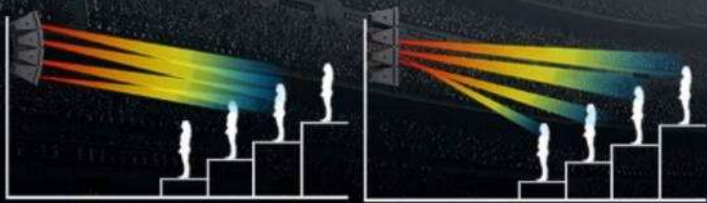


4x8 Sound Beam Audio Processor

Four Sound Beams Control

Regular sound field: horizon directional

DSPPA: 4 sound beams adjusted



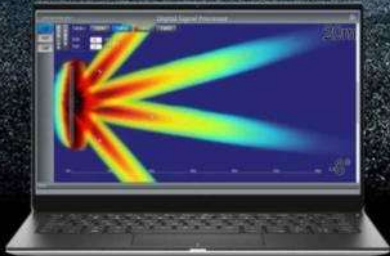
Audio Processor D6684

D6684

DSP
Technology

DDC
Steering

Phased Line Array Audio
Processor for Lecture Halls



1. Solution Overview and Requirements

Drawbacks

- With the continuous development of acoustic technology, line array speakers came into being. However, when the traditional line array needs to change the main beam radiation direction (sound direction), it must mechanically adjust the installation angle (tilt) of the column speaker to adjust the sound direction. At the same time, in indoor places, because part of the sound will be bounced back by the surface of the walls, ceilings and other objects, the sound emitted by ordinary line array speakers can not all be heard directly by the audience, resulting in a reduction in the energy of the sound, with the reverberation still prominent.



Project Requirements

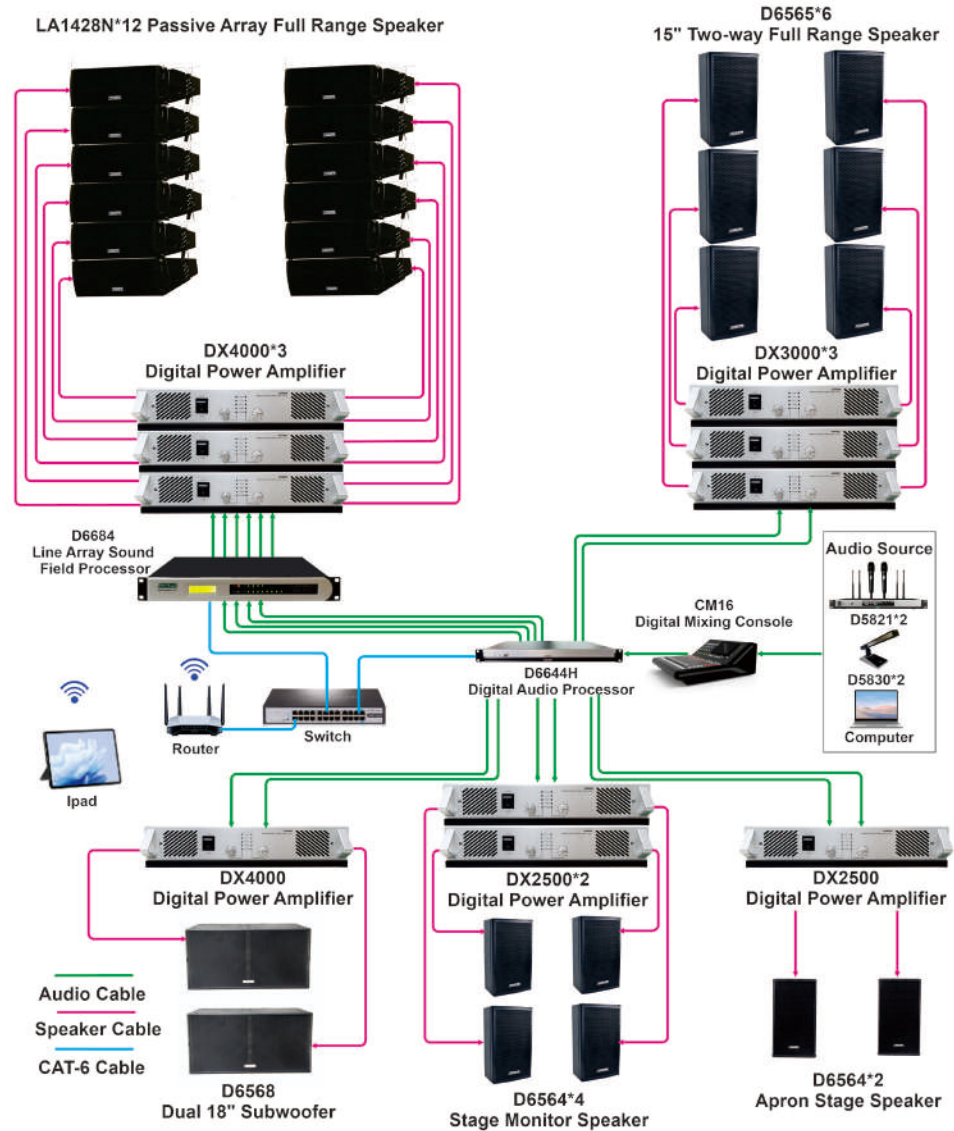
- Can meet the sound reinforcement needs of a variety of reports and speeches, meetings, small cultural performances and activities.
- The sound reinforcement system should be able to cover the whole lecture hall, so as to ensure that participants in every corner can hear the sound, eliminating unclear coverage.
- Make the sound cover the active area accurately and suppress the diffusion to the inactive area.
- It can cut (or lower) the renovation cost of building acoustics and reduce the energy consumption of the sound reinforcement system for double energy savings.

2. Configuration for Lecture Halls -- Solution

Configuration List

- Lecture hall dimensions: 30m long, 20m wide and 6m high.

No.	Model	Product Name	Quantity
Conference Hall			
1	D5821	UHF Wireless Microphone System	2 PCS
2	D5830	Professional Condenser Microphone	2 PCS
3	CM16	16-Channel Digital Mixing Console	1 PC
4	D6644H	16-Channel Digital Audio Processor	1 PC
5	D6684	Line Array Sound Field Processor	1 PC
6	DX4000	Digital Power Amplifier	4 PCS
7	DX3000	Digital Power Amplifier	3 PCS
8	DX2500	Digital Power Amplifier	3 PCS
9	LA1428N	Passive Array Full Range Speaker	12 PCS
10	D6565	15" Two-Way Full Range Speaker	6 PCS
11	D6568	Dual 18" Subwoofer	2 PCS
12	D6564	Stage Monitor Speaker	4 PCS
13	D6564	Apron Stage Speaker	2 PCS



■ 3. Product Advantages

Change in Traditional Installation Model

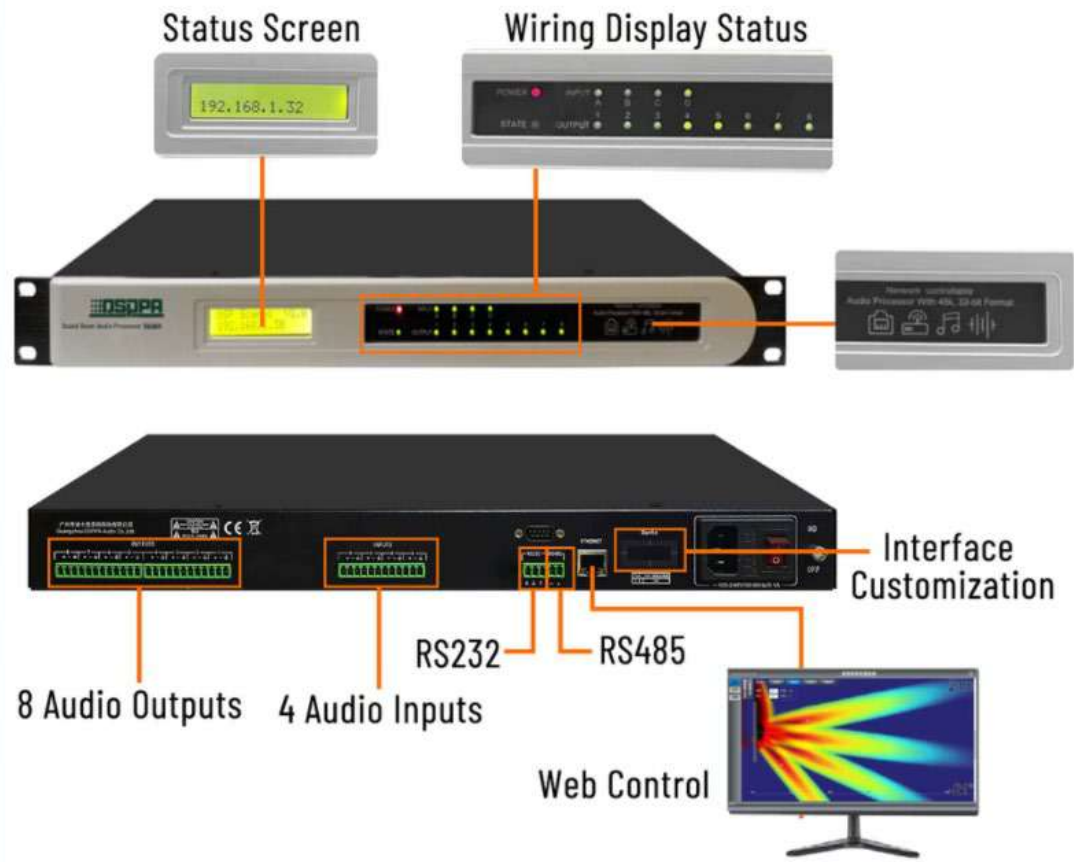
DSPPA's new generation of acoustic directional line array speaker adopts highly advanced Dynaudio Direct Control (DDC) technology and Digital Signal Processing (DSP) technology, which can change the direction of the main beam of the line array speaker and direct the sound to the desired position when it is fixed and vertically mounted. Also, it can be embedded in the wall, addressing the drawbacks of the traditional line array speaker, such as unattractive installation effect and difficulty in free adjustment.

Improvement in Acoustic Environment

The system maximizes the sound transmitted directly to the audience, reduces sound intensity from walls, ceilings, and other acoustically reflective surfaces, and allows users to define areas where sound coverage is required or avoided, thus suppressing undesired sound reflections and solving the problem of complex reverberant space sound reinforcement.



4. Line Array Sound Field Processor -- D6684

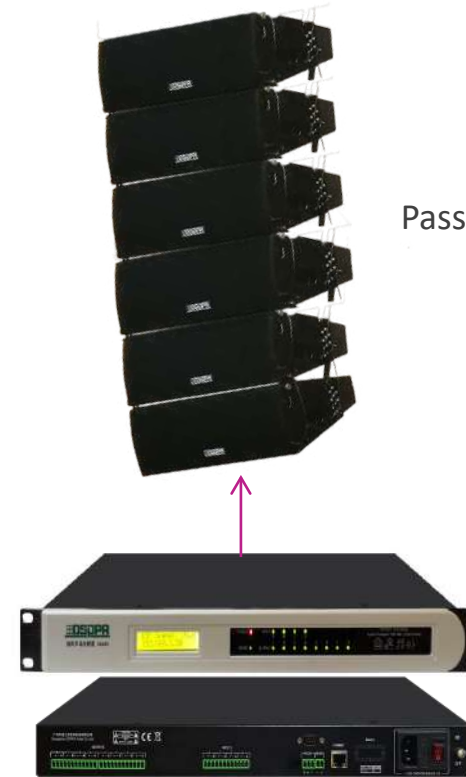


- DSP**: Digital signal processing
- DDC**: Digital directivity control
- Array debugging**: Represented by a speaker icon
- Intelligibility of speech**: Represented by a microphone icon
- 4 sound beams control**: Represented by a fan icon
- 4 audience areas**: Represented by a person icon with sound waves
- EQ**: Represented by a frequency response icon
- Low noise**: Represented by a lightning bolt icon

■ 5. Product Features

DSPPA's Phased Line Array Speaker

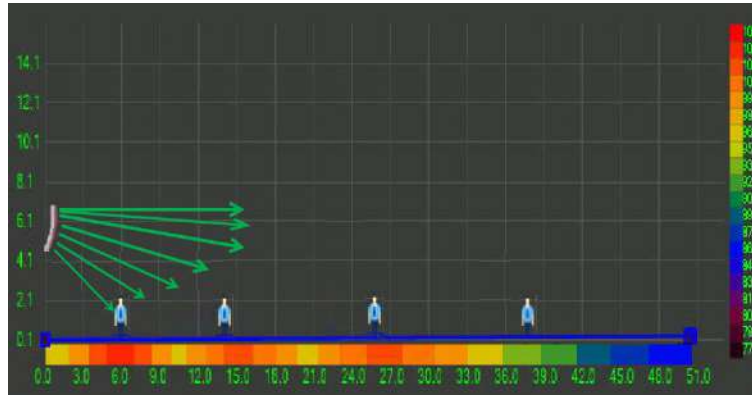
- With built-in sidelobe suppression by **phase-controlled beam conditioning algorithms**.
- Adopt **Dynaudio Direct Control (DDC) technology and Digital Signal Processing (DSP) technology**.
- Can project the acoustic center of the line array speaker to up to **four listening areas**.
- With the directivity of vertical coverage controllable, to evenly emit sound downward in a specified direction and greatly reduce the upward emission of sound.
- Work with the sound field processor to increase speech intelligibility in reverberant environments.
- The 3D emission model synthesized by the line array speaker can be displayed and edited in the user interface.
- With built-in ultra-high sensitivity input signal detection function for flexible noise reduction on/off.



LA1428N
Passive Array Full Range
Speaker

D6684
Line Array Sound Field
Processor

6. Functional Highlights -- Sound Field Directivity



Traditional Line Array

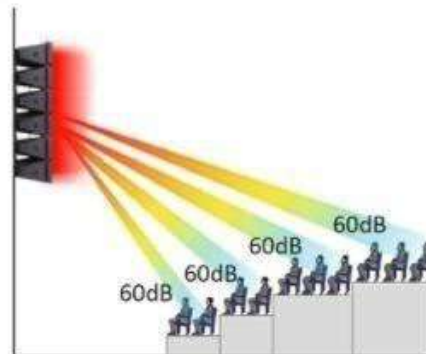
- With the directivity uncontrollable and random sound diffusion.



Phased Line Array

- With the directivity of vertical coverage controllable, to evenly emit sound downward in a specified direction.

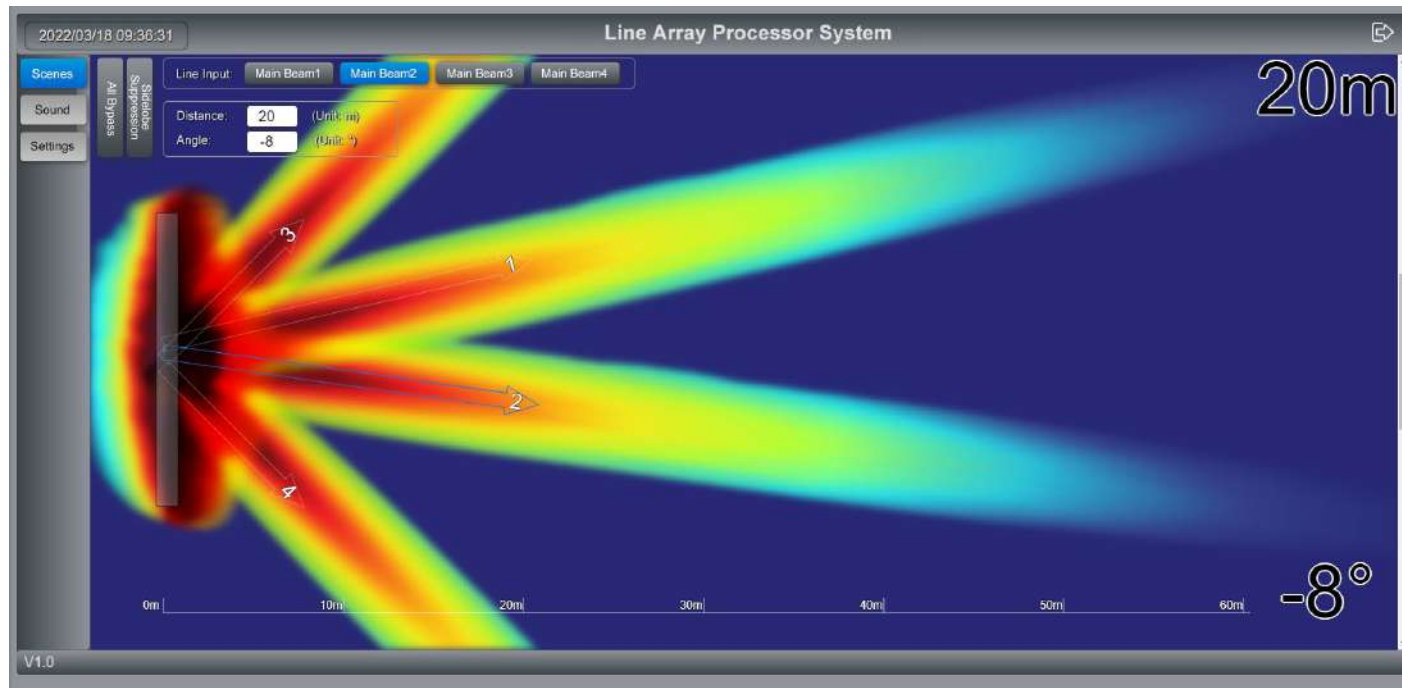
4-band sound beams ($\pm 45^\circ$ Vertical adjustable, 1-100m)



The same sound quality of 4 directions; Dynamic range: >100dB

6. Functional Highlights -- 4-Band Orientation

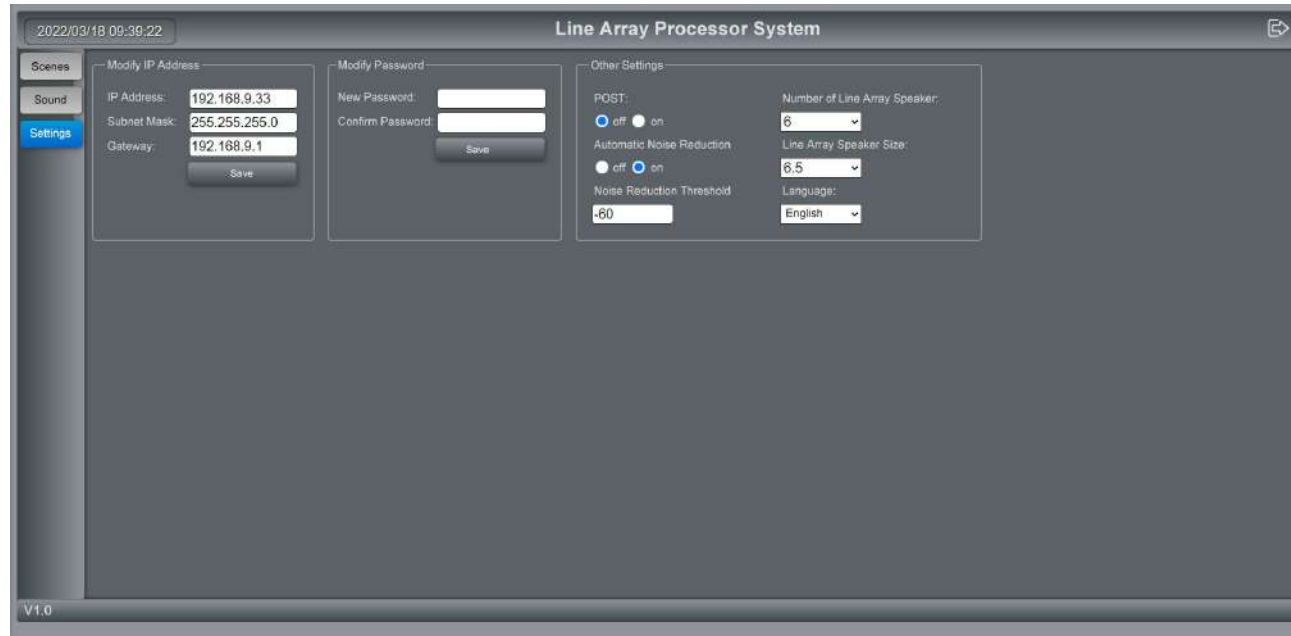
- The line array speaker features excellent directivity, and the **3D emission model** synthesized by the line array speaker can be displayed and edited in the user interface; it is possible to adjust the directivity in four directions simultaneously, so that the audience in the area of the direction can get an excellent listening experience.



Operating Instructions

- Pull the sound beam arrows with a mouse to adjust the angle and distance, or change the parameters in the input boxes in the upper left corner of the interface, and then the line array speaker will change the sound orientation correspondingly according to the angle and distance. In the interface, you can adjust the input for bypass processing and sidelobe suppression.

6. Functional Highlights -- Speaker Detection and Noise Reduction



Speaker Detection

- With a power-on self-test button. When it is turned on, it will automatically check whether each line array speaker is damaged or not every time it is turned on, and display the status on the machine panel.

Intelligent Squelch

- The intelligent squelch detection function enables ultra-high sensitivity input detection for accurate noise/audio recognition and automatic squelch.

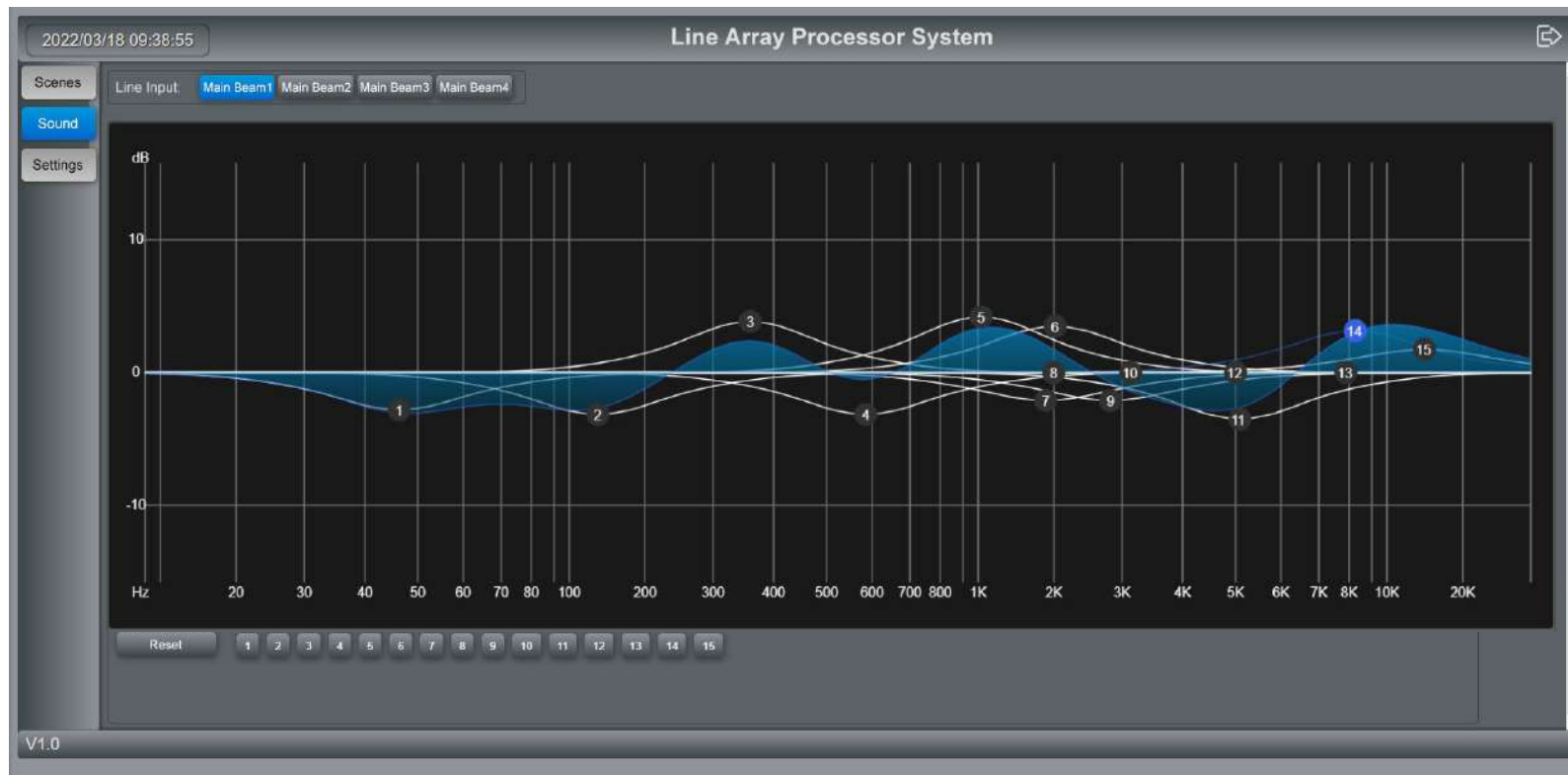
Note

To control 4 sound beams of D6684, 2 conditions must be met: 4 Audio Sources Input and 6 or 8 Full Range Speakers (Vertical installation) must be connected.

6. Functional Highlights -- EQ Control

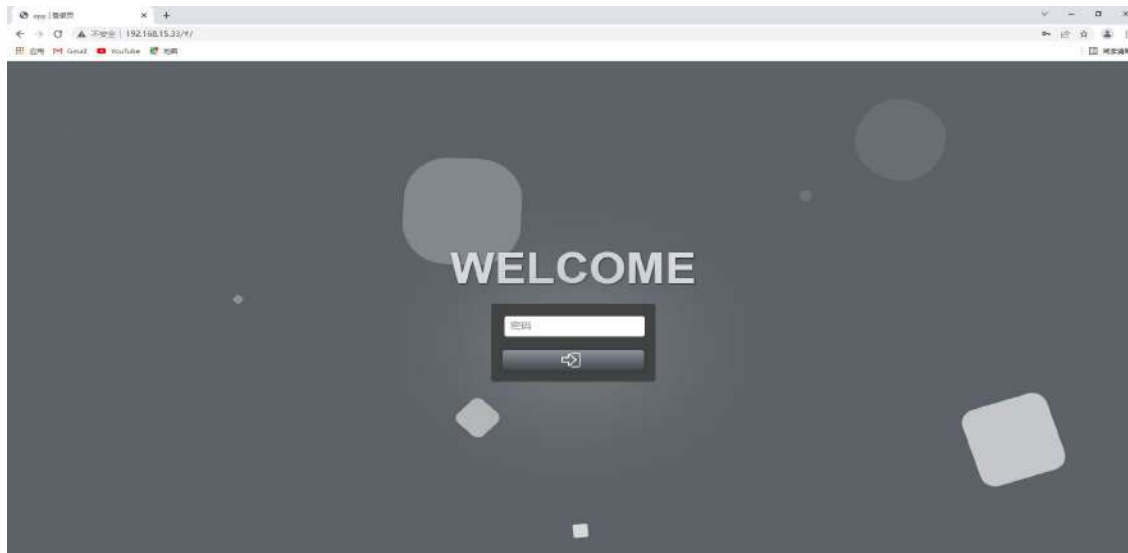
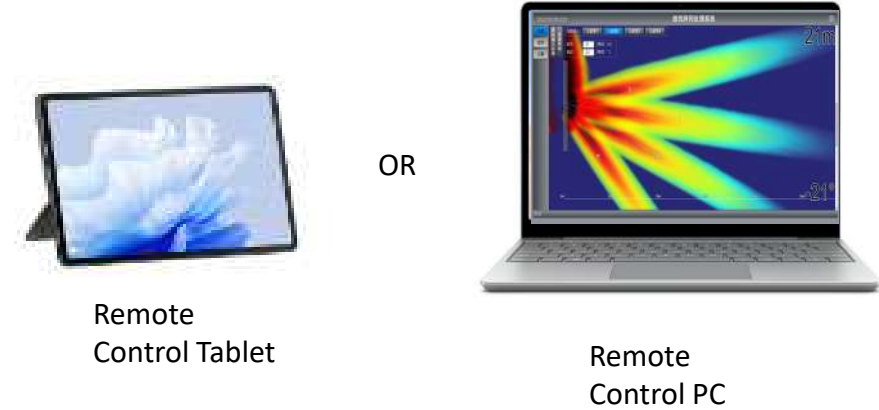
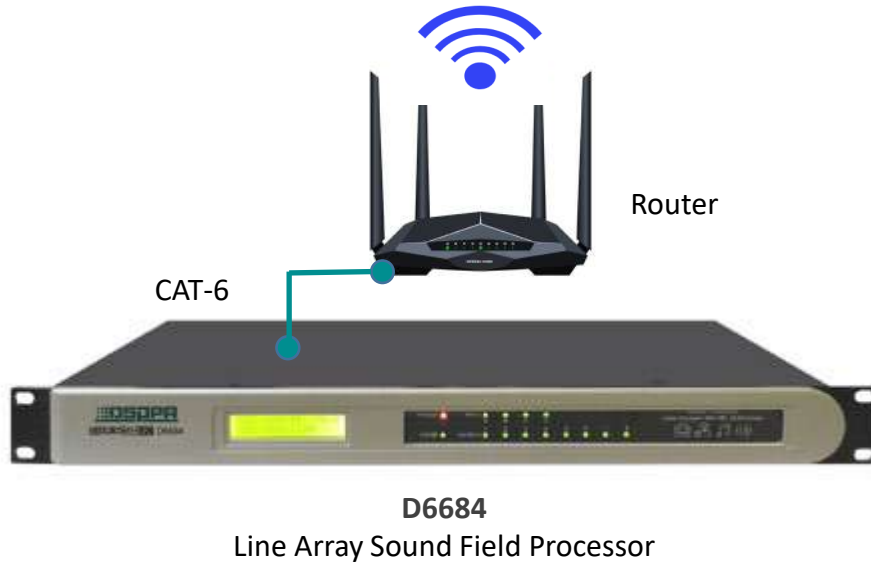
The line array speaker has a 15-band input EQ adjustable, with customizable adjustments for four main beams.

- With a 15-band EQ, adjustable from 20Hz to 20000Hz. Change the input equalization of the sound by adjusting the equalizer slider corresponding to Hertz.



15-band EQ control

6. Functional Highlights -- Remote Control



- The line array sound field processor is connected to the router through a network cable. You can log in to the processor control interface by entering the address and password on the Google Chrome browser of your computer or tablet for visual control operation of the line array speaker, which is convenient and easy to operate.

7. Application Scenarios



Churches



Gymnasiums



Hotel Lobbies



Showrooms



Banquet Halls

Based on the directional sound transmission principle of the line array speaker, it can effectively solve the problem of reverberation in the hall, and can also be applied to churches, gymnasiums, hotel lobbies, showrooms, banquet halls, and other places that are relatively empty and prone to reverberation.

Creating the Best, Sounding the World!

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