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Nightclubs

Guide to Audio System Design and Lighting for Nightclubs

A guide to creating a design specification for the upgrade of audio-visual systems for theatres.

Welcome to our comprehensive guide to audio system design and lighting for nightclubs. With over 40 years of experience in the AV industry, Audiotek has been at the forefront of creating some of the world's most iconic installations in clubs of all sizes. From the legendary Pacha Ibiza, the original super club, to the awe-inspiring super clubs on the Vegas strip, including Omnia with its renowned 23-tonne kinetic chandelier, our expertise in ambitious and creative installations is unmatched. In this guide, we'll share our insights and recommendations to help you design and specify AV systems that deliver unforgettable experiences for your patrons.

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Main Floor

Audio Needs: The main floor is the heart of any nightclub, where high-energy sound is crucial. You'll need high-fidelity sound with powerful bass, clear midrange, and crisp highs. Subwoofers should deliver deep, resonant bass, while line arrays or large format speakers provide broad coverage and consistent sound pressure levels (SPL).

Lighting Needs: Dynamic lighting with programmable effects is essential to match the music's energy. This includes moving heads, LED wash lights, strobes, and lasers, all DMX controlled for synchronization with audio and DJ performances.

Video Walls: High-resolution LED video walls can enhance the music experience with captivating visuals that integrate seamlessly with the DJ's performance.

Restaurant

Audio Needs: For restaurants, a background music system that provides even coverage at lower volumes is ideal. Ceiling or wall-mounted speakers should focus on clarity, ensuring background music complements rather than overpowers conversation.

Lighting Needs: Ambient lighting creates a comfortable dining atmosphere. Dimmable LED lights, spotlights for tables, and decorative fixtures enhance the restaurant's aesthetic and provide the perfect ambiance.

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Cocktail Lounge

Audio Needs: A cocktail lounge requires high-quality audio with an emphasis on clarity and coverage. Subtle, immersive sound creates a relaxed atmosphere, with zone control for different areas within the lounge.

Lighting Needs: Mood lighting sets the tone in a cocktail lounge. LED strips, spotlights, and colour-changing fixtures offer flexibility in creating the desired ambiance.

VIP Areas

Audio Needs: VIP areas demand premium sound systems with dedicated speakers and subwoofers to provide an exclusive audio experience. Control over volume and music selection allows for personalized entertainment.

Lighting Needs: Customizable lighting caters to VIP preferences. Intelligent lighting systems can be controlled independently from the main floor, providing a bespoke experience.

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General Considerations

System Integration: Ensure new installations are compatible with existing systems and visiting DJs' equipment.

Coverage and Zoning: Design audio systems for consistent coverage without dead spots, implementing zoning for independent control of different areas.

Power Requirements: Calculate total power needs for the audio equipment, ensuring an adequate power supply and distribution.

Main Floor Audio Specification

Speakers: Line array speakers with wide dispersion and high SPL capability. Subwoofers with low-frequency extension down to 20Hz.

Amplifiers: High-power amplifiers with DSP (Digital Signal Processing) for optimal sound management.

Mixers: Digital mixers with multiple inputs for seamless integration of various audio sources.

Restaurant Audio Specification

Speakers: Ceiling-mounted speakers with wide frequency response, focusing on speech intelligibility and even distribution

Amplifiers: Low-power amplifiers with built-in DSP for background music.

Control Systems: Zone controllers for independent volume and source control in different dining areas.

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Restaurant Audio Specification

Speakers: Ceiling-mounted speakers with wide frequency response, focusing on speech intelligibility and even distribution.

Amplifiers: Low-power amplifiers with built-in DSP for background music.

Control Systems: Zone controllers for independent volume and source control in different dining areas.

Cocktail Lounge Audio Specification

Speakers: Wall-mounted or in-wall speakers with a balanced sound profile. Subwoofers for subtle bass reinforcement.

Amplifiers: Mid-power amplifiers with DSP capabilities.

Control Systems: Touch panel interfaces for easy control over music and volume.

VIP Areas Audio Specification

Speakers: High-end speakers with precise audio reproduction. Dedicated subwoofers for deep bass.

Amplifiers: High-power, audiophile-grade amplifiers.

Control Systems: Customizable control panels for personalizing the audio experience.

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General Considerations

Control Systems: Centralized DMX control with the ability to program and automate lighting scenes, integrating with audio systems for synchronized light shows.

Fixture Placement: Strategic placement of lighting fixtures enhances visual impact, avoiding blind spots or excessive shadows.

Main Floor Lighting Specification

Moving Heads: Programmable moving heads for dynamic light shows.

LED Wash Lights: High-output LED wash lights for broad coverage.

Strobes and Lasers: High-intensity strobes and lasers for dramatic effects.

Control Systems: DMX controllers with pre-programmed and customizable scenes.

Restaurant Lighting Specification

Ambient Lighting: Dimmable LED lights for a warm, inviting atmosphere.

Spotlights: Adjustable spotlights for accentuating tables and décor.

Decorative Fixtures: Stylish fixtures complementing the restaurant's interior design.

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Cocktail Lounge Lighting Specification

Mood Lighting: Colour-changing LED strips and fixtures for an intimate ambiance.

Spotlights: Soft spotlights highlighting specific areas without being intrusive.

Control Systems: Easy-to-use interfaces for adjusting lighting to match different moods and events.

VIP Areas Lighting Specification

Customizable Fixtures: Intelligent lighting systems with remote control options for personalizing the VIP experience.

Accent Lighting: LED strips and spotlights for enhancing the luxurious feel of the area.

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Audio Integration

DJ Booth: Equip with industry-standard DJ equipment (mixers, turntables, CDJs) compatible with visiting DJs' gear.

Inputs and Outputs: Provide multiple input and output options for easy connection to the house system.

Monitoring: High-quality monitor speakers in the DJ booth for accurate audio feedback.

Lighting Integration

DMX Control: Allow visiting DJs to interface with the lighting control system to synchronize their performances with the venue's lighting.

Pre-programmed Scenes: Create a library of pre-programmed lighting scenes that can be triggered by the DJ during their set.

Video Wall Integration

Content Management: Provide tools for DJs to upload and display their visuals on the video walls.

Synchronization: Ensure video content synchronization with both audio and lighting systems for a cohesive performance.

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Final Considerations

Maintenance and Support: Establish a maintenance schedule and support plan to ensure the systems remain in optimal condition.

Future Proofing: Design systems with scalability in mind, allowing for future upgrades and expansions.

Budgeting: Provide a detailed budget that outlines the cost of equipment, installation, and any additional services required.

At Audiotek, our experience and passion for AV excellence guide us in delivering innovative solutions tailored to your nightclub's needs. By following this guide, you'll be well-equipped to create detailed specifications for third-party AV system engineers, ensuring your venue's audio and lighting systems are world-class, integrated, and capable of providing an unforgettable experience for your patrons.

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Case
Studies

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Jewel.

Venue

Nightclub

Location

Las Vegas

Product

Absen
Ayrton

The Hakkasan Group's latest offering on the Las Vegas Strip, Jewel is as inviting as it is evocative with over 24,000 square feet of precisely designed space. Audiotek designed and supplied a complete lighting, sound and video package which sets a benchmark in club design.

Video and lighting elements come together in a cohesive design given expression in the Ayrton Dream Panel Twin, using both sides of the panel – installed in a grid formation behind the DJ – to construct a kinetic video wall comprising Ayrton Magic Dots mounted on custom fabricated telescopic brackets.

Distinctive LED ribbons crown the action as they contour the pillars and walls pulsing with the rhythm. This convergence of sight and sound creates an immersive space from which to admire the ambiance, and one another. Just behind the DJ booth, a mesmerizing wall of light technology shape-shifts and shines, synchronizing the experience and culminating with a feast for the senses.

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Hakkasan.

Venue

N i g h t c l u b
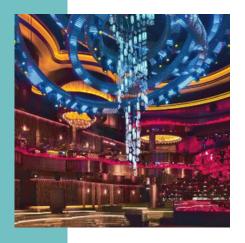
Location

L a s   V e g a s

Product

T u r b o s o u n d
L - A c o u s t i c s

Hakkasan's 80,000 square foot venue over five floors of the MGM Grand Hotel is the benchmark by which all other nightclubs are judged. A distributed Turbosound 24-box Flex Array sound system creates an immersive atmosphere around the main dance floor, with L'Acoustics KARA deployed as near field DJ monitors.

The lighting design was done in-house by Audiotek using a custom built truss in the shape of the famous Hakkasan logo covered in moving lights. We also installed a large video wall across the DJ booth, back wall, and curved into the ceiling of the space using 5mm Absen installation LED.

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OMNIA.

Venue

Nightclub

Location

Las Vegas

Product

L-Acoustics
Renkus-Heinz
Robe
Ayrton

OMNIA is, without doubt, the most talked-about nightclub in Las Vegas and further right across the clubbing world, taking up a mammoth 75,000 square feet split across three spaces.

Audiotek's design for audio, lighting, and video in the project complemented the club's opulence with a huge 32 ft diameter, 5-tonne kinetic chandelier, covered in Robe Lights, which dominates the main room combining lighting and movement to spectacular effect.

The main room audio is delivered by an L-Acoustics speaker system of ARCS loudspeakers and SB28 subwoofers for the mains and XTi loudspeakers for the fills. Whilst he feel of the second room – the intimate ultra-lounge – is very different while the technology is common, featuring L-Acoustics Arcs Focus and Arcs Wide loudspeakers with SB18 subwoofers.

On the terrace outside the Renkus Heinz loudspeakers keep the sound spill to nearby hotels under control while still allowing headline DJs to push high levels in the terrace venue.

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