

GRUPA **CLUE**

AUDIO VIDEO SOLUTIONS



Białka Tatrzańska, POLAND

# **BANIA MUSIC CLUB**

Hotel BANIA Thermal&Ski

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# OVERALL SUMMARY



We Love Challenges – Especially Those That Elevate Projects to the Next Level. Innovation is one of the pillars of our work, which is why we decided to enter the prestigious Dr. Mondo 2024 competition with a project that has become another milestone for us.

Our partnerships are built for the long term, and a perfect example of this is Hotel Bania. It was with great pleasure that we collaborated to create a new, groundbreaking version of Bania Music Club – a venue like no other.

Thanks to years of fruitful cooperation, the investor entrusted us with complete confidence, allowing us to bring a vision to life that combines exceptional sound quality, immersive experiences, and multisensory sensations. We want to share this story not only in Poland but with the world. Located in the heart of Poland's winter capital, Hotel Bania is a space where recreation, sports, and relaxation merge with cutting-edge audio technologies and haptic sensations, offering a full immersion into the world of music and emotions. Discover a project that truly inspires.

**Radosław Janusz**  
CEO Grupa CLUE  
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# CLIENT BRIEF & REQUIREMENTS

Spectacular Sound and Flawless Quality – The Core of Our Audiovisual Vision. Delivering world-class sound and an unforgettable experience - these were just some of the expectations placed on us during the audiovisual transformation of the Music Club at Hotel Bania. This remarkable venue deserved not only exceptional audio quality but also a sensory journey that would captivate every guest.

One of the greatest challenges was containing the sound within the club's space, as it is located directly beneath hotel rooms. In the heart of the picturesque Podhale region, where tradition meets modernity, every element of the sound system had to reflect the highest standards of uniqueness and precision.

## PROJECT GOALS

**UNCOMPROMISING QUALITY:** The sound system must ensure crystal-clear audio and precision across every area of the club adapting seamlessly to different music genres and event types.

**VERSATILITY:** The Music Club at Hotel Bania serves multiple functions - from a family entertainment hub during the day, featuring billiards, bowling, and a cinema for kids, to an electrifying nightclub with DJ sets in the evening. The solutions implemented needed to be flexible and adaptable.

**AESTHETICS:** All audio equipment had to blend harmoniously with the club's elegant, highland-inspired interior design, enhancing its unique atmosphere.

**INNOVATION:** Utilizing state-of-the-art sound technologies to not only deliver superior acoustics but also create an immersive and unforgettable experience for club guests.

## SOLUTION

A key component of the project was our collaboration with BOSE PROFESSIONAL. Their cutting-edge solutions enabled us to meet all client expectations, crafting a sound system that seamlessly merges innovation with the distinctive character of the Music Club at Hotel Bania.

## PROJECT INFORMATION

**BANIA Music Club**  
Białka Tatrzańska,  
Małopolska, Poland

**Start date:**  
September 2024

**Completion date:**  
December 2024

**Approximate value:**  
215 500 EUR net

**Integrator:**  
Grupa CLUE, Cracow, Poland

**Project Creator:**  
Radosław Janusz  
(Grupa CLUE)

# DESCRIPTION OF AREAS/SYSTEMS



Hotel Bania Thermal & Ski

## **Hotel Bania - A Destination of Holistic Relaxation.**

Hotel Bania is an impressive venue that seamlessly combines multiple functions, offering a comprehensive and immersive relaxation experience. Its extensive offerings go beyond comfortable accommodations, featuring direct access to ski slopes, thermal pools, a wellness center, and a variety of attractions for both adults and children.

Nestled in the picturesque Podhale region, guests can indulge not only in luxurious amenities but also in the serenity of nature, with easy access to winter sports and summer outdoor activities.



## **DANCE FLOOR**

**The Heart of Bania Music Club – An Immersive Dance Floor.** At the core of Bania Music Club lies its dance floor—a truly innovative space, thanks to cutting-edge technology.

We have seamlessly integrated Bose Professional's sound system with Powersoft's haptic technology, creating a one-of-a-kind sensory experience.

Hidden beneath the floor are Moverly - patented low-frequency direct-drive tactile transducers designed to literally "hit" the listener with sound. Mover technology allows guests to feel the music through haptic perception, as vibrations resonate through the environment. These vibrations are sensed by the body and, through bone conduction, stimulate the inner ear, transforming them into perceivable frequencies.

The result? A fully immersive space that amplifies emotions and guarantees an unforgettable experience for every guest.

## ***A new dimension of sound***

Music Without Limits – A Fully Inclusive Experience. For people with hearing impairments, music is often an unattainable experience, limited to visual effects and vibrations at concerts or club events. However, thanks to the haptic technology implemented at Bania Music Club, sound is no longer just something to be heard - it becomes tangible, physically perceptible.

This goes beyond simple vibrations - it's full immersion in music, where bass pulses through the floor, and rhythm resonates through the entire body. This allows deaf and hard-of-hearing individuals to experience music on the same level as everyone else. Every note, every drumbeat, every synth drop is not only heard by those with full hearing but is also physically felt by everyone on the dance floor, regardless of their level of hearing.

This is a true revolution in experiencing music, reshaping how people can engage with sound. When designing this space, we focused not only on modern technology and emotions but also on full accessibility. We wanted Bania Music Club to be a place for everyone, where music brings people together.

## **A CUTTING-EDGE SOUND SYSTEM FOR AN UNPARALLELED EXPERIENCE**

The advanced sound system at Bania Music Club is meticulously designed to enhance the dance floor experience while maintaining acoustic balance throughout the venue.

The dance floor area is equipped with full-range ceiling speakers featuring side propagation technology. To ensure complete sound coverage, we installed:

- 90° propagation speakers in the corners, and
- 180° propagation speakers along the dance floor perimeter.

This setup concentrates the sound within the dance area, effectively limiting sound spillover into the general zone.

This intentional sound containment allows guests in bar areas or VIP lounges to enjoy their time without being overwhelmed by excessive volume from the dance floor. A vibrating floor system has been seamlessly integrated, featuring low-frequency vibration exciters. This immersive innovation allows guests on the dance floor to physically feel the bass vibrations as if they were coming directly from the speakers—while those outside the dance area remain unaffected, ensuring their comfort.

Above the DJ booth, a “cardioid array” subwoofer configuration has been installed. This setup controls low-frequency dispersion, minimizing sound projection in undesired directions while focusing bass energy toward the audience. Specifically, it reduces bass spill toward the LED screen wall and directs it toward the dance floor, optimizing the listening experience. This state-of-the-art integration ensures exceptional sound quality, a deeply immersive experience, and a perfect balance between energy and comfort throughout the club.





## **FAMILY ENTERTAINMENT ZONE**



Hotel Bania is a place designed for guests traveling with families, which is why all its spaces – including the Music Club – must be multi-functional and flexible. In addition to standard elements such as a bar, dance floor, and VIP areas, the club also features a family entertainment zone, adapted to different age groups and times of the day.

During the day, this space serves as a family attraction zone, offering billiards, bowling, and a cinema for the youngest guests. In the evening, it transforms into a dynamic club zone, tailored for nighttime entertainment.

To maintain the interior's aesthetics, the sound system has been discreetly integrated into the Club's space, without disrupting the architects' vision. The screens, LED lighting, and sound are fully synchronized, creating a cohesive, immersive experience for guests.

Every detail was carefully considered when designing the audio system to ensure harmonious integration of technology with the unique character of the interiors. Additionally, BOSE Professional devices offer customization options, including changing the color of the housing, which allows for a perfect match with the interior design and preservation of the unique aesthetics of the Bania Music Club.





# TECHNOLOGY SPECIFICATION FOR SYSTEM

Hotel BANIA Thermal&Ski - Music Club

The audiovisual installation has been divided into separate subsystems based on functionality and scope of operation. Due to the nature of the devices' multi-hour operation in the Club's space, a multimedia system infrastructure was created, characterized by high reliability and operational stability. The modern building concept also determines the high standard of devices and compatibility with the latest technologies. The system is prepared for the transmission of digital signals using AV-over-IP technology and the Dante protocol, which defines the future-proof nature of the system and relatively simple expansion or modernization. The system has abandoned analog signal transmissions in favor of network cabling, which will also allow central management of all devices in the system, providing full control over displayed content, played audio signals, and lighting configuration.

The sound system was entirely implemented in low-impedance technology with a division into zones:

- Dance floor
- General area
- VIP zone
- Smoking room
- Toilets
- Game zone
- Bowling alley
- Window hall

## PROJECT IN NUMBERS

- 1 AV racks
- Almost 40 speakers of different types
- Over 30 low-frequency direct drive/tactile transducers
- 9 power amplifiers
- 8 sound zones with different functionality
- Audio transmission fully via Dante protocol
- 1 digital signal processor Bose Control Space EX-1280 and 1 multi-channel audio server from SoundCoreHero to manage the entire audio system
- Over 20 DMX lamps and hundreds meters of pixel strips
- 130" Indoor LED true All-in-One The Wall



## FAMILY ENTERTAINMENT ZONE AND VIP ROOMS

The general sound system in the general area and VIP zone, smoking room, toilets, game zone, bowling alley, and window hall is intended for playing background music. This system has been divided into individual zones, taking into account their individual functionalities. Depending on the needs, low-profile speakers with side propagation or standard ceiling speakers were used.

The signal transmission of the sound system will be mainly based on Dante technology. Thanks to the use of this technology, the system will be very flexible in terms of signal transmission and possibilities of changes and expansion. This technology is based on the use of a LAN network. Thanks to it, it is possible to transmit signals over long distances lossless and in ultra-low latency (delay). This reduces the amount of signal and speaker cabling, which in turn leads to minimizing failures or damage to the cabling.

The designed speakers, subwoofers, as well as vibration exciters are powered by dedicated four-channel high-power amplifiers. Thanks to the power sharing technology contained in the amplifiers, it was possible to design an infrastructure that allowed optimizing the rated power of the amplifiers to obtain the highest possible sound levels in the given audio zones.

Sound processing and management is carried out using an audio processor with DSP and a multi-channel audio server equipped with playlist, message, calendar, or soundtrack management modules. The server supports up to 16x16 audio channels via the Dante protocol. Additionally, a TV tuner and a surround system processor are provided in the installation, thanks to which the sound system above the dance floor can function as a 5.1 cinema system



## EQUIPMENT USED

### BOSE

- Ceiling speakers: DesignMax DM3C, DM5C, DM8C-Sub
- Ceiling directional speakers: EdgeMax EM180, EM180-LP, EM90, EM90-LP
- Cardio array with MB210-WR Outdoor Subwoofer speakers
- Amplifiers and processors: PowerShare PSX1204D, PSX2404D, ControlSpace EX-1280, EX-4ML Dante Endpoint
- Controllers: ControlCenter CC-2D

### POWERSOFT

- Low-frequency direct drive/tactile transducers: MOVER HiZ
- Amplifiers: Quattrocanali 4804 DSP+D

### SAMSUNG

- Indoor LED: IAC Series 130"
- Monitors: QM65C

### OTHER

- Cisco Business 350 Series managed switches
- SoundCoreHero multi-channel audio server with Dante 16x16
- Dante wall plate and HDMI ARC to Dante converters
- beamZ DMX strobo, wash, beam heads
- Enttec RGB and RGBW pixel strips

## DANCE FLOOR

- The DJ booth is equipped with various types of connections: 2xRCA, mini-jack, BT connection, as well as 4xXLR inputs.
- The inputs can be used simultaneously.
- Transmission takes place via the LAN network, using the Dante protocol, and the AES67 protocol can also be used.
- Bose audio processor supporting Dante/AES67
- EdgeMax speakers from Bose and MB210 subwoofers were used, low-impedance connection
- This is powered by Bose PSX series amplifiers
- This space, together with the micro-LED screen, can also be used as a cinema, an Extron Surround processor was used here.



## SCREENS

A 130" All-in-One LED screen was installed on the dance floor of the Night Club, near the DJ's booth. Considering the multi-functionality of the Night Club space, as well as the scalability of the solution, audio-video signals are transmitted to each of the monitors and the screen using AV-over-IP technology. The devices responsible for displaying content are equipped with a 4K decoder with a scaler, and the monitors are additionally equipped with HDMI ARC converters, which allow audio signals from the monitors to be input into the system via the Dante protocol.

On the dance floor of the Night Club, near the DJ's booth, a 130" All-in-One LED screen with Full HD resolution was installed.

The installation includes large-format 4K monitors with a diagonal of 65", brightness of 500 nits, and an anti-glare matrix. Each monitor is suspended on a pop-out type wall mount with the possibility of extension. This solution guarantees easy and convenient access to the electronics behind the monitor. The screens in the VIP area are additionally equipped with HDMI connectors, which makes it possible to directly connect to a given monitor in the area.





Bania Music Club is a venue designed with the highest sound quality and state-of-the-art technological solutions in mind. The hall is equipped with an advanced sound system based on suspended speakers, ensuring even sound coverage throughout the space.

Audiovisual system management is carried out using an intuitive control keypad located near the bar area.

Overall system control is based on a Crestron Cp4 processor:

- Audio is handled by a Bose DSP and an Extron surround processor.
- Operation is via a 10-inch Crestron touch screen and a custom-tailored interface.
- Lighting control, lights in the Dali system.
- Crestron relay electrical module for controlling electrical circuits.
- DMX lighting control via CueCore3 controller.
- Resolume and Ableton products are responsible for generating video content to the rhythm of the music.
- The LAN network is based on the stable operation of Cisco switches.

## LIGHTING SYSTEM



Complex of Decorative and Stage Lighting and Visualization. The club's lighting complex was designed to create unforgettable visual experiences that are an integral part of the musical experience. The modern system consists of two subsystems of decorative lighting, two subsystems of stage lighting, and a subsystem of color-graphic visualization. All these elements are interconnected and synchronized by a central control module that reacts to the rhythm and tempo of the music, enabling precise adjustment of lighting effects to the changing dynamics of the songs.

The central point of the system is a hardware-software complex consisting of a computer with dedicated software and a seamless FullHD resolution LED screen. The software analyzes the received audio signal, determines the tempo of the song, and transmits this information to the visualization application and the lighting control panel. This makes it possible to synchronize light transitions with video effects down to the level of a single musical beat.

The first of the decorative lighting subsystems uses RGBW LED strips to illuminate ceiling niches. This solution allows for obtaining over 64,000 shades that can smoothly transition into one another, creating a mysterious and atmospheric atmosphere, as well as visually expanding the space and emphasizing its architecture. The second subsystem, based on advanced LED strips that allow individual control of each diode (pixel) with a density of 60 pixels per meter, has been installed in the floor around the dance floor and within the decorative portal. Its uniqueness lies in the fact that the lighting effect is generated by a color-graphic visualization system, similar to the effect generated for LED strobes, used in the scope of stage lighting, which, in addition to the classic flicker effect, are capable of displaying dynamic visual content. All of which together makes the visualization seem to "tear out" from the screen and spread across the space, enhancing the effect of immersing participants in the club's atmosphere.

The whole system is complemented by dynamic stage lighting, implemented using rotating Spot and Wash type spotlights, strategically located along the dance floor and above its central part. Combined with a light mist generated by a smoke device, the system enables interesting lighting effects, thus enriching the spectacle of each event.

It is worth emphasizing that the entire complex, along with its individual subsystems, has been programmed for automatic operation, which minimizes the need for operator intervention and guarantees a variety of multimedia effects during events. Thanks to this, the DJ can fully focus on the musical performance, leaving the lighting control to the system.

# SUMMARY



The modern concept of the Hotel also determines the high standard of devices and compatibility with the latest technologies. The system has abandoned analog signal transmissions using specialized cables in favor of popular twisted pair and fiber optics, which defines the future-proof nature of the system and a relatively simple possible expansion/modernization of the system in the future.



# CLIENT TESTIMONIAL



**Tomasz Rzadkosz**  
Marketing Director  
*Hotel Bania RESORT*

Located in the heart of the Polish Tatra Mountains, Bania Music Club is a place that redefines the concept of entertainment at the highest level. Modern design, the latest technology, and a unique atmosphere make it one of the most unique clubs in Poland. It is here, surrounded by mountain scenery, that sound takes on a new dimension, and music becomes not only an auditory experience but also a physical one.

The implementation of this unique project was associated with a major challenge – the club is located under hotel spaces, which required the use of advanced solutions in the field of sound insulation. The sound had to be, in a way, “locked” inside the club so that hotel guests could enjoy a peaceful rest while the party is in full swing on the dance floor. Thanks to cooperation with experts from the Krakow-based company Grupa CLUE, it was possible to create a sound system that combines powerful, clear sound inside the club with perfect noise penetration reduction to the outside.

One of the most unique elements of the club is an innovative vibrating floor, which allows you to literally feel the music throughout your body. This solution takes the club experience to a completely new level, making every sound an integral part of the space. Since it is a place whose functions change according to the time of day, it was necessary to combine family entertainment such as billiards, bowling, and cinema with the evening entertainment, when music reigns. It was a big challenge that we undertook, but the effect is worth all the effort taken at the implementation stage.

Bania Music Club is not only excellent sound quality but also a unique atmosphere of modern entertainment in a mountain setting. Thanks to the combination of innovative technology with unique style and energy, it is a place that we hope will permanently be inscribed on the map of the best clubs in Poland.





**THANK  
YOU!**

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