DSP2008 & DSP3036 with LED Display for Indoor and Outdoor Scenarios

System Overview

- With the continuous development of modern architecture, performance venues, and public spaces, the integration of audio and visual equipment has become a key approach to enhancing audience experiences. The combination of column speakers and LED displays provides an enriched audiovisual experience for both indoor and outdoor environments, ensuring accurate, clear, and highly visible information delivery. This system solution will explain the design concept, necessity and practical application of the sound reinforcement system with column speakers and LED large screens.

Design Requirements

- **Clear and Balanced Audio Performance:** The column speaker system should be designed to ensure clear and balanced sound quality, avoiding distortion.
- **Synchronization Between LED Display and Audio System:** It is essential to maintain synchronization between the LED display and the column speaker system, ensuring seamless audio-video performance without delays or stuttering for a consistent audiovisual experience.
- **Protection and Adaptability:** For outdoor applications, both the column speakers and LED display must have adequate protection against water, dust, and wind, meeting at least an IP65 rating. The system should be adaptable to various environmental conditions while maintaining stable performance.
- **Easy Operation and Maintenance:** The system should be designed for user-friendly operation and maintenance, featuring an intuitive interface for quick adjustments to volume, display content, and audio effects. Additionally, it should support remote monitoring and diagnostics for efficient maintenance and management.

Multi-Function Hall Solution Configuration

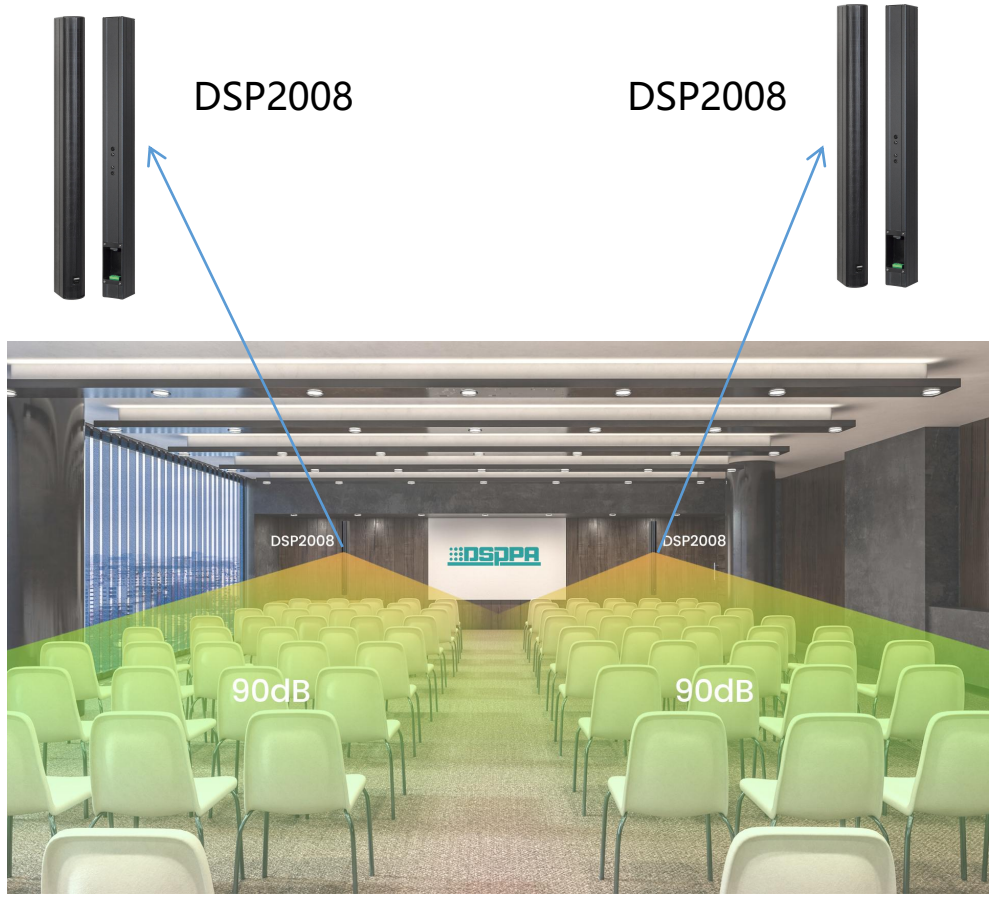
No.	Model	Product Name	Quantity
1	D5821	UHF Wireless Microphone System	1PC
2	DM30	Dynamic Desktop Microphone	2PCS
3	D6561	Hand-held Dynamic Microphone	2PCS
4	D7A	Microphone Stand	2PCS
5	D5828	8 Channels Outdoor Antenna Signal Amplification	1PC
6	CM16	16 Channels Digital Mixing Console	1PC
7	D6642H	Digital Audio Processor with Echo Suppressor	1PC
8	DX1500	Professional Stereo Digital Power Amplifier (8Ω; 2x230W)	1PC
9	DSP2008	2” Two-way Array Column Speaker	2PCS
10	D6572II	8 Channel Power Supply Sequence Controller	1PC

Note: This system solution is for reference only. Please contact us if needed.

Multi-Function Hall Solution Description

Solution Description

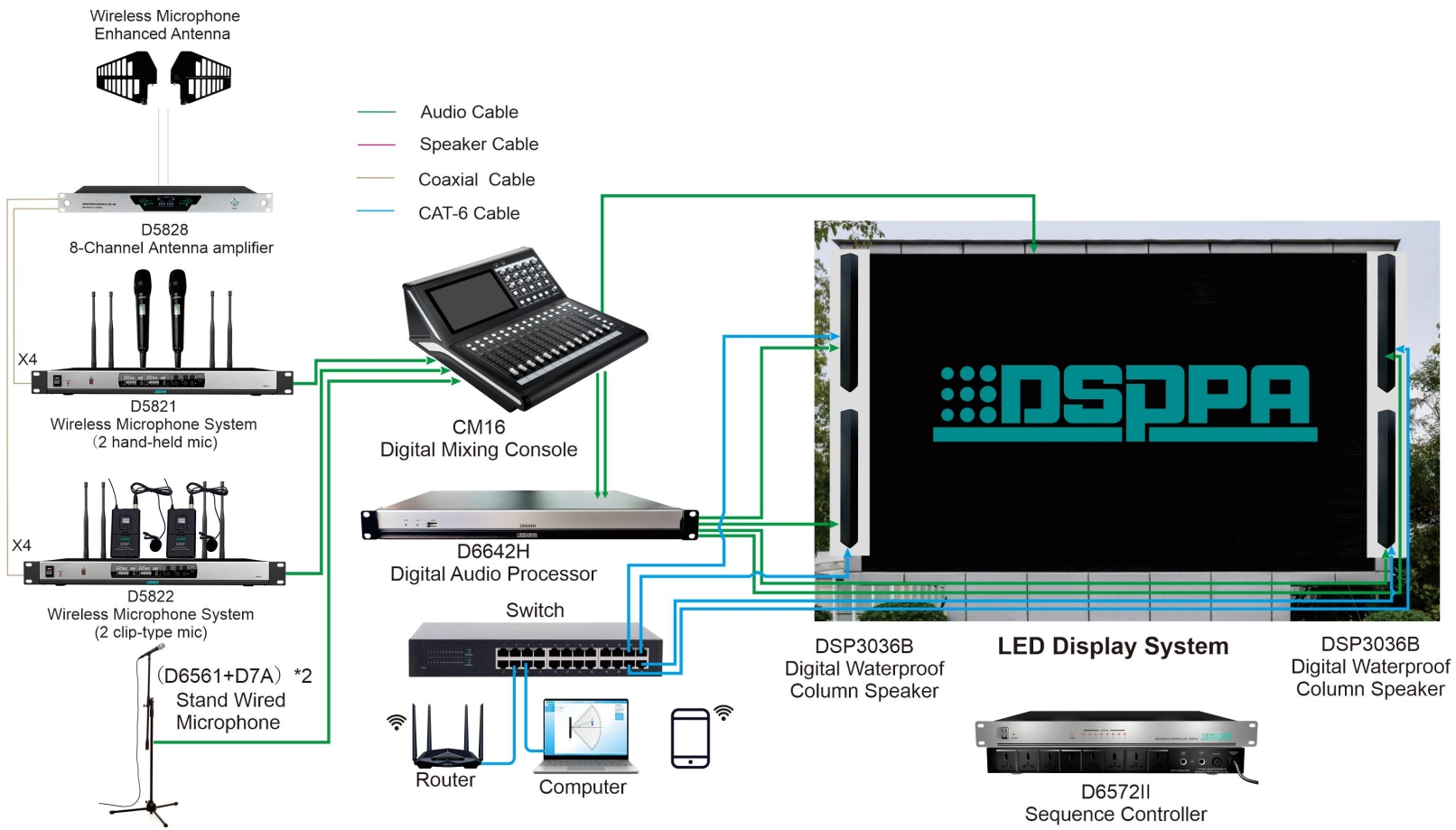
- **Multi-Function Hall Size:**
- 150-300㎡ (Recommended length-to-width ratio: 1:1.5 to 1:2, with a ceiling height of ≥4m)
- **System Components:**
- Audio System+Video System
- **Equipment Configuration:**
- Microphone System: The system includes true diversity wireless microphones, wired microphones, and desktop microphones, which can be adjusted based on different needs to ensure clear speech transmission. We have also equipped the system with an antenna amplification system to enhance wireless signal stability and prevent issues such as signal dropouts and frequency interference.
- Main Column Speaker: DSP2008 160W Two-Way Array Column Speaker
- ①The wide audio dispersion angle of the DSP2008 covers a large audience area, complementing the visual effects of the LED display. Its broad frequency range ensures that the audience hears the sound clearly from various angles, enhancing the auditory experience synchronized with the LED screen's visual effects.
- ②The simple design of the DSP2008 seamlessly integrates with the appearance and functionality of the LED screen. Its modern and minimalist styling complements the LED screen's design, creating a visually cohesive and professional equipment setup.
- ③With flexible connection options, the DSP2008 supports various audio devices and LED control systems, ensuring seamless integration of audio and visual signals for coordinated operation between the sound system and the LED display.
- ④The DSP2008 delivers excellent high-frequency clarity and deep low-frequency performance, complementing the high-definition images presented by the LED screen. The sound balance, whether for wave impact or waveform, creates a more immersive multimedia experience, especially in scenarios requiring voice narration, background music, or live events.
- Auxiliary Equipment: Digital mixing console, wireless microphones, audio processor. Audio signals are optimized and adjusted through the digital signal processor (DSP), ensuring clear, balanced sound from the column speaker while eliminating echo and distortion.
- **Equipment Installation**
- Column Speaker Installation: The column speakers should be symmetrically suspended on both sides of the stage or LED screen, with the tilt angle directed toward the audience center to avoid sound reflections from the walls.
- LED Screen Position: The screen should be placed at the center of the stage backdrop, with the bottom 0.8-1.2 meters above the ground to avoid obstruction.



Schematic Diagram

Outdoor Solution Configuration

No.	Model	Product Name	Quantity
1	D5821	UHF Wireless Microphone System	1PC
2	D5822	UHF Wireless Microphone System	1PC
3	D6561	Hand-held Dynamic Microphone	2PCS
4	D7A	Microphone Stand	2PCS
5	D5828	8 Channels Outdoor Antenna Signal Amplification	1PC
6	CM16	16 Channels Digital Mixing Console	1PC
7	D6642H	Digital Audio Processor with Echo Suppressor	1PC
8	DSP3036B	Digital Waterproof Column Speaker	4PCS
9	D6572II	8 Channel Power Supply Sequence Controller	1PC
10	Switch	Switch	1PC
11	PC	PC	1PC



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Outdoor Performance Solution Description

Solution Description

- **Sound Coverage Area:**
- Covers approximately 150-250 meters, suitable for venues accommodating hundreds to thousands of listeners, such as concerts, sports events, and outdoor activities.
- **System Components:**
- Audio System+Video System
- **Equipment Configuration:**
- Microphone System: The system includes true diversity wireless microphones, wired microphones, and desktop microphones, which can be adjusted based on different needs to ensure clear speech transmission. We have also equipped the system with an antenna amplification system to enhance wireless signal stability and prevent issues such as signal dropouts and frequency interference.
- Main Speaker: DSP3036 + Outdoor LED Screen for Superior Audiovisual Experience
- ①**Adjustable Main Beam Control** for precise sound coverage, ensuring clear and balanced audio for all audience members.
- ②**Built-in DSP and Digital Equalizer** for high-fidelity sound, enhancing audio quality to complement the LED screen's high-definition visuals.
- ③**Multiple Input Compatibility** supports various audio systems, adapting to different scenarios with a flexible and easy-to-install design for quick deployment.
- ④**High Power Output** delivers sufficient sound pressure for large spaces, ensuring clear audio even in noisy outdoor environments, perfectly synchronizing with the LED screen.
- ⑤**Weather-Resistant Design** with waterproof components and an aluminum casing, ensuring reliable performance in sun, rain, and harsh outdoor conditions for long-term stability alongside the LED display.
- Auxiliary Equipment: Digital mixing console, wireless microphones, audio processor. Audio signals are optimized and adjusted through the digital signal processor (DSP), ensuring clear, balanced sound from the column speaker while eliminating echo and distortion.
- **Equipment Installation**
- Column Speaker: Four phased array column speakers can be arranged based on the venue layout, with the option to install them directly on pillars or walls.
- LED Screen Position: The LED screen should be installed in the most visually focused area, typically at the center or slightly offset from the main audience zone, ensuring clear visibility of the content from any position in the venue.

Schematic Diagram

Product Introduction_DSP2008 Two-Way Array Column Speaker

Features

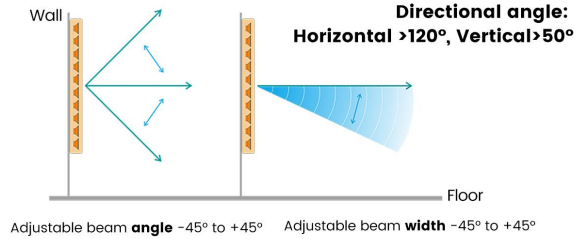
1. Ultra-compact and lightweight design for easy handling and installation.
2. High-strength aluminum alloy enclosure for durability and enhanced performance.
3. Seven sound path into semi-olive wave front design delivering a wide 120° (H) × 10° (V) dispersion angle for clear and precise sound coverage.
4. High-Performance Driver Unit Combination (1" Compression + 8×2" Neodymium Full-Range Drivers), offering low distortion and high fidelity.
5. Versatile connection options with Phoenix connector and NL4 Speakon for flexible setup.
6. Slim and elegant design that fits seamlessly into various environments.

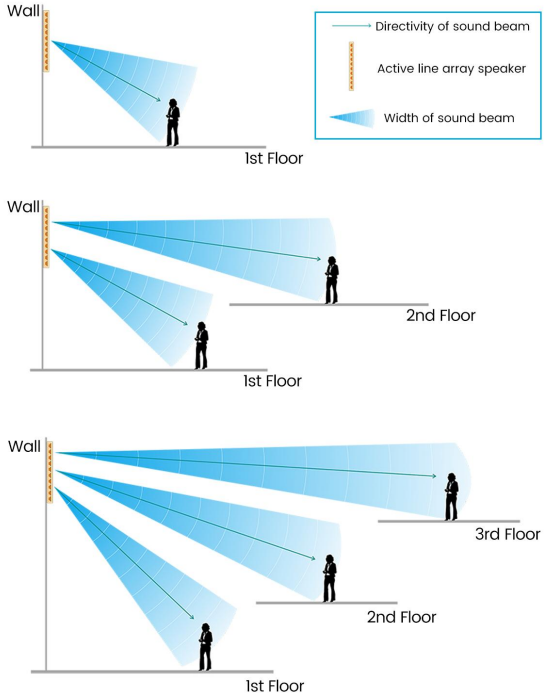
Model	DSP2008
Driver Unit	LF: 8×2” HF: 1×1”
Frequency Response	180Hz-20kHz
Rated Power	160W
Recommended Amplifier	320W into 8Ω
Sensitivity	92dB
Max. SPL	117dB
Nominal Impedance	8Ω
Directivity	90°H×60°V
Enclosure Material	Aluminum Alloy
Enclosure Finish	Spray Painting
Grille Process	Baked Steel Grille
Connection Ports	1×NL4 Four-Pin Socket + Euroblock Connector
Attached Accessories	Installation Bracket
Dimensions (H×W×D)	565×65×89mm
Net Weight	3kg

Product Introduction_DSP3025/DSP3036

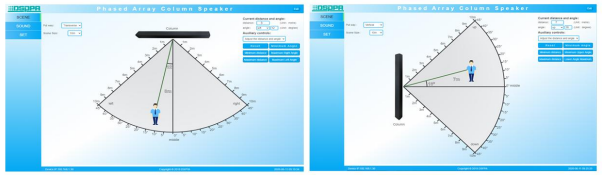
Features:

- Acoustically simulate the sound columns of different shapes, up to 6 sound beams, and vertical sound direction adjustable with a remote.
- Active sound column with digital signal processor(DSP) and digital power amplifier built in, rated 240W/360W.
- Built-in 100v/70v transformer
- Volume, tone and other parameters of the sound column adjustable
- Waterproof speaker unit and overall stamping aluminum housing design, suitable for outdoor use
- With DSP-3000 regulator for easy configuration Compact size, easy installation and high electro acoustic sensitivity





Software Remote Control



Model	DSP3025	DSP3036
Output Power	240W	350W
Line Input Sensitivity	300 (-10dB) / 500 (-6dB) / 1000 (0dB)mV	300 (-10dB) / 500 (-6dB) / 1000 (0dB)mV
Constant Voltage	50V/100V	50V/100V
Input Sensitivity		
SNR	≥80dB	≥80dB
Distortion	<1%	<1%
Background Noise	≤ -35dBv	≤ -35dBv
Frequency Response	20Hz-20kHz (±3dB)	20Hz-20kHz (±3dB)
Graphic Equalizer Freq.	(15 bands in total)Hz	(15 bands in total)Hz
CMRR	≥65dB	≥65dB
Equalizer Gain Amplitude	±5dB	±5dB
Speaker Unit	Coaxial 5"×8	Coaxial 5"×12
Frequency Response	200Hz-10KHz	200Hz-10KHz
Sensitivity (1m, 1W)	92±2dB	92±2dB
Max. SPL. (1m)	107±2dB	114±2dB
Horizontal Angle	>120°	>120°
Vertical Angle	>50°	>50°
Adjustable Beam (Vertical)	±45°	±45°
Input Voltage	AC110V-240V 50-60Hz	AC110V-240V 50-60Hz
Product Dimension (H×W×D)	1304 ×165×170mm	1820×165×170mm
Product Weight	18.5 kg	25 kg

Application Scenarios

Sports Staidum | Exhibition Centers | Lecture Halls | Train Stations | Churches

The combination of column speakers and LED displays not only achieves efficient sound reinforcement but also delivers powerful visual presentation effects. With proper selection of visual equipment, system configuration, and precise tuning, it provides users with a high-quality audiovisual experience, meeting the demands of various indoor and outdoor environments. This solution is applicable in venues such as sports stadiums, exhibition centers, conference halls, train stations, and churches.

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