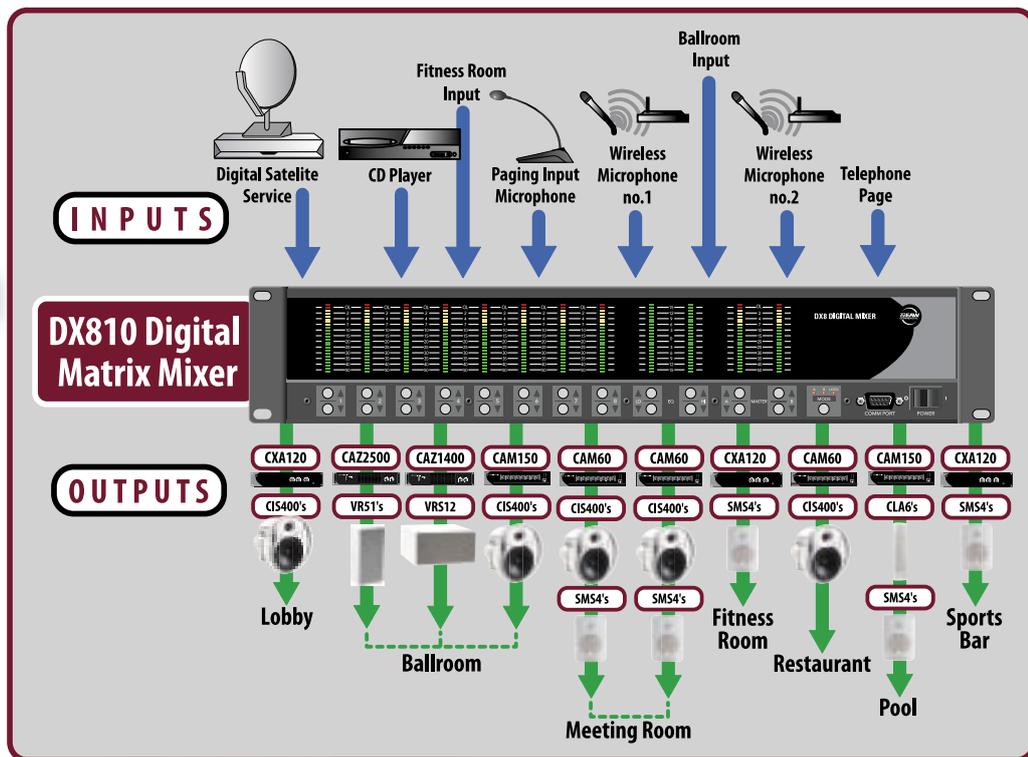
The DX810 Digital Matrix Mixer provides DSP-based digital audio mixing and processing for use in a variety of installations.

**A**



### DX810

- 31-band Graphic EQ combined with a 5-band Parametric EQ
- Variable compressor available on each Output
- True room combining capability (up to 16 combinations)
- Mute/Enable logic for each input, output and group
- Password security levels
- PC software application included



## AMPLIFIERS

The CXA, CAM and CAZ Series Amplifiers are designed for continuous duty in speech, music, paging and sound reinforcement applications in hotels/motels, schools, offices, arenas, meeting rooms, convention centers, recreational facilities and other venues demanding high performance, flexible features and rugged dependability.

**CXA SERIES AMPLIFIERS:** An excellent choice for applications requiring basic amplification of audio signals in a distributed audio system.

**E**



### CXA120

- 120W RMS
- 25V – 70V – 100V Outputs
- 1 Balanced Input

**CAM SERIES AMPLIFIERS:** For installations that may require the mixing of several audio sources prior to amplification and distribution.

**K**



### CAM60

- 60W RMS
- 4 balanced XLR microphone/line inputs
- 1 stereo auxiliary input
- 4 Ohm – 25V – 70V – 100V outputs

**J**



### CAM150

- 150W RMS
- 4 balanced XLR microphone/line inputs
- 1 stereo auxiliary input
- 4 Ohm – 25V – 70V – 100V outputs

**CAZ SERIES AMPLIFIERS:** Offers the system integrator the flexibility of mono/stereo/bridged mono operating modes.

**I**



### CAZ1400

- 1400W @ 4 Ohms bridged
- Easily switchable mono/stereo/bridged mono operating modes
- Separate outputs for Channel A and Channel B
- Third output for mono bridged applications: also provides both output channels on a single connector

**F**



### CAZ2500

- 2500W @ 4 Ohms bridged
- Easily switchable mono/stereo/bridged mono operating modes
- Separate outputs for Channel A and Channel B
- Third output for mono bridged applications: also provides both output channels on a single connector

## CEILING SPEAKERS

The CIS Series Ceiling Mount speakers offers several solutions for those applications that require superior audio reproduction. For basic paging and background music, the CIS Series Ceiling Mount speakers provide an economical solution.

**B**



### CIS400

- Waveguide-loaded 1" tweeter
- 6.5" LF Driver
- Integrated mounting systems
- Built-in switchable high-pass crossover
- 30 watt, 70/100V transformer built-in
- 16-ohm setting
- Includes mounting hardware
- UL/cUL/CE listed

## SURFACE-MOUNT SPEAKERS

The SMS Series Surface Mount Speakers provide natural, smooth sound reproduction with precise, wide angle, coverage patterns through their constant directivity horns.

**C**



### SMS4

- 5" high-efficiency woofer
- CD horn loaded, 0.5" dome tweeter
- Built-in, multi-tap constant voltage transformer
- Built-in low inductance passive crossover (LICC) with high frequency dynamic protection
- Lightweight, UV/weather resistant, high density polystyrene
- Integrated mounting points for use with included mounting hardware
- Available in black, white, and can be printed

## SOUND REINFORCEMENT SPEAKERS

The VR Series Sound Reinforcement Speakers provide exceptional fidelity for foreground music applications and are suitable as main loudspeakers. Their large format HF horn maintains directivity and these rugged enclosures (available in both black and white finishes) come with user-supplied mounting hardware. The powder coated steel grille is foam-backed, providing physical protection for the drivers as well as hiding them from view.

**G**



### VR51

- 2-way, full range loudspeaker
- 15" LF, 1.4 exit HF
- Powder handling 500 watts at 8 ohm
- 90° x 60° rotatable HF beamwidth standard; user-installed 60° x 45° horn is included
- Barrier strip input
- Economical single-amp operation
- Integrated 3/8" 16 mounting points for use with optional eyebolts or array brackets
- Optional transformer module available for 100V applications

**H**



### VRS12

- Two 12" subwoofer
- Operating range 35Hz to 250Hz
- Power handling 500 watts at 4 ohm
- Barrier strip input
- Integrated 3/8" 16 mounting points for use with optional eyebolts or array brackets

## COLUMN SPEAKERS

Designed for corner or wall installation, the CLA6 has been carefully designed to provide the wide dispersion characteristics essential for column speaker installations.

**D**



### CLA6

- 4 x 3" woofers and 1 x 2" tweeter
- Rated power 40W
- Line transformers for 100V systems
- 205° x 85° HF beamwidth
- Durable galvanized steel housing



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