



EAW COMMERCIAL **APPLICATIONS GUIDE**

Your Guide to Installing
EAW Commercial Audio Products



Restaurant/Bar

VOLUME #4

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. As well, musicians and engineers have long known Mackie for their great sounding, ultra-reliable mixers, amplifiers and speakers. So once EAW set its sights on the commercial audio market, a partnership seemed perfectly natural.

Introducing EAW Commercial

EAW Commercial is 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, as well as a full range of loudspeakers. Ideal for permanent installations in a wide range of venues, these products provide 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're able to bring cutting-edge technology to commercial audio. EAW engineers have designed digitally steerable arrays which combine our formidable digital signal processing, analog amplifier and professional loudspeaker technology into a single breakthrough product line.



However all the technology in the world doesn't mean a thing if it doesn't give your clients great sound and years of reliability. That's why all EAW Commercial products adhere to EAW and Mackie's rigorous design principles and meticulous engineering processes. Most importantly, we pay attention to all the details – like 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 technology and design foundations of EAW and Mackie, EAW Commercial has the experience to bring you the best performance and value in the market. We invite you to grow with us.

The Dynamics of Installing Audio in a Restaurant & Bar.



The local restaurant/bar is much more than just a place to get a bite to eat. It offers an opportunity for people to socialize, enjoy music at volumes their neighbors would call the police for, yell at referees for a bad call on the big screen TV, or even perform a song or two on the karaoke machine. The restaurant/bar owner who takes their audio system seriously will be successful and see a quick return on their investment.

For this application guide we have chosen a facility with a dining room and separate bar area. The bar area offers a large screen TV for Monday night sporting events, karaoke on Thursday nights, and dancing to a DJ on Friday and Saturday nights. The restaurant owner has requested an audio system that can accommodate separate music in the dining room and the bar, paging capabilities, and the ability to control volume from the hostess station.

Master Control – Even though the restaurant and bar area require separate audio, we can use a single DX810 Matrix Mixer to control the entire system. The DX810 can be set to route signals from a satellite music system, CD or MP3 source, or the reservation desk, to any part of the facility. The DXRVC and DXSW4 remote wall panels will be used to control the volume and change system parameters from locations far from the DX810. The remote control panels can even be used to select unique audio programming for delivery to each individual zone.

In addition, the DX810 and CXA amplifiers used in this system can be connected to a 24V DC backup power

system. This allows emergency paging throughout the facility in the event of a power failure.

Dining Area – Due to the large number of songs it can hold, an MP3 player provides light background music for the dining room through the DX810, which distributes audio to nine CIS300 Ceiling Monitors positioned between the tables. The CIS300 monitors receive their power from a single CXA240 amplifier running a 100V line. Each CIS300 will be tapped at 15 watts to provide headroom on the amplifier. While the hostess does have the ability to page the dining area in case of emergency, we've kept the dining area as a separate zone so that the background music isn't interrupted by announcements for available tables.

Bar Area – This restaurant owner understands that the proper music through a quality audio system can create the desired mood throughout his facility. Soothing background music is played in the dining room to enhance the atmosphere, while dance music played in the bar area is upbeat and makes people want to dance, tell jokes, and buy drinks. The host or

hostess will route most people to the bar area while they wait for their table, and will need to page them as tables are available. For this reason, both a CLA6 Compact Line Array Speaker in the waiting area and four CIS300 Ceiling Monitors in the bar will be powered by a single CXA240 Amplifier.

Outdoor Patio – To keep the project within the owner’s budget, we will run five SMS4 Surface Mount Speakers in the outdoor patio area from the CXA240 that powers the ceiling speakers in the bar. Since the CXA240 output is a 100V line, we can mix the types of speakers without overloading the amplifier due to impedance mismatches. We’ll tap all the different speakers at 15 watts, giving us plenty of volume with surplus headroom left on the amplifier. A passive transformer volume control will be installed in line before the CIS300 speakers located in the bar, so they can be turned off during karaoke night. We’ll also put a passive transformer volume control in line before the SMS4 speakers in the patio.

The SMS4 speakers are excellent for use in outdoor areas, because they are UV/weather resistant and provide great music reproduction.

Waiting Area – Nobody likes to wait in silence, so we’ll run the background music — as well as paging — to a CLA6 Compact Line Array Speaker in the waiting area. This speaker has a wide dispersion angle, so a single CLA6 can be used for the entire waiting area. The DX810 can also recognize the paging microphone signal and will “duck” or decrease the volume of the music in the waiting area, bar, and patio area, so the page can be heard.

DJ/Dance Area – At one end of the bar area is a dance floor and DJ setup so a DJ can spin tunes both Friday and Saturday night. This area can also be used for karaoke night. Two VR51 Full Range Speakers augmented with a VRS18 Subwoofer provide the sound. A CAZ1400 amplifier running in “stereo” mode powers the VR51s, and a second CAZ1400 amplifier set to “bridged mono” mode powers the VRS18 sub. The DX810 provides the proper crossover separation for the subwoofer, as well as any EQ that might be needed. A DXSW4 wall remote allows the bartender to change the system configuration when the big screen TV is in use, when it’s karaoke night, or for the weekend DJ.

INSTALLATION NOTES:

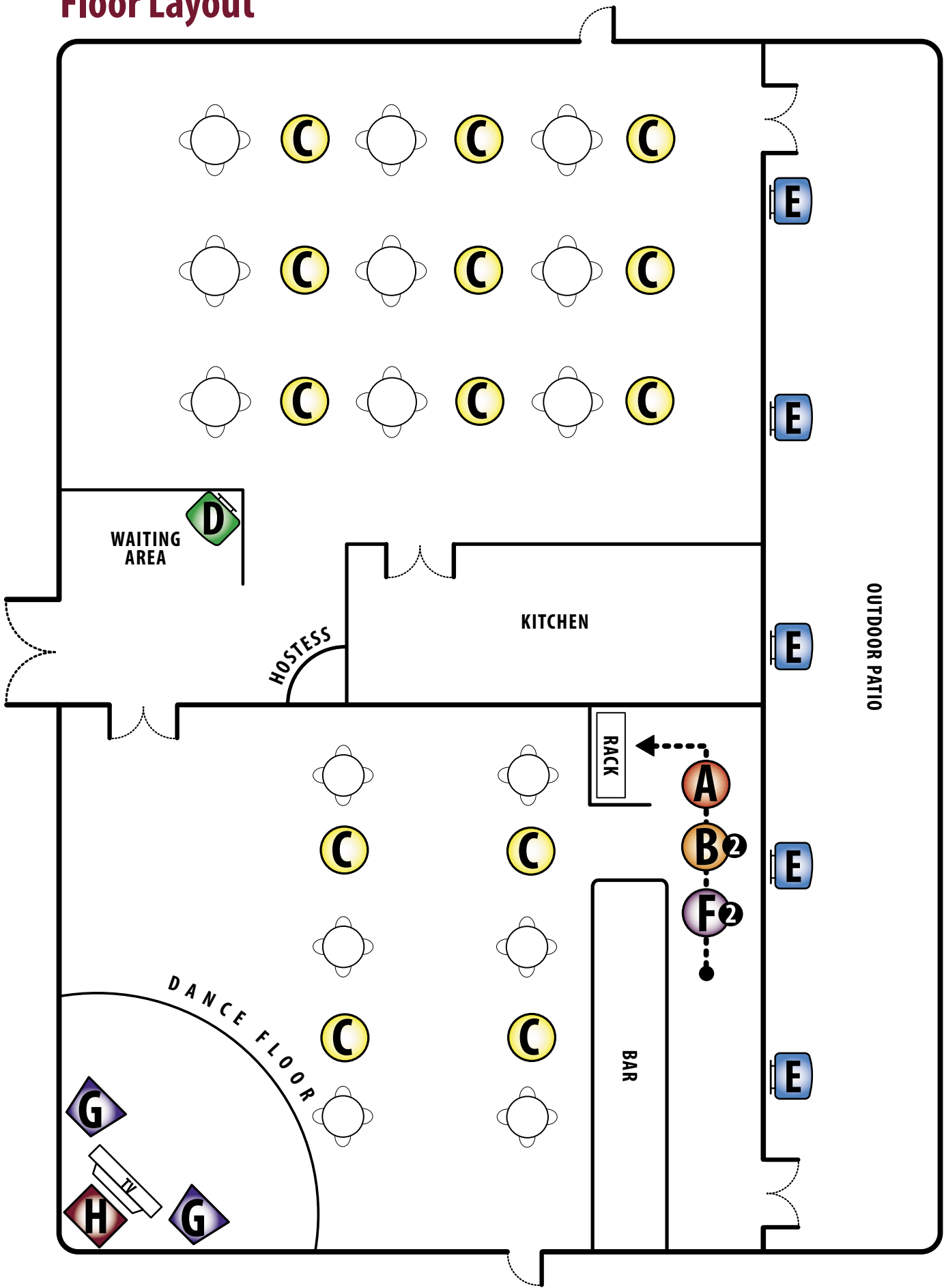
Loudspeaker Placement – Determining the number of speakers needed in a particular installation is not always an easy task. Attempting to apply various published formulas can often mislead the designer into believing that everything will come out sounding fine if they just follow the formula. Note that our Applications Guide doesn’t specify ceiling height, listener positions, required SPL levels or other major variables needed for the best sounding system. Consult a professional sound installer for best results.

Wattage Allotments – Our Applications Guide uses both low impedance systems and constant voltage systems. Choosing an amplifier for a 100V system is easy — just add up the number of transformer taps 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 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 configure select 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.

Restaurant/Bar Floor Layout



DIGITAL MATRIX MIXER

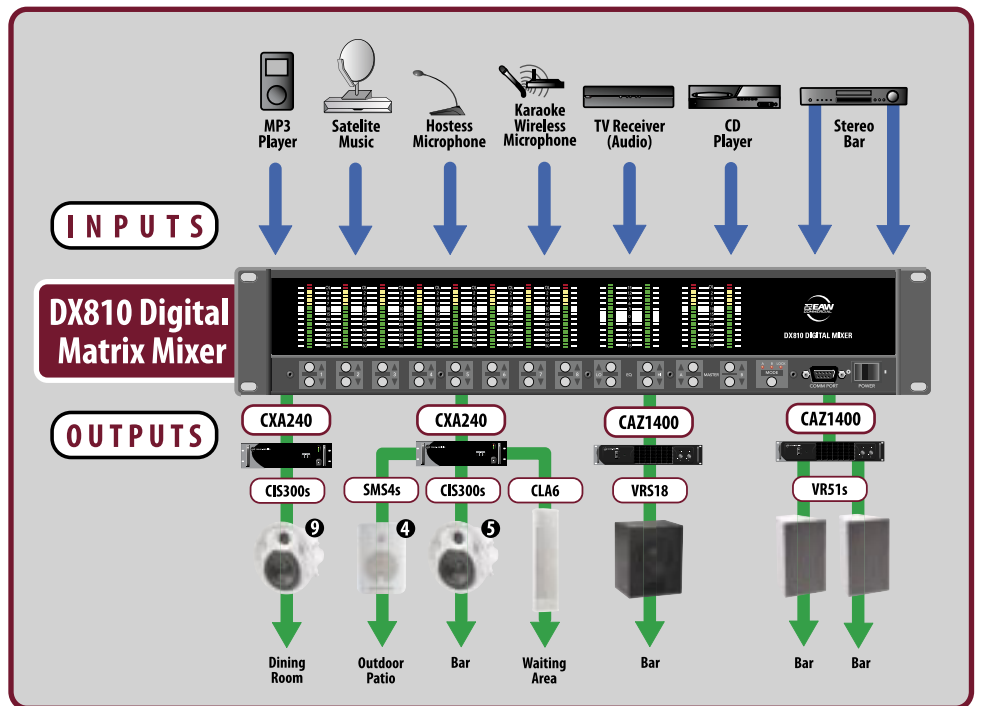
The DX810 Digital Matrix Mixer provides DSP-based digital audio mixing and processing for use in a variety of sound installations.

A



DX810

- 31-band Graphic EQ combined with a 8-band Parametric EQ
- Variable compressor available on each Output (up to 16 combinations)
- 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 that demand high performance, flexible features, and rugged dependability.

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

B



CXA240

- 240W RMS
- 4 Ohm – 25V – 70V – 100V Outputs
- Thermal protection circuitry
- Fan cooled, dual speed
- Automatic 24DC back-up power input

CAZ SERIES AMPLIFIERS: Where low-impedance systems are desired, the CAZ Series offers the flexibility of three different power points.

F



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

CEILING SPEAKERS

The CIS Series Ceiling Mount speakers offer multiple solutions for applications requiring superior audio reproduction. Designed for basic paging and background music, the CIS Series Ceiling Mount speakers provide an economical solution.

C



CIS300

- Waveguide-loaded 1" tweeter
- 4" 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.

E



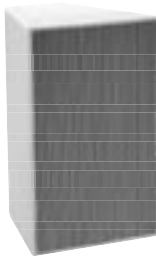
SMS4

- 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 and white

SOUND REINFORCEMENT SPEAKERS

The VR Series Sound Reinforcement Speakers provide exceptional fidelity in foreground music applications, and are very suitable as main loudspeakers. VR Series format HF horns maintain directivity, and their rugged enclosures come with user-supplied mounting hardware. Available in both black and white finishes.

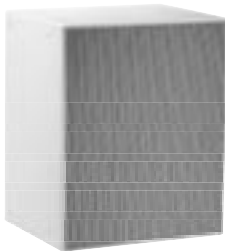
G



VR51

- 2-way, full range loudspeaker
- 15" LF, 1.4 exit HF
- Powder Handling: 500 watts at 8 ohm
- Operating Range: 50Hz to 18kHz
- 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
- Optional transformer module available for 100V applications

H



VRS18

- 18" subwoofer
- Operating Range: 30Hz to 250Hz
- Power Handling: 500 watts at 8 ohm
- Barrier strip input
- Appropriate for applications where maximum LF extension is required
- Integrated 3/8" 16 mounting points

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
- Operating Range: 140Hz to 20kHz
- Rated power 40W
- Line transformers for 70V systems
- 205° x 85° HF beamwidth
- Durable galvanized steel housing
- Mounting bracket included



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