TAIDEN®

Professional conference sound reinforcement system

Excellent conferencing solutions

Installation and Operating Manual

V 2.1

Remarks:

- All rights reserved for translation, reprint or reproduction
- Contents may change without prior announcement
- All technical specifications are guideline data and not guaranteed features
- TAIDEN Co., Ltd. is not responsible for any damage caused by improper use of this manual
- The equipment must be connected to earth!
- This product conforms to the rules of the European directive 2004/108/EC.
- To protect your hearing, avoid high pressure level on earphones. Adjust to a lower and convenient level.
- If any detailed information is needed, please contact your local agent or **TAIDEN** service center in your region. Any feedback, advice and suggestion about the products is appreciated
- **TAIDEN** is the registered trademark of TAIDEN Co. Industrial, Ltd.
- In order to extend the life time of the whole system, we strongly recommend that the congress system be scheduled to shut down every day in the evening when not in use.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
6. The MAINS plug serving as a disconnection device, should be easy to operate.
7. The apparatus should be connected to the MAINS socket-outlet with protective earth.
8. Clean only with dry cloth.
9. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
10. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
11. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade and the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
12. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
13. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16. Do not place the equipment on any uneven or unstable stand; original product package or appropriate package should be used to avoid damage caused by strong impacts during transportation.
17. Power supply cords:
    AC 220 V - 240 V 50/60 Hz
18. For service, please contact the nearest TAIDEN Service Center.
19. All TAIDEN products are guaranteed for definite time (see the WARRANTY CARD for details) excluding the following cases:
    A. All damage or malfunction caused by human negligence;
    B. Damage or malfunction caused by improper operating by operator;
    C. Parts damage or loss caused by disassembling the product by non-authorized personnel.
20. Use ONLY specified connection cable to connect the system equipment.
21. Upon receipt of the product, please fill out the Warranty Card enclosed and post it to TAIDEN Service Center.

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION: To reduce the risk of electric shock, DO NOT open covers, no user serviceable parts inside. Refer servicing to qualified service personnel only.

CAUTION: DO NOT use alcohol, ammonia or petroleum solvents or abrasive cleaners to clean the devices.

The lightning flash with an arrowhead symbol, with an equilateral triangle, is intended to alert the user to the presence of uninsulated 'dangerous voltage' within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Important Safety Instructions

The exclamation mark within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: To reduce the risk of fire or electric shock, DO NOT expose units to rain or moisture.

Attention: Installation should be performed by qualified service personnel only in accordance with the National Electrical or applicable local codes.

Power Disconnect: Units with or without ON – OFF switch have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON – OFF switch is in the ON position. The power cord is the main power disconnect for all units

WARNING: The apparatus should be connected to a mains socket outlet with a protective earthing connection.

WARNING: In living circumstance, the equipment may cause radio interference.

Contents

About this manual

This manual is a comprehensive guide to the installation and operation of the **TAIDEN** Professional Conference Sound Reinforcement System. It includes the detailed description of the functions and interfaces of the professional conference sound reinforcement system components, system connection and installation, system set-up and operation.

The manual is divided into the following chapters:

Chapter 1: Introduction

An introduction to the professional conference sound reinforcement system composition, technology, functions and features.

Chapter 2: HCL-804A 8 Units Two-way Directivity Controllable Column Loudspeaker

Detailed descriptions of the functions and indications, installation and connection, the use of audio controller software of the HCL-804A.

Chapter 3: HCL-404 series 4 Units Two-way Column Loudspeaker

Detailed descriptions of the functions, installation and connection of the HCL-404 series 4 Units Two-way Column Loudspeaker.

Chapter 4: HSP series Loudspeaker

Detailed descriptions of the functions, installation and connection of the HSP series Two-way Loudspeaker.

Chapter 5: HSP series Powered Loudspeaker

Detailed descriptions of the functions, installation and connection of the HSP series Two-way Powered Loudspeaker.

Chapter 6: HSC series Ceiling Loudspeaker

Detailed descriptions of the functions, installation and connection of the HSC series Ceiling Loudspeaker.

Chapter 7 : HSM-112 12-inch Coaxial Monitor Loudspeaker

Detailed descriptions of the functions, installation and connection of the HSM-112 12-inch Coaxial Monitor Loudspeaker.

Chapter 8: Environment and maintenance

An introduction to the work environment and the maintenance of professional conference sound reinforcement system.

This manual is applicable to:

■ Column loudspeaker

HCL-804A

8 Units Two-way Directivity Controllable Column Loudspeaker (8×4" mid-low units + 24×0.75" tweeters, 400W, dual beam adjustable, vertical pointing angle and width adjustable, AES/EBU and analog dual signal input, with hot backup, standard wall bracket, black)

HCL-404

4 Units Two-way Column Loudspeaker (4×4" mid-low units + 12×0.75" tweeters, 8 Ω, 200 W, 15° vertical direction, combined with HCL-404J, supports fixed wall mounting, black)

HCL-404J

4 Units Two-way Column Loudspeaker (4×4" mid-low units + 12×0.75" tweeters, 8 Ω, 200 W, 40° vertical direction, can be combined with HCL-404, supports fixed wall mounting, optional HCL-404BKT swivel (pan)/tilt wall bracket, black)

■ HSP series loudspeaker

HSP-210B

Dual 10-inch Woofer (2×10" woofers, 4 Ω, 800 W, can be used with HCL-404J or HCL-404+HCL-404J column loudspeaker or HSP-108/110/112 two-way loudspeaker, black)

HSP-108

8-inch Two-way Loudspeaker (1×8" woofer + 1×2" tweeter, gradient rotatable pointing horn, 8 Ω, 200 W, optional HSP-108BKTU U-shaped wall bracket, black)

HSP-110

10-inch Two-way Loudspeaker (1×10" woofer + 1×2" tweeter, gradient rotatable pointing horn, 8 Ω, 300 W, optional HSP-110BKTU U-shaped wall bracket, black)

HSP-112

12-inch Two-way Loudspeaker (1×12" woofer + 1×3" tweeter, gradient rotatable pointing horn, 8 Ω, 400 W, optional HSP-112BKTU U-shaped wall bracket, black)

■ HSP series two-way powered loudspeaker

HSP-210BA

Dual 10-inch Powered Woofer (2×10" woofers, 4 Ω, 800 W, built-in 2000W class D power amplifier, with FIR algorithm, DSP adjustable, can be connected to HCL-404J or HCL-404+HCL-404J column loudspeaker or HSP-108/110/112 two-way loudspeaker directly, black)

HSP-108A

8-inch Two-way Powered Loudspeaker (1×8" woofer + 1×2" tweeter, gradient rotatable pointing horn, 8 Ω, 200 W, built-in 600W power amplifier, with FIR algorithm, DSP adjustable, black)

HSP-110A

10-inch Two-way Powered Loudspeaker (1×10" woofer + 1×2" tweeter, gradient rotatable pointing horn, 8 Ω, 300 W, built-in 600W power amplifier, with FIR algorithm, DSP adjustable, black)

HSP-112A

12-inch Two-way Powered Loudspeaker (1×12" woofer + 1×3" tweeter, gradient rotatable pointing horn, 8 Ω, 400 W, built-in 600W power amplifier, with FIR algorithm, DSP adjustable, black)

■ HSC series ceiling loudspeaker

HSC-106W

6.5-inch Ceiling Loudspeaker (1×6.5"+1×1.4" coaxial drive units, 8 Ω, 150 W, 110° wide coverage angle, magnetic mask, white)

HSC-108W

8-inch Ceiling Loudspeaker (1×8"+1×2" coaxial drive units, 8 Ω, 200 W, 110° wide coverage angle, white)

HSC-112

12-inch Ceiling Loudspeaker (1×12"+1×3" coaxial drive units, 8 Ω, 350 W, 90°(H)×70°(V) coverage angle, black)

HSC-115

15-inch Ceiling Loudspeaker (1×15"+1×3" coaxial drive units, 8 Ω, 450 W, 90°(H)×70°(V) coverage angle, black)

■ Monitor loudspeaker

HSM-112

12-inch Coaxial Monitor Loudspeaker (1×12"+1×3" coaxial drive units, 8 Ω, 350 W, black)

Chapter 1: Introduction

A good conference sound reinforcement system is not a front end (microphone/sound source), mixer, audio processor, power amplifier and speakers and other equipment that can be connected together. This can easily lead to a lot of investment, but cannot achieve satisfactory results, the sound of language amplification is blurred, the microphone is easy to whistle, and the sound quality is tasteless when the music is played back.

As a system problem, the sound reinforcement system must comprehensively consider the above problems in the system design. On the basis of selecting electro-acoustic equipment that meets the functional requirements, it is necessary to pass system design and system debugging in order to achieve a sound reinforcement effect that satisfies users.

The common problems of conference sound reinforcement system are: howling when the microphone is on, insufficient volume, sound image shift, and uneven sound field. This kind of inaudibility can be caused by low volume, shriveled sound, and confusion in the sound field caused by the time difference between the reflected sound and the direct sound, which is actually insufficient speech intelligibility. Therefore, solving the speech intelligibility of the sound reinforcement system has become the ultimate goal of our sound reinforcement system. We have developed a series of targeted related products according to the characteristics of conference sound reinforcement applications.

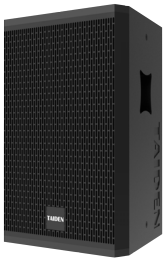
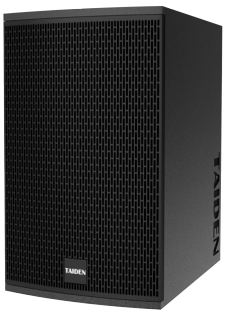
			
HCL-404	HCL-404J	HCL-804A	HCL-112M
			
HSP-108/108A	HSP-110/110A	HSP-112/112A	HSP-210B/210BA
			
HSC-106W	HSC-108W	HSC-112	HSC-115

Figure 1.1 Products list of conference professional sound reinforcement system

Chapter 2: HCL-804A 8 Units Two-way Directivity Controllable Column Loudspeaker

2.1 Overview

Two-way directivity controllable column loudspeaker comes with 8×4" midwoofers and 24×0.75" tweeters. Built-in multi-channel DSP engine and high-performance class D digital amplifier can control each array element with high precision in a programmable manner. It can be decomposed into two independent beams for control and adjustment, providing simultaneous input of analog audio and AES/EBU digital audio signals to achieve hot backup. System setting and monitoring are all carried out via standard Ethernet, which is efficient and convenient.

When combined with a woofer, the system fulfills the sound reinforcement requirements of presenting PPT and video programs.

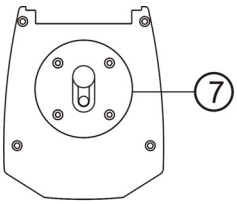
2.2 Features

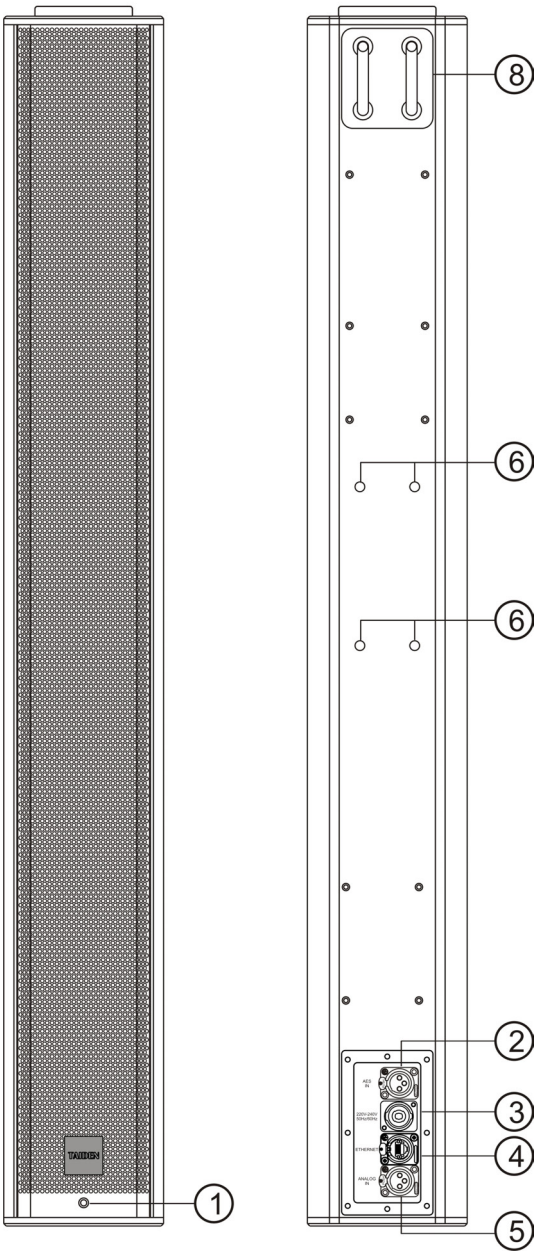
- Vertical pointing angle and width adjustable
- Dual beam adjustable
- Independent switch for beam sidelobe suppression Beam center point adjustable
- AES/EBU and analog dual signal input with hot backup

2.3 Specifications

Frequency Range	100 Hz - 20 kHz（±3 dB）/ 80 Hz - 22 kHz(-10 dB)
Sensitivity	103 dB
Rated Power	400 W (AES)
Max SPL	129 dB SPL，135 dB SPLpeak
Midwoofer Unit	8×4" complex carbon fiber diaphragm midwoofer units
Tweeter	24×0.75" nano carbon fiber diaphragm tweeters
Horizontal Coverage Pattern	100°
Vertical Coverage Pattern	-45°~ + 45° (accuracy of 0.1 degree)
Beam Control	2 solely adjustable beams with adjustable center point
Beam Width	12°~90°
Coverage Area	3 m~30 m
AD & DA	24 bit-96 kHz
Control Interface	RJ45
Input	An AES/EBU input, an analogy input
Enclosure Material	Aluminum + surface coating
Dimensions (H × W × D)	1000 × 131 × 158 mm
Weight	15 kg
Accessories	Swivel (pan) wall bracket
	Power cable

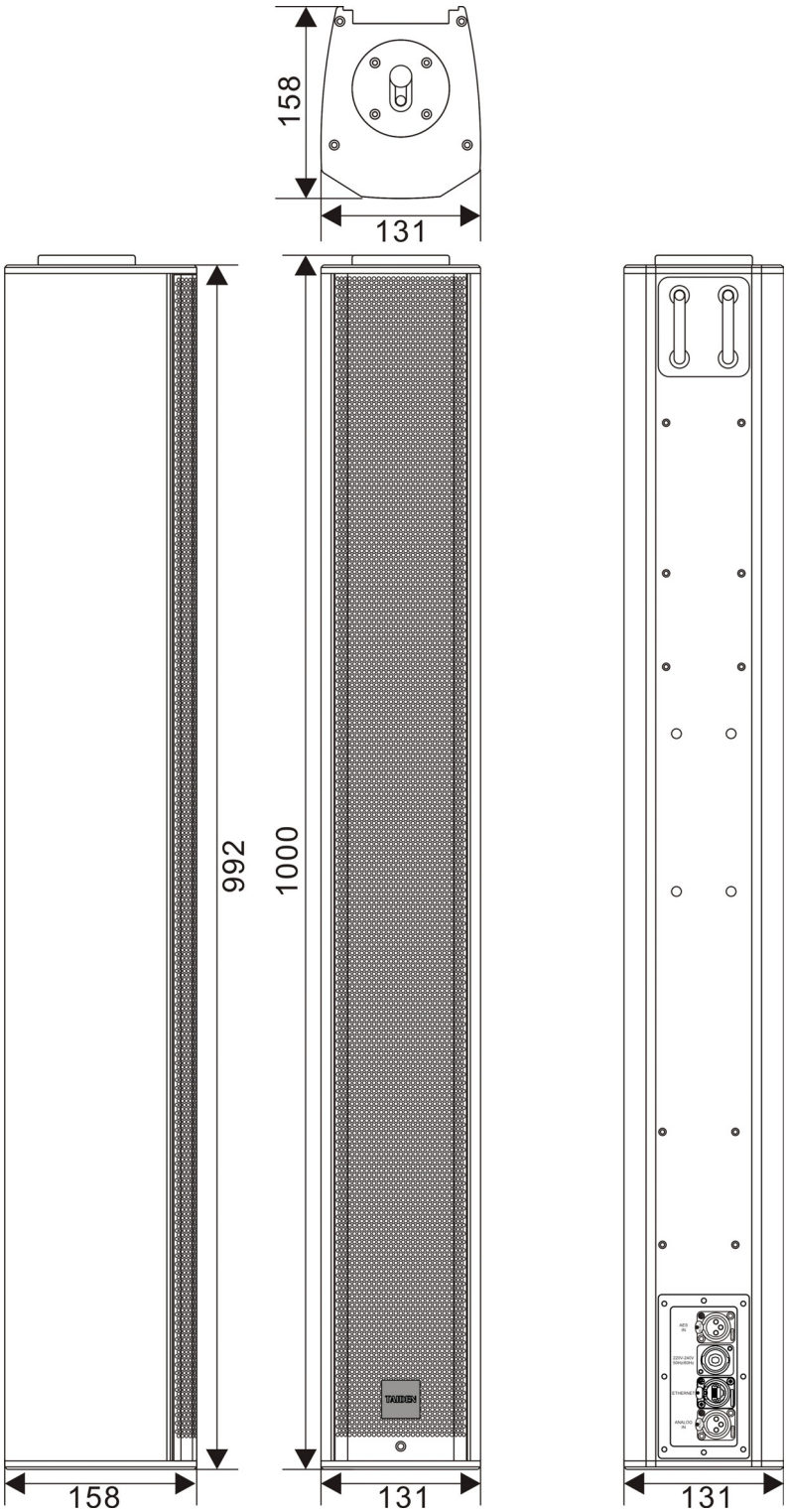
2.4 Functions and instructions





1. Working indicator
   Normal state: green
   Clipping state: red
2. AES IN: digital signal input interface
3. Power input interface
4. Control interface, RJ45
5. ANALOG IN: analog signal input interface
6. Bracket mounting positions
7. The top connecting plate, reserved, can be docked with another sound column
8. Top sound column connection fixings (when the top loudspeaker is not connected, the connection fixings also can be used to hang the safety rope)

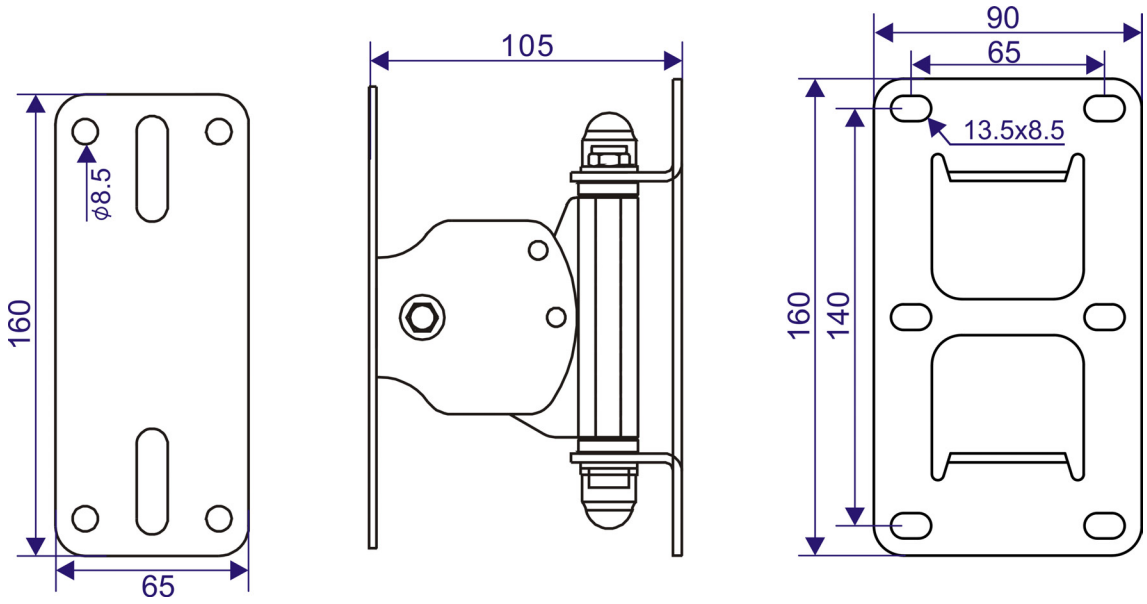
2.5 Dimensions



Dimensions for HCL-804A (unit: mm)

2.6 Installation

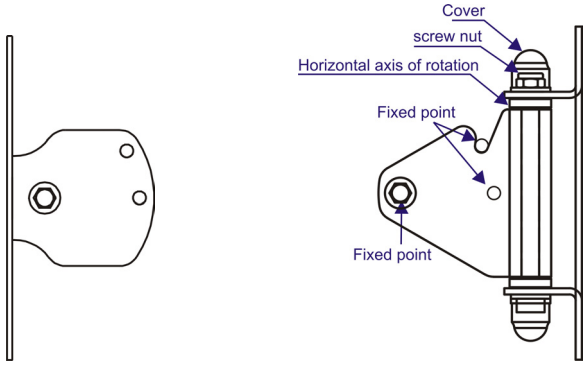
1. Swivel (pan) wall bracket (standard)



Loudspeaker-mount section　　Assembled bracket　　Wall-mount section

The bracket is shipped after being assembled by default, so the bracket you receive is one piece. After removing the nut and screw at the fixed point, as well as the movable stud and buckle, the bracket is decomposed into two parts as shown in the figure below, the left section is installed on the back of the sound column. The right section is installed on the wall using standard screws, as shown in the figure below.

- Swivel angle adjustment: remove the cover, use a tool to loosen the nut, rotate it left and right to an appropriate angle, tighten the nut after adjustment, and reinstall the cap.



Loudspeaker-mount section　　Wall-mount section

2. Bracket wall mounting for HCL-804A

1) Remove the nut and screw of the fixed point of the bracket, as well as the movable studs and buckles;

2) Remove the screws on the back of the column loudspeaker (details for section 2.4), install the loudspeaker-mount section on the back of the column loudspeaker, and use the original screws to lock the loudspeaker-mount section and the column loudspeaker;

3) Install the wall-mount section using the standard screws;

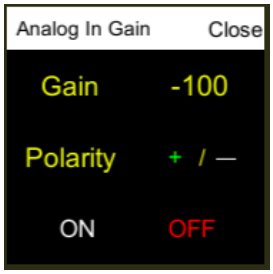
4) Connect the audio cable;

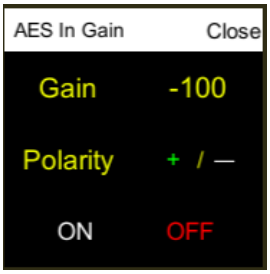
5) Pull up the column loudspeaker, reassemble the loudspeaker-mount section and wall-mount section, and set the required swivel angle.

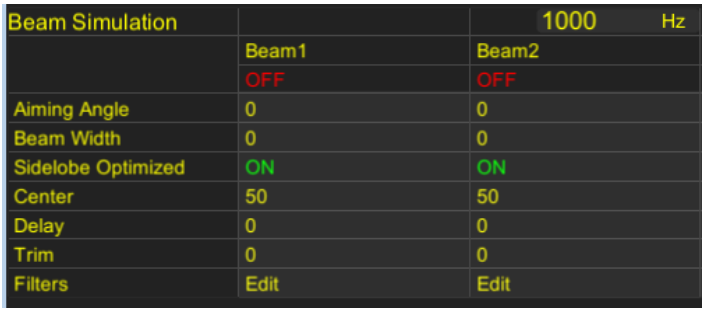
2.7 Audio Controller

The directivity controllable function of HCL-804A is realized by TAIDEN Audio Controller software, it includes: Input Gain, Input Delay, System Delay, System EQ, Beam Setting, Import Factory Preset and Load / Save user program.

Note: The HCL-804A is an active sound column. In order to protect the driver units, the input gain is set to -100, and the gain switch is set to "OFF", and the beam state is "OFF". When use HCL-804A first, please connect the software to open and adjust the input gain, and turn on the beam.







2.7.1 Installation

The HCL-804A TAIDEN Audio Controller.exe software is available free of charge to users who purchased the product. Users can download the software by scanning the QR code on the back of the user manual. After the software is downloaded, it can be disassembled and installed on the computer end. Win10 operating system is recommended.

2.7.2 Running

Double-click "TAIDEN Audio Controller.exe" to run the software, for the first time, please create a new project on the computer.

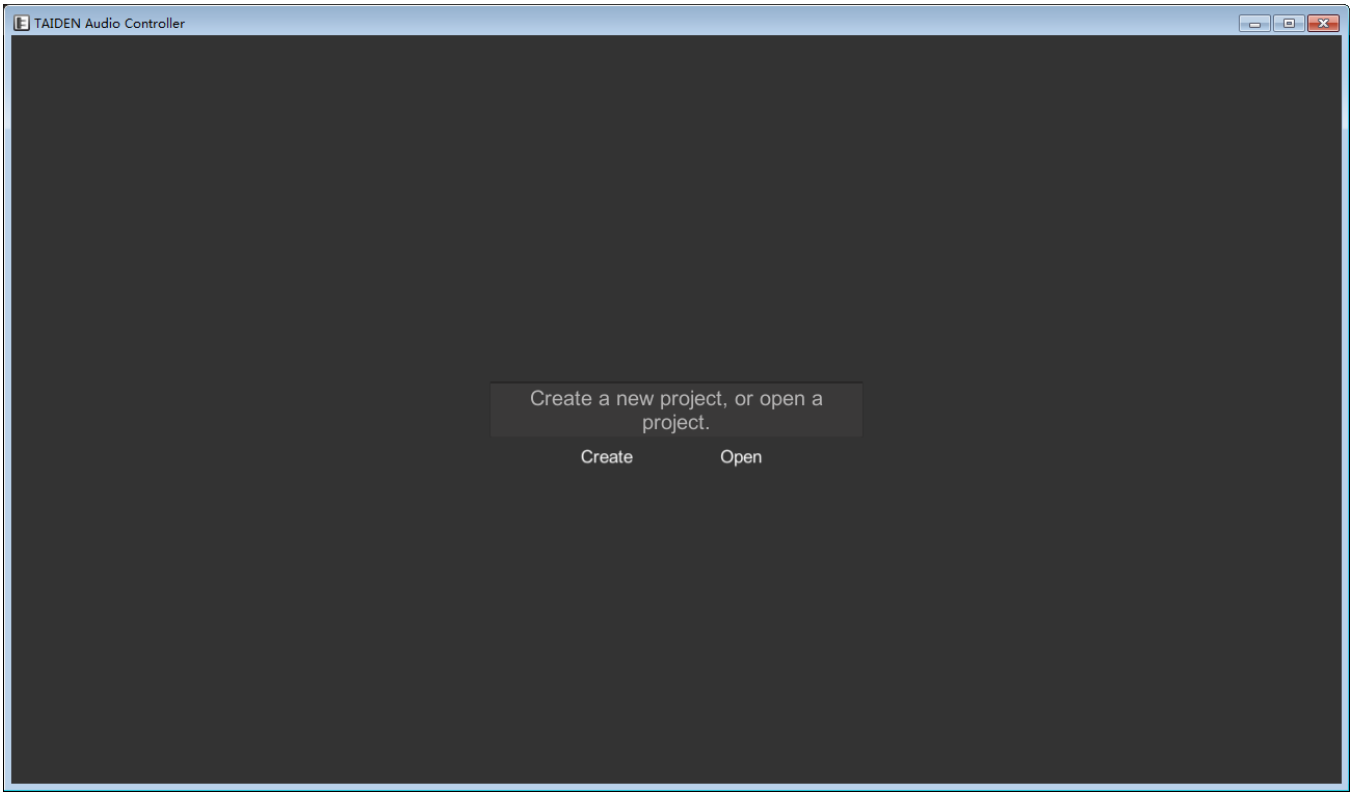
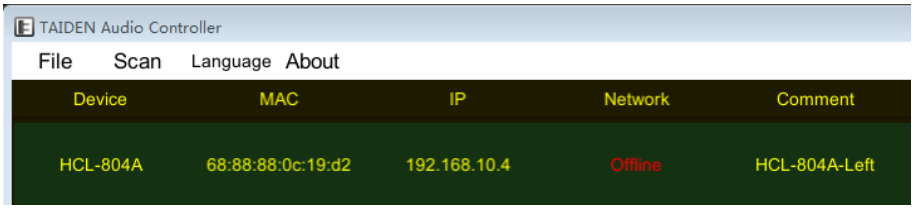


Figure: Create or open a project

After creating or reading a local project, scans the device, and the software automatically queries and connects to all of the HCL-804A in the network. HCL-804A does not have static IP address, and its IP address is assigned automatically by the router. If you can scan to the HCL-804A information, but its status is "Offline", please check whether the local computer and HCL-804A are in the same network segment. As shown in the figure below, the local IP address of computer is 192.168.1.232, and the IP address of HCL-804A is 192.168.10.4. Check the local computer subnet mask setting and set the subnet mask to 255.255.0.0 to connect to the device again.



If the IP address of computer and the IP address of HCL-804A are in the same network segment, the software will automatically connect to HCL-804A. If not in the same network segment, modify computer subnet mask and then click "Reconnect" or scan it again to connect HCL-804A.

Note: Since the IP address of HCL-804A is assigned by the router, please open the router before opening HCL-804A; if the HCL-804A is started before the router, the HCL-804A may not obtain the IP address correctly. In this case, please restart the HCL-804A.

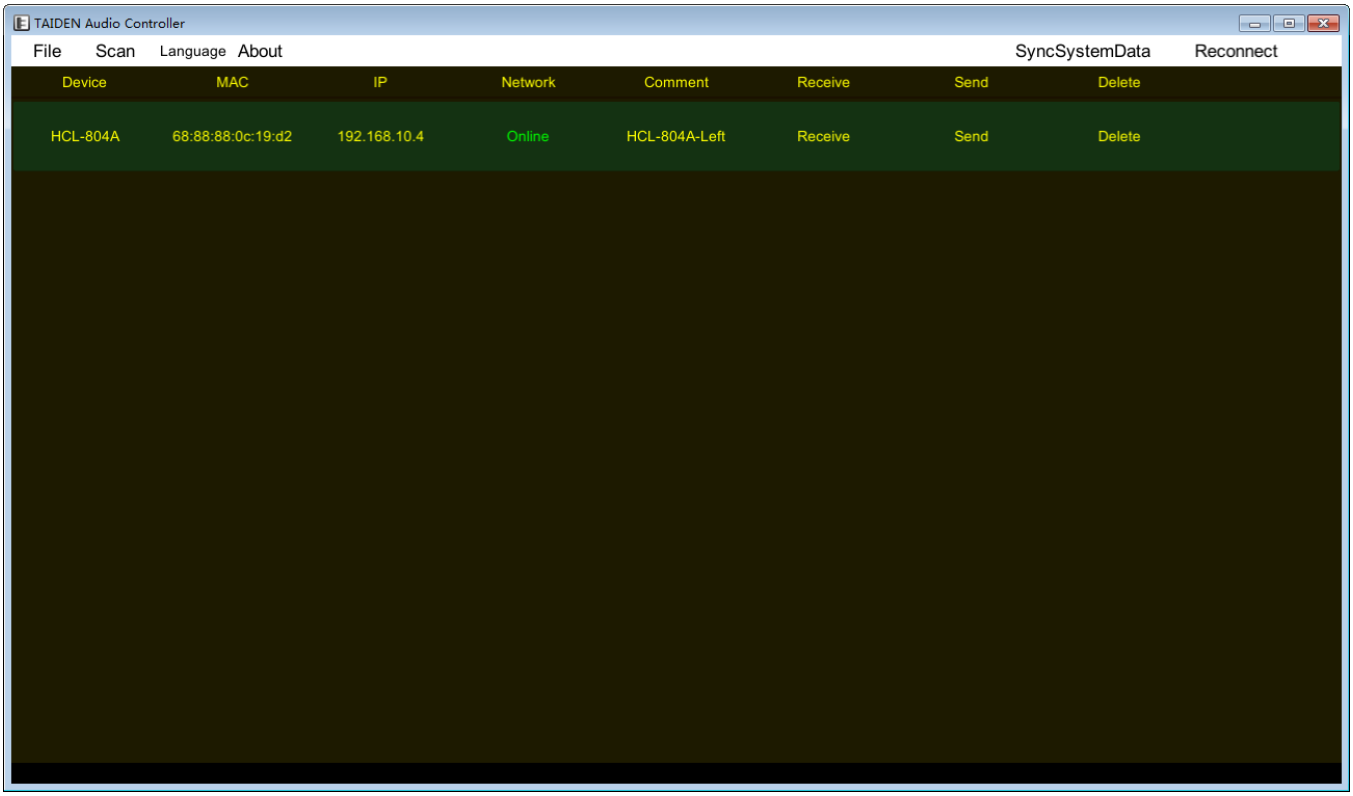


Figure: connect device

From left to right, the above figure shows the Device, MAC, IP, Network, Comment (the default is 'Default', double-click to modify the alias. It is recommended to modify alias for the first time after installation to convenient and accurate positioning of the equipment), Receive, Send and Delete.

- File: save/save as/open project file (Synthesis.dat);
- Scan: search the HCL-804A in the network, and the rescan will override the existing data connection;
- Language: select software language, English or Simplified Chinese, and it will take effect after restart.
- About: check version information;
- Receive: synchronizes the parameter settings from HCL-804A to the current project file;

- Send: synchronizes the parameter settings from the current project file to HCL-804A;
- Delete: delete HCL-804A;
- SynSystemData: including Send and Receive operations
  Receive: synchronizes the parameter settings from all HCL-804A to the current project file
  Send: synchronizes the parameter settings from the current project file to all HCL-804A which included in the project file;
- Reconnect: reconnect device.

Click "Receive / Send" to enter the HCL-804A setting interface, as described in the following chapter. HCL-804A supports the saving of 10 parameter setting scenarios. Any modification of the following parameters can be saved to the user program. The previous setting scenario can be called by Load user Program. If called the "Empty" user program, the column returns to the factory setting state.

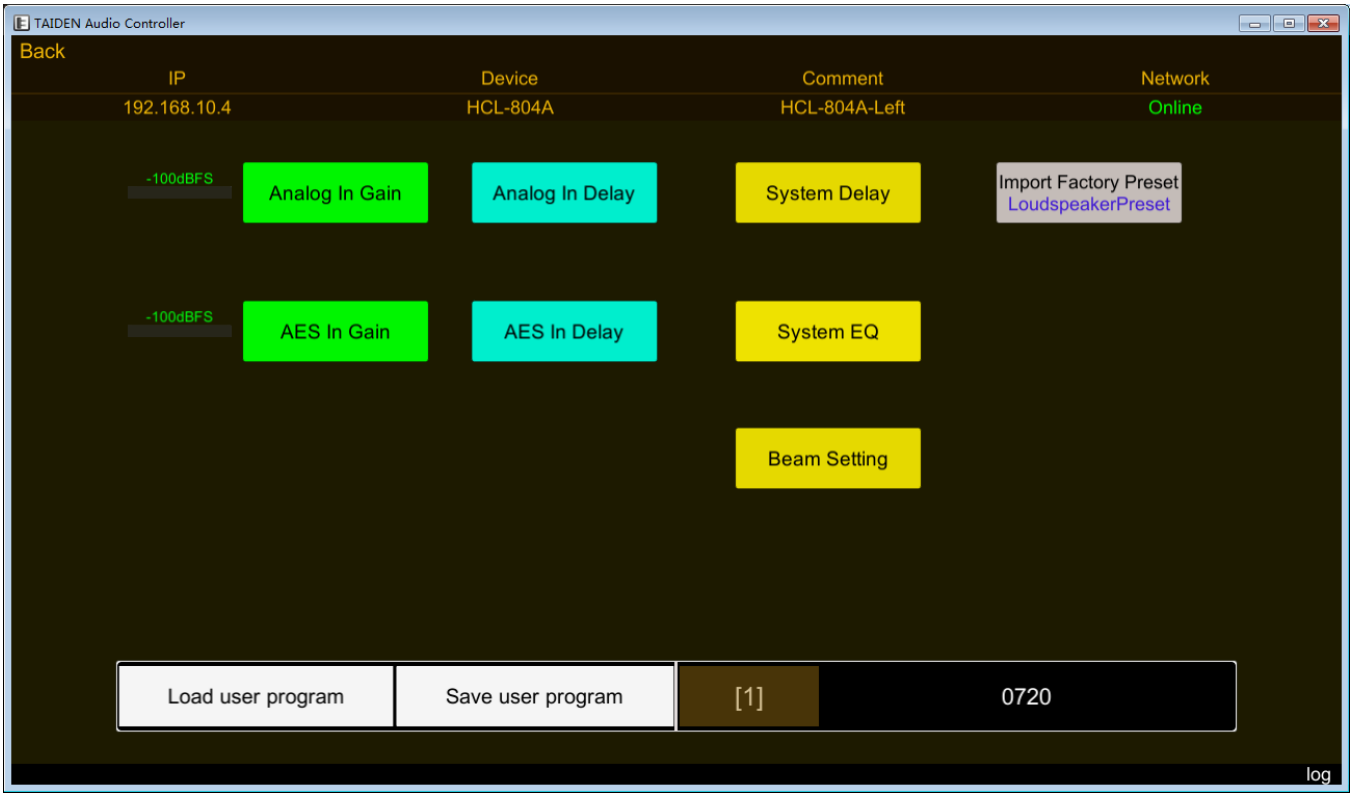


Figure: Parameters setting interface

2.7.3 Input Gain

HCL-804A supports simultaneous input of AES / EBU and analog signals for hot backup of each other. HCL-804A has a built-in power amplifier. In order to protect the driver units, the input gain is set to -100 and the gain switch is set to "OFF", the phase is "+".

Figure: Factory setting of input gain

2.7.4 Input Delay

HCL-804A supports AES / EBU + analog signal input. When one channel fails, the sound amplification system works completely without breakpoint. Therefore, before mixing, adjust the delay difference between the analog input and the digital input, align the two sets of signals before mixing.

Method of adjusting the delay (optional):

1. The overall time delay parameters of the system are obtained from the equipment manufacturer, that is, the time delay from the audio input to the audio output.
2. Measurement was performed by the software such as Smaart Live, Systune, etc

Note: analog input delay and digital input delay, the actual setting is the two channel delay difference, such as digital input front-end device delay is 3ms, analog input front-end device delay is 1ms, adjust step for 1 sample (0.02ms) namely: the digital input lags the analog input by 2ms, please set the analog input delay as 2ms, digital input delay as 0ms.

Figure: Input channel delay setting

2.7.5 System Delay

The system delay needs to be set with the whole sound reinforcement system. The maximum 1000ms delay can be set, and the default is 0ms, and the delay function is OFF.

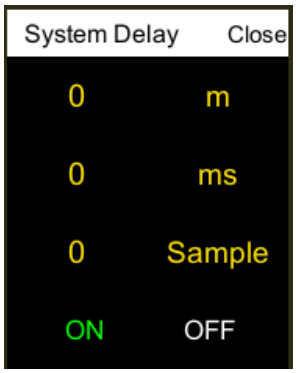


Figure: System delay setting

2.7.6 System EQ

Supports 8-segment EQ setting.

Note: setting takes effect when the main switch is "ALL ON".

Figure: System EQ setting

2.7.7 Beam Setting

The TAIDEN Audio Controller.exe software provides a visual beam setting and simulation interface to visually view the sound pressure level at different locations in the venue area (the software assumes that the environment is a free sound field). It can be divided into four settings: Audience, Simulation, SPL simulation and Frequency simulation.

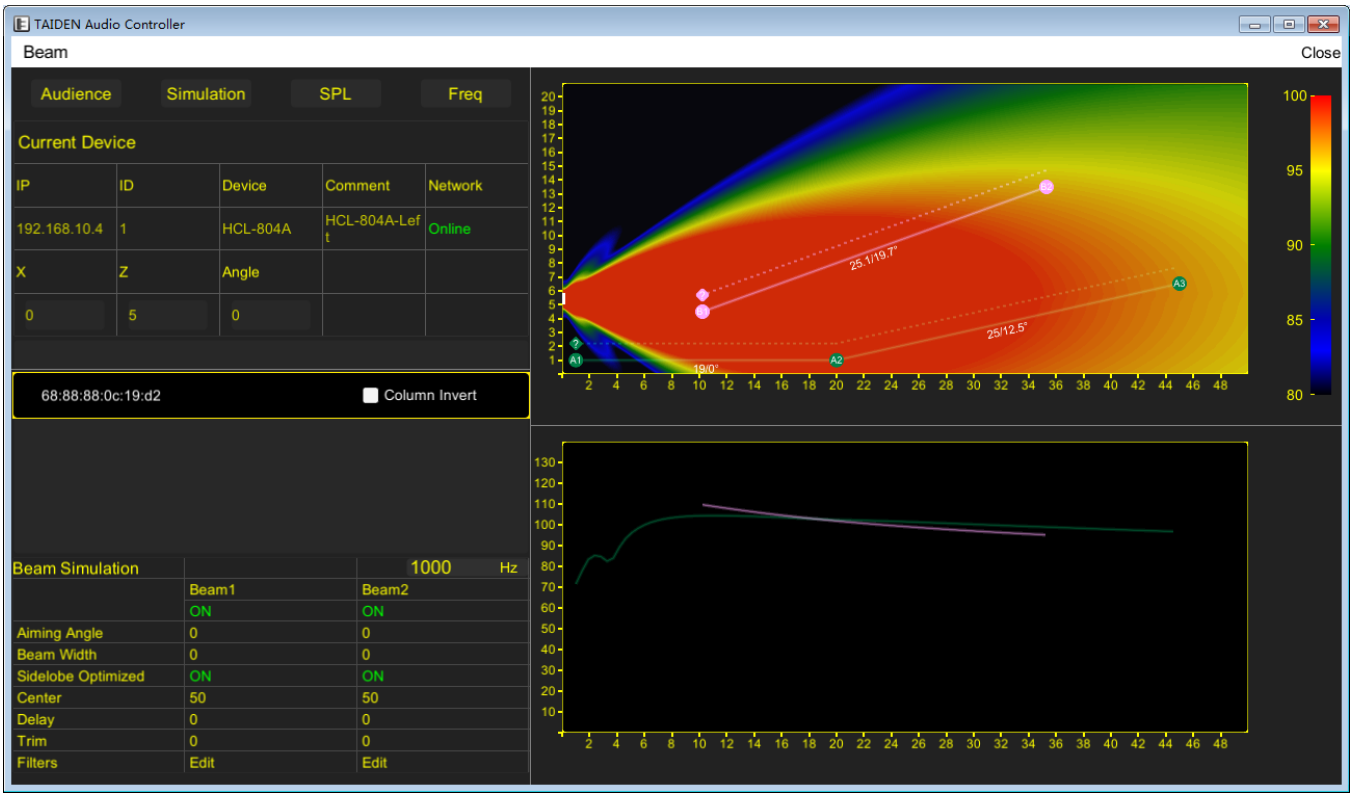
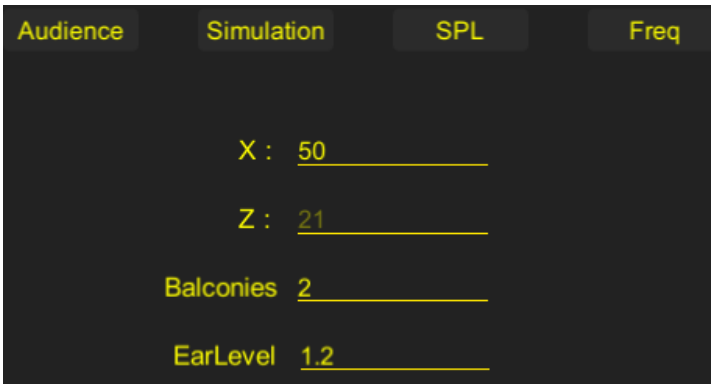


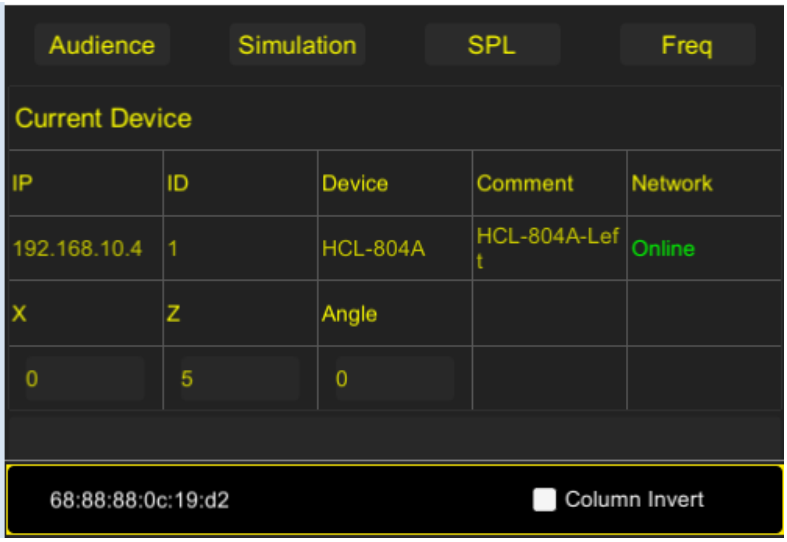
Figure: Beam Setting

2.7.7.1 Audience



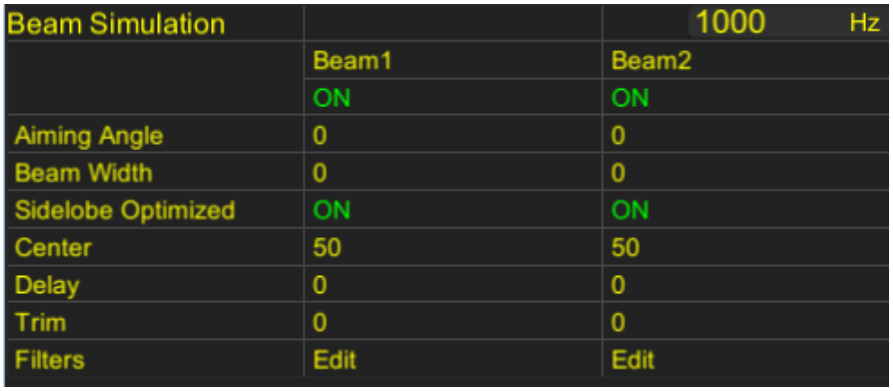
- X: the depth of the conference room;
- Balconies: number of seating floors in the conference rooms;
- EarLevel: the average height of the ear after attendees sitting down

2.7.7.2 Simulation



Current Device: display the current device information and set the location information for the HCL-804A

- X: the horizontal axis position of HCL-804A, such as: a rectangular conference room, HCL-804A is installed on the front, X can be set to 0; if a conference room contains the podium, HCL-804A is installed on both sides of the podium, X value needs to be set according to the actual distance;
- Z: the installation height of HCL-804A, and the bottom end value is the Z value;
- Angle: the pitch angle of HCL-804A, if use standard bracket, set it to 0;
- Invert: settings for the upper column when two columns are combined.



Beam simulation: parameters setting for beam simulation

- **Simulation frequency:** selected simulation frequency and the visualization interface showed the beam characteristics of the selected frequency, default is 1000Hz;
- Beam switch: dual beams can be controlled independently, and the factory default is OFF;

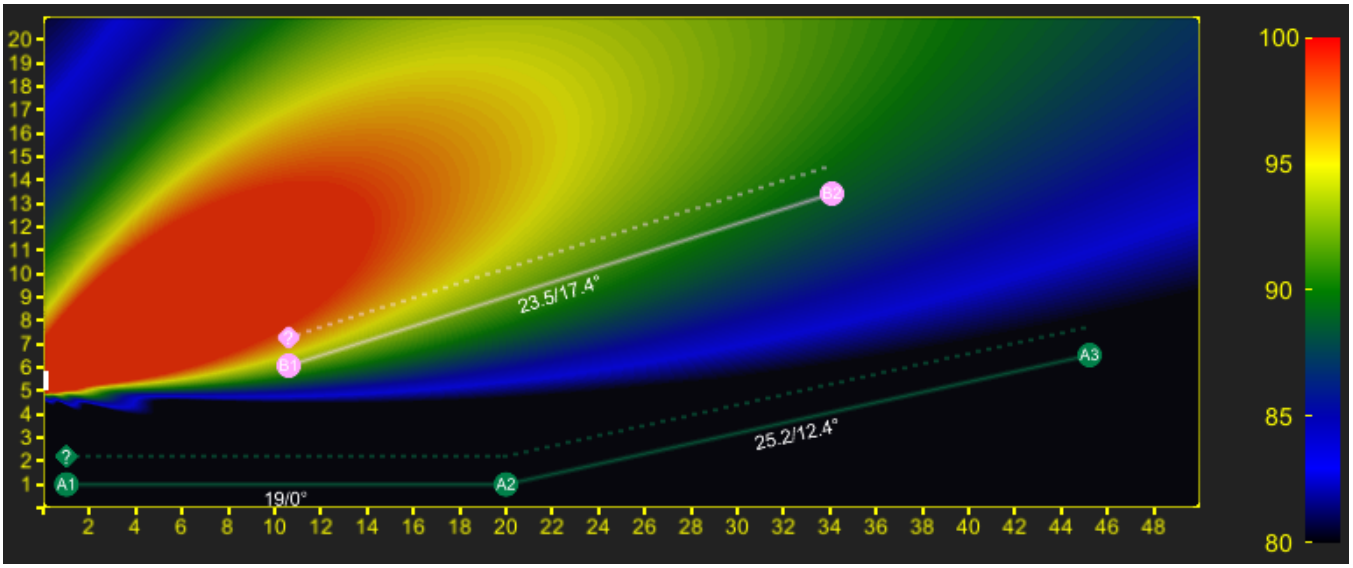


Figure: Beam 1 ON (aiming angle: 30°), Beam 2 OFF

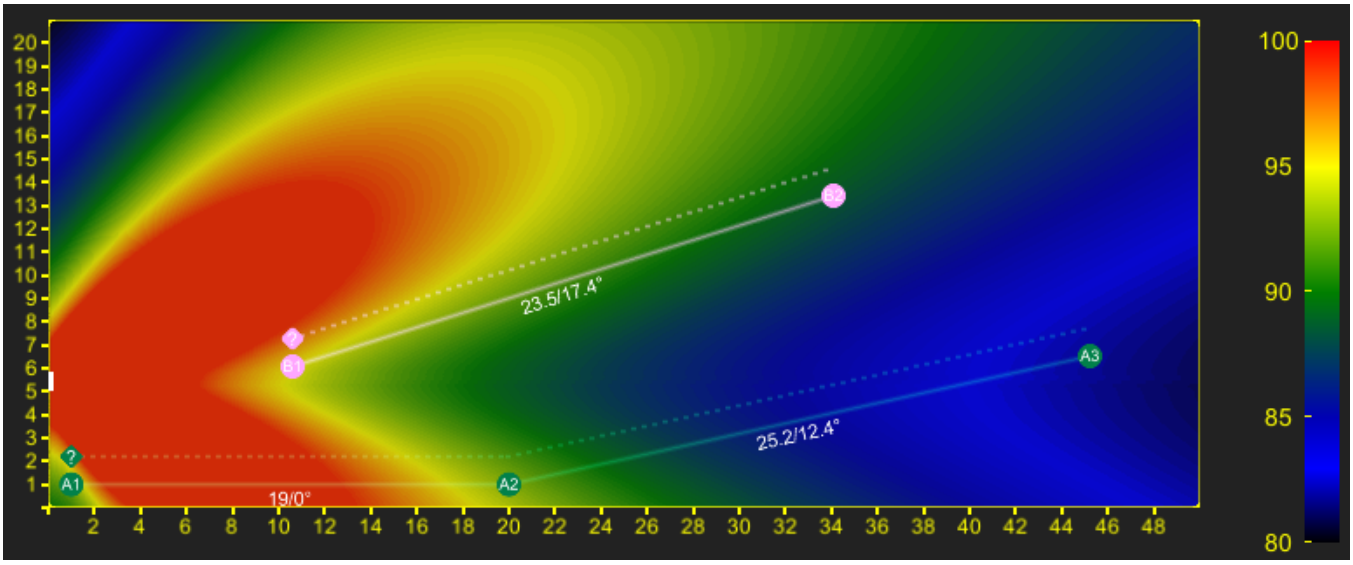


Figure: Beam 1 ON (aiming angle: 30°), Beam 2 ON (aiming angle: -30°)

- Aiming Angle: vertical coverage pattern, -45°~ + 45° (accuracy of 0.1 degree)

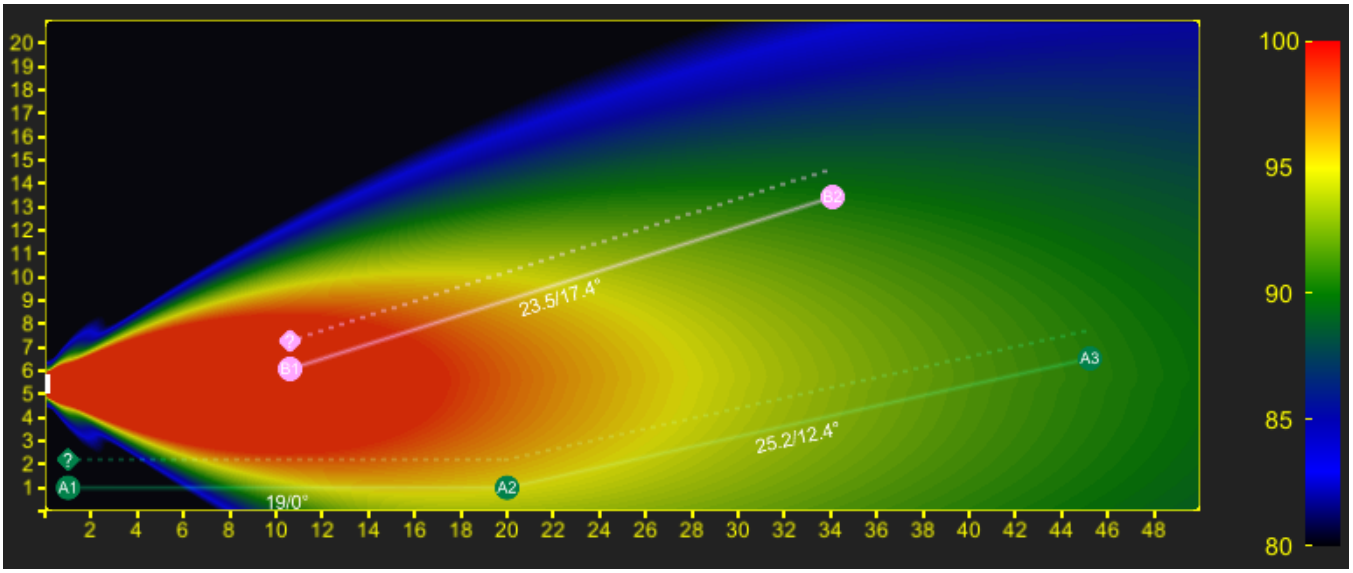


Figure: Aiming angle 0°

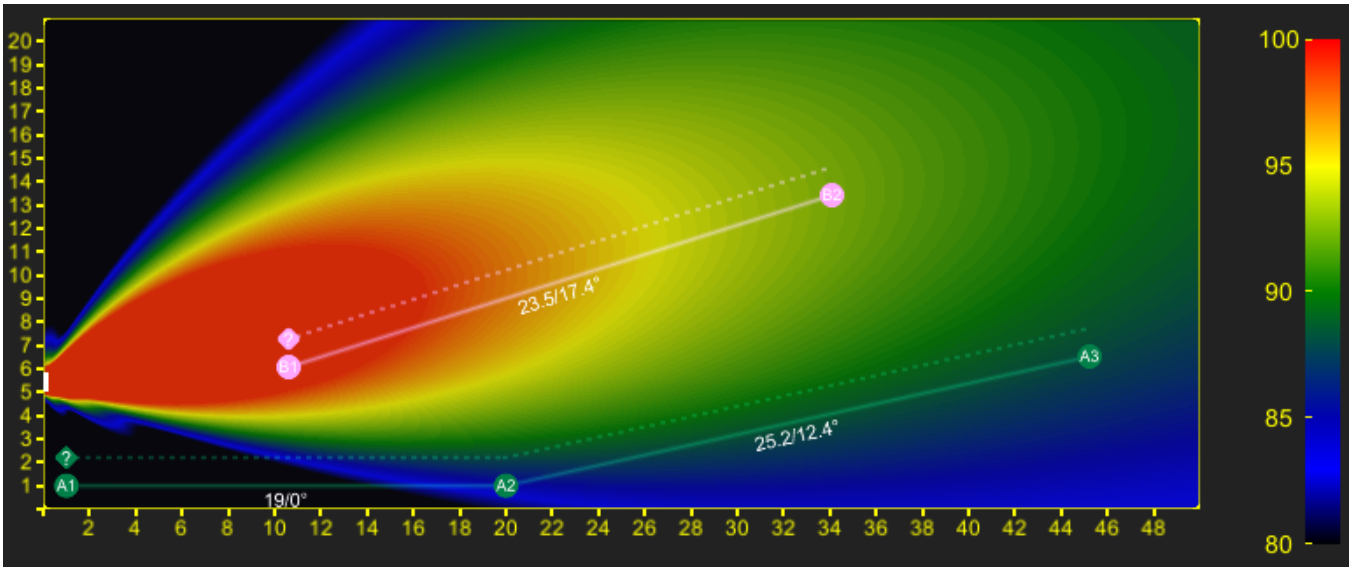


Figure: Aiming angle 15°

- Beam with: 12°~90°, set as a percentage;

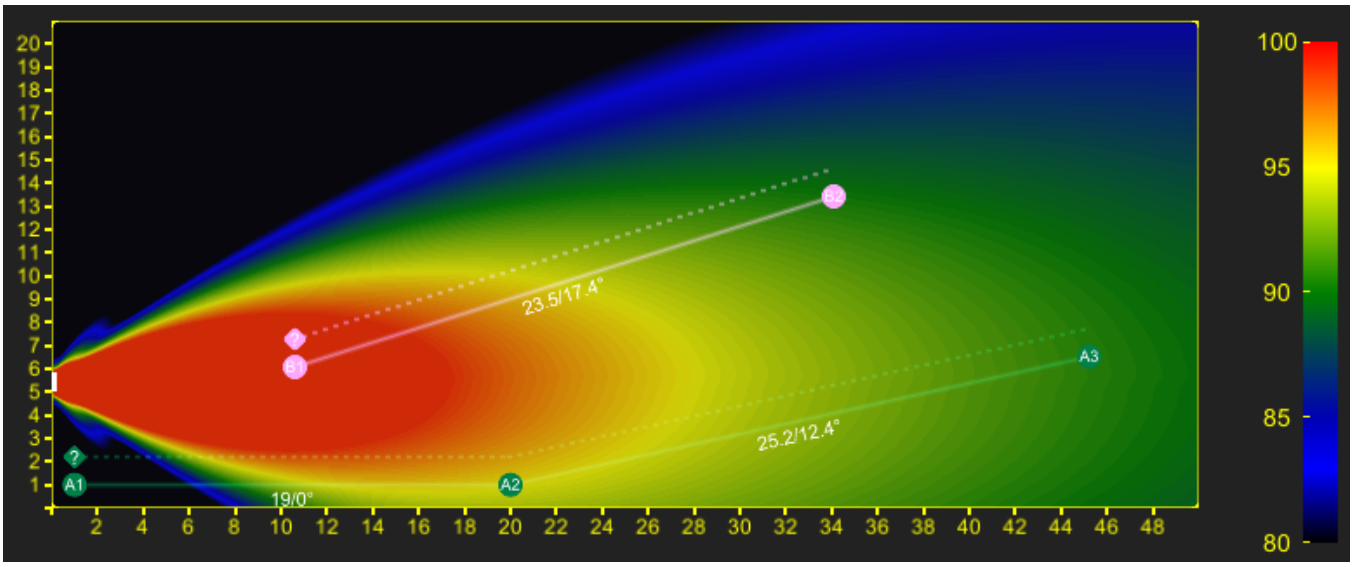


Figure: Beam width (0)

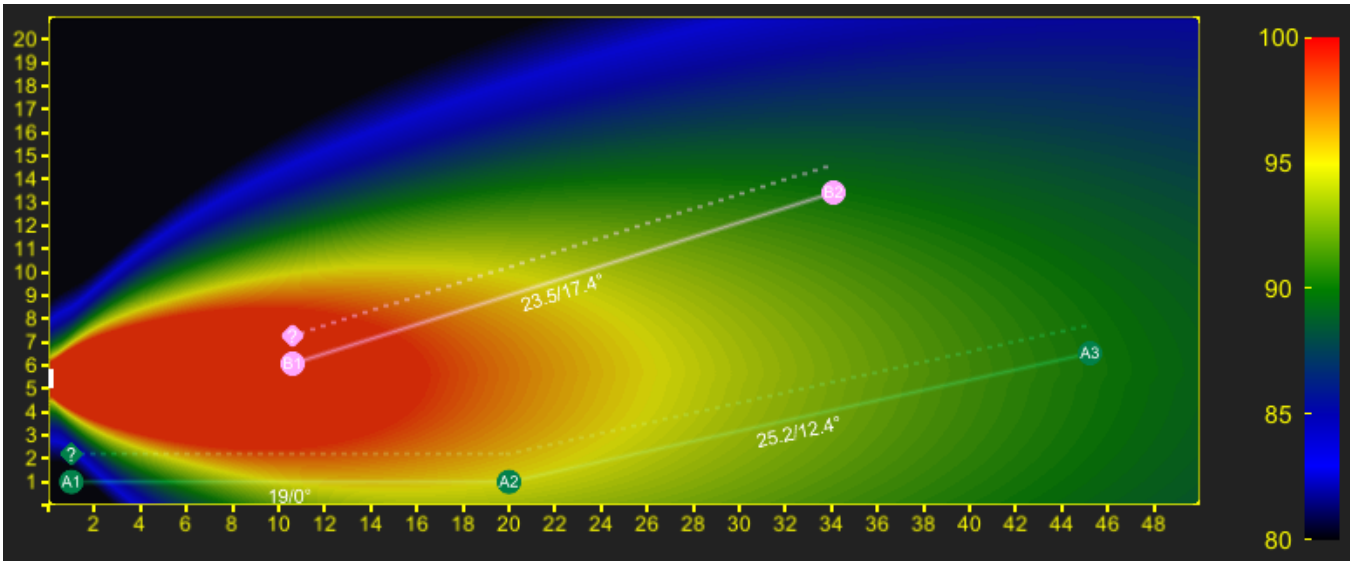


Figure: Beam width (50)

- Sidelobe Optimized: sidelobe optimized switch, if acoustic environment is good, close sidelobe optimized function to get more reverberation sound, improve hearing fullness, or else, open sidelobe optimized function, reduce reflected acoustic energy, in order to obtain better articulation of speech;

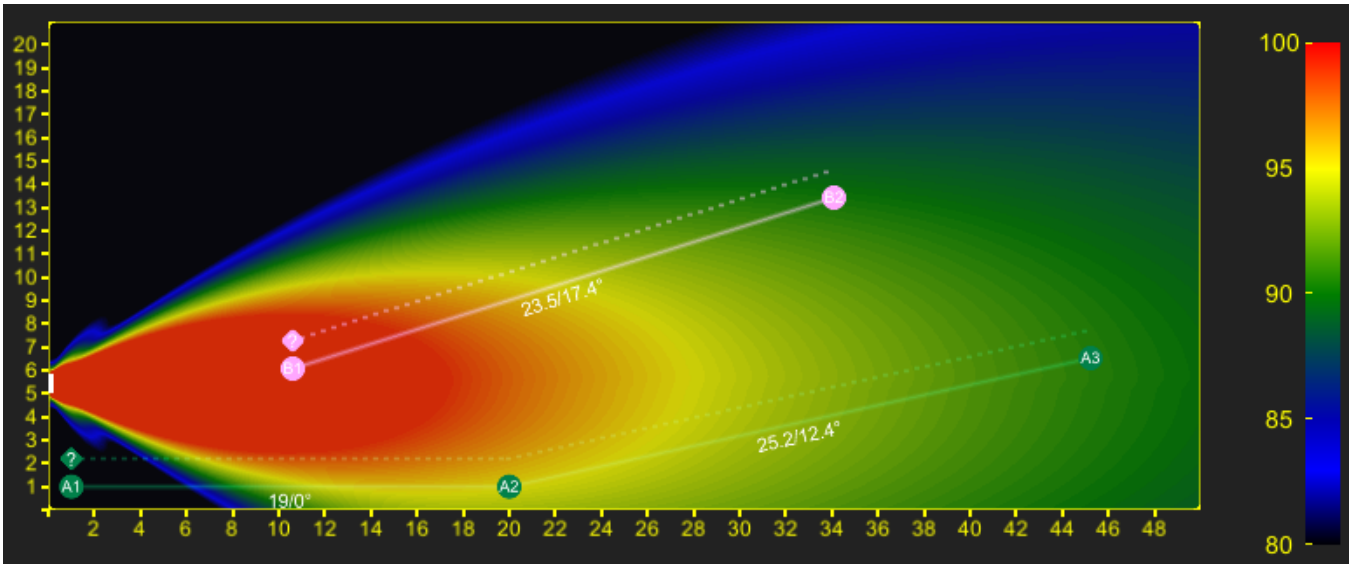


Figure: Sidelobe optimized (ON)

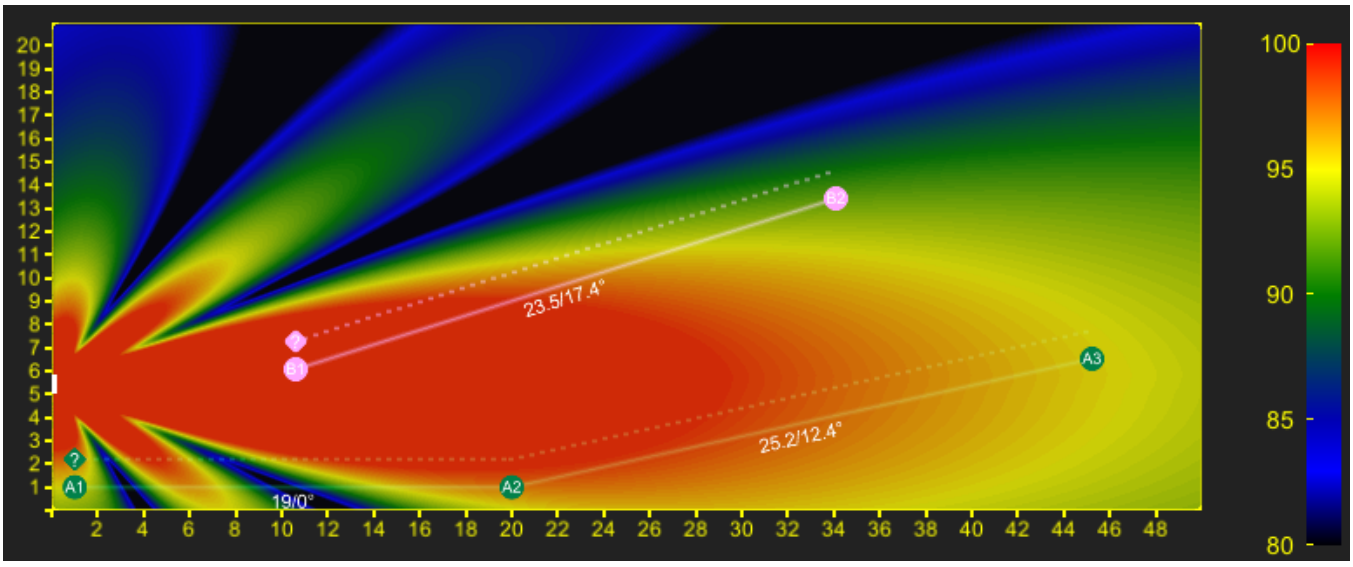


Figure: Sidelobe optimized (OFF)

- Center: 2 beams, the central position can be adjusted independently, according to the percentage setting, the default value is 50, that is, the positive axis of the beam in the middle of the sound column; set to 100, the positive axis of the beam at the top of the sound column; set to 0, the positive axis of the beam at the bottom of the sound column;

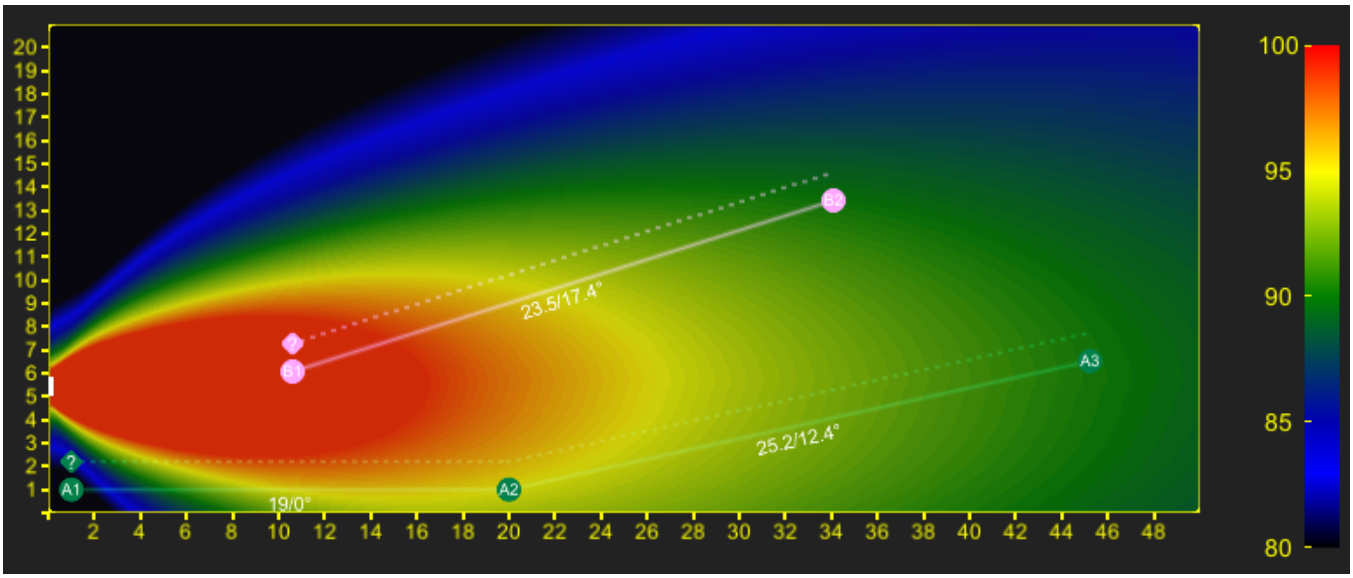


Figure: Center (50)

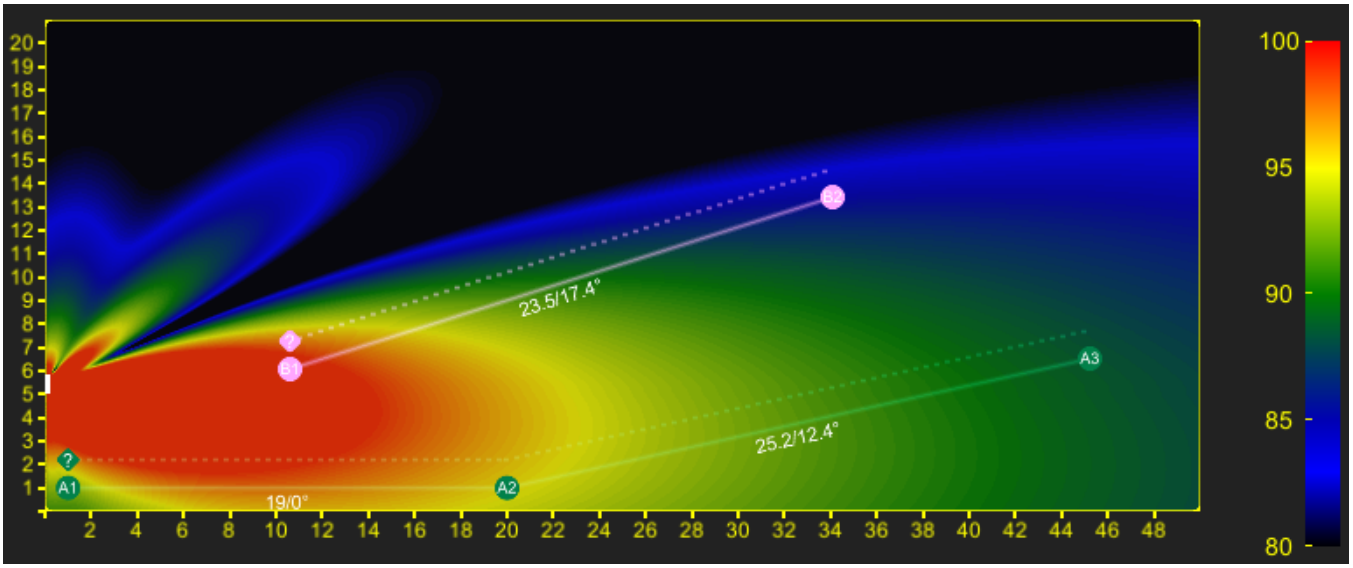


Figure: Center (0)

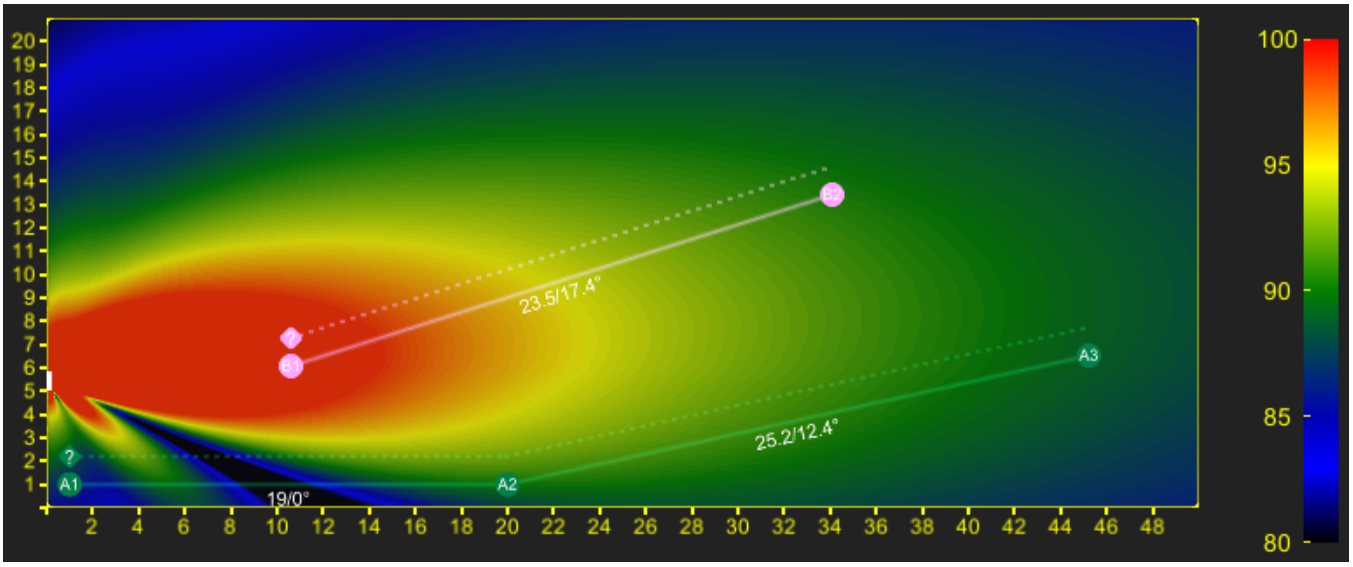


Figure: Center (100)

- Delay: set beam delay (0~10ms);
- Trim: set beam attenuation;

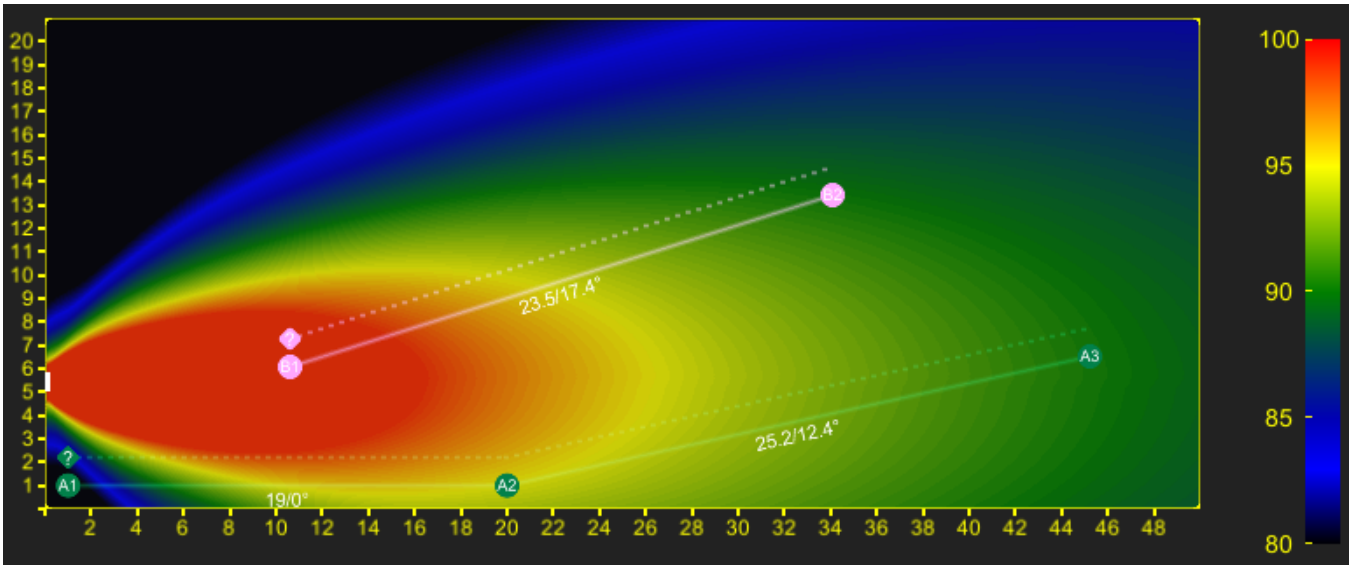


Figure: Trim (0)

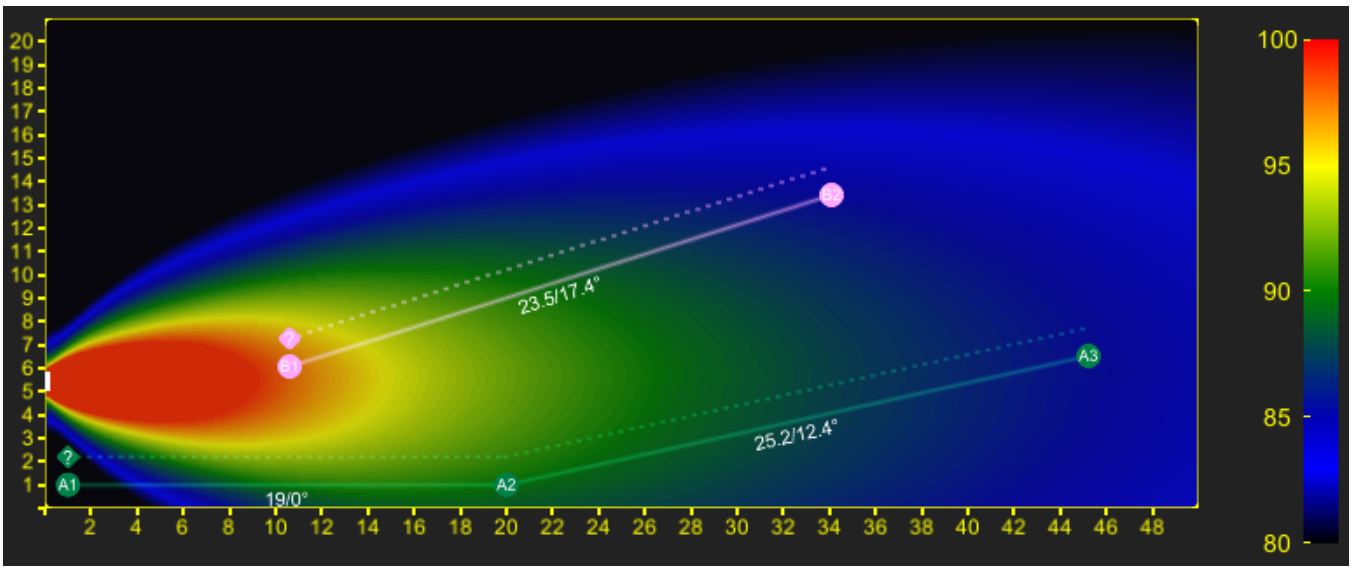


Figure: Trim (-5)

- Filters: set HPF&LPF&EQ for beams.

2.7.7.3 SPL

In SPL simulation state, right click mouse in the upper right area can directly mark the sound pressure level of the point. In the lower right area, displays the sound pressure level corresponding to the height of the seat ear.

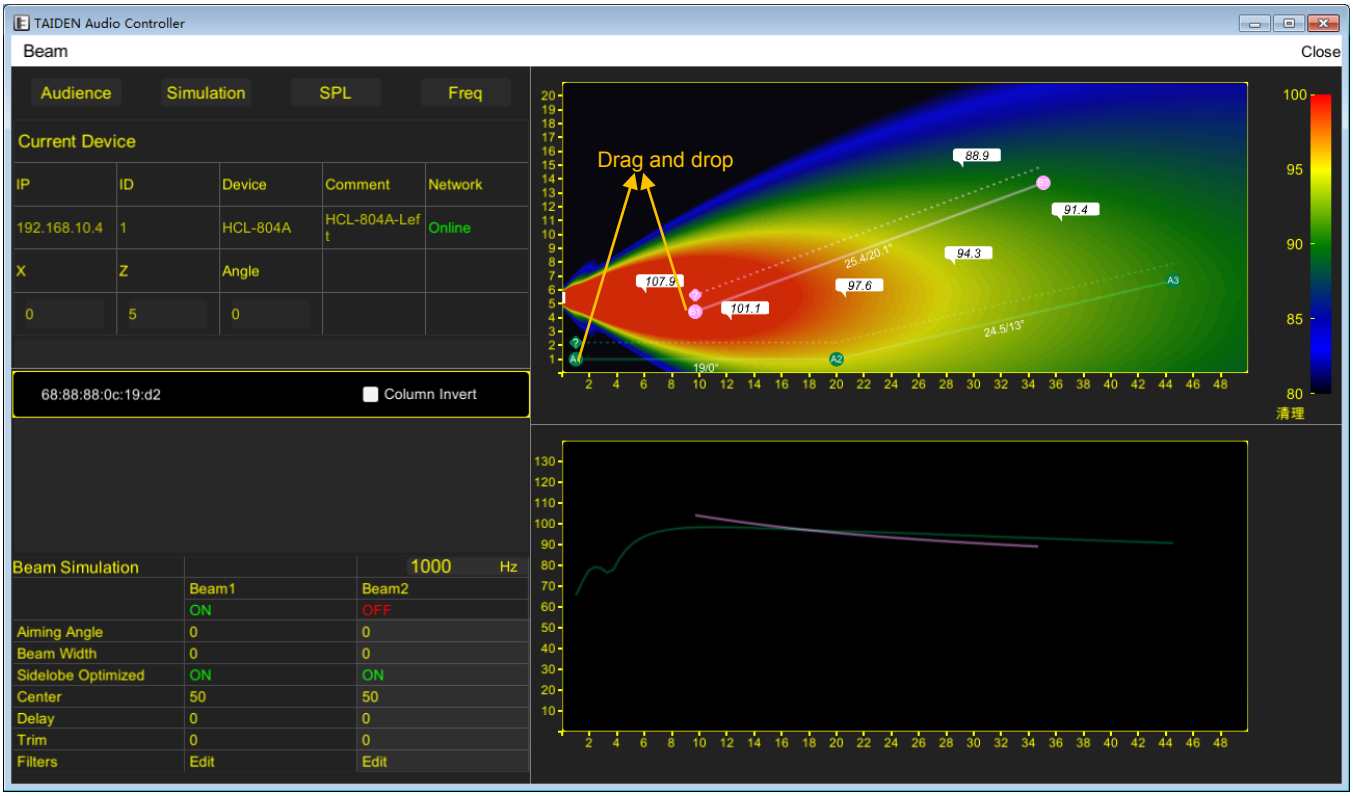


Figure: SPL simulation

2.7.7.4 Frequency

Frequency simulation interface, the lower right area shows the frequency response curve of each location.

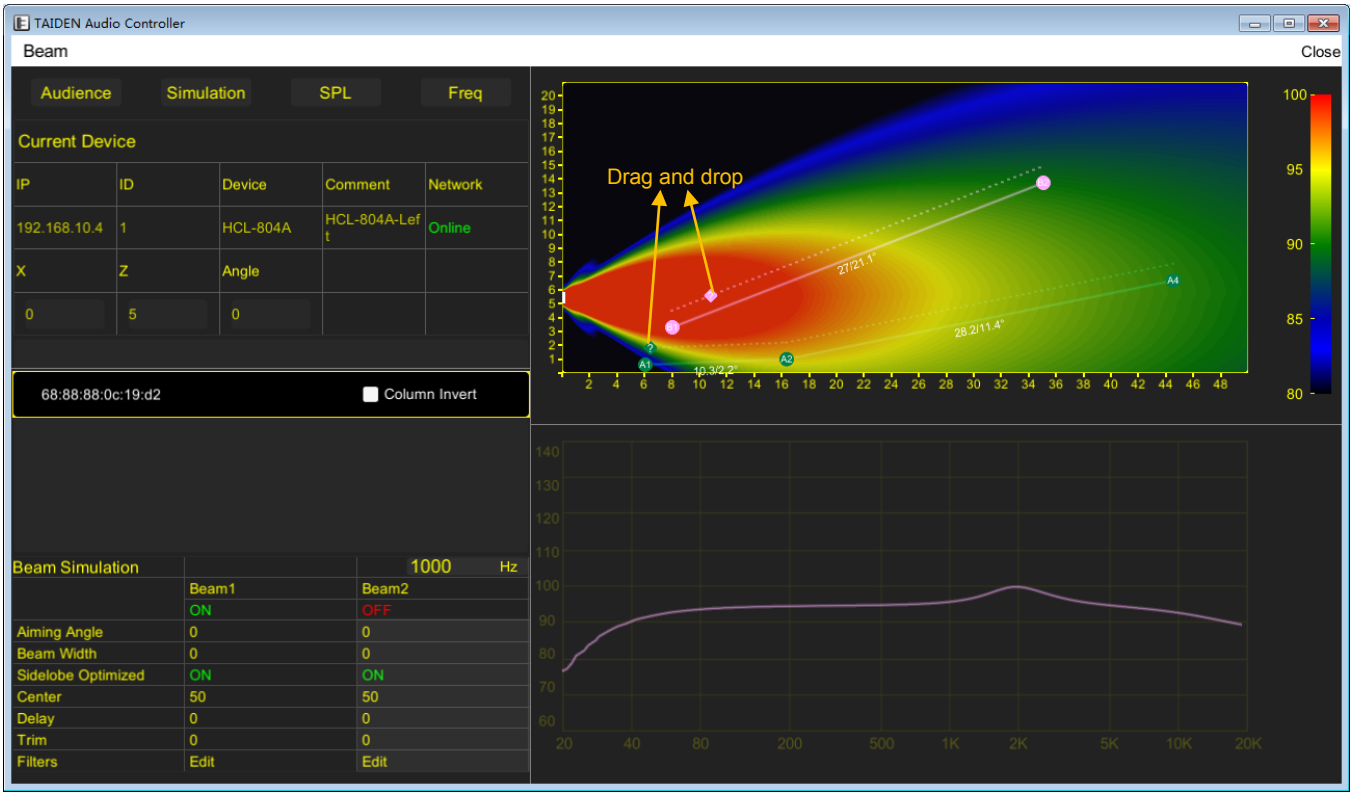


Figure: Freq simulation

2.7.8 Import Factory Preset

Used for upgrade factory preset, import the preset file and then restart HCL-804A.

Chapter 3: HCL-404 series 4 Units Two-way Column Loudspeaker

3.1 Overview

The HCL-404 series 4 Units Two-way Column Loudspeaker consists of two products, HCL-404 and HCL-404J. The HCL-404J column loudspeaker can be used alone, or extended with HCL-404 column loudspeaker to achieve a wider coverage.

The two-way single-drive full-range column speaker comes with 4×4" midwoofers and 12×0.75" tweeters. Three tweeters form a linear tweeter sub-array in combination with a coaxial transducer and a midwoofer allowing smoother off-axis response. 15° fixed vertical coverage and accurate pointing for HCL-404 reduce acoustic reflections and optimize speech intelligibility. 40° fixed vertical coverage and wider coverage for HCL-404J optimized sound field uniformity.

It can meet the needs of a conference sound reinforcement in small to medium-sized conference rooms. When combined with a woofer, the system gains a greater dynamic range and fulfills the sound reinforcement requirements for audio and video programs.

3.2 Features

- Two-way column loudspeaker system with line array characteristics
- Composite carbon fiber diaphragm, effectively improve resolution and reduction
- Three-in-one coaxial unit, horizontal 100° uniform coverage
- Various combination modes, precise and controllable vertical pointing
  15° vertical direction (HCL-404)
  40° vertical direction (HCL-404J)
- Sliding tongue and groove connection to achieve continuous sound output without breakpoints

3.3 Specifications

HCL-404

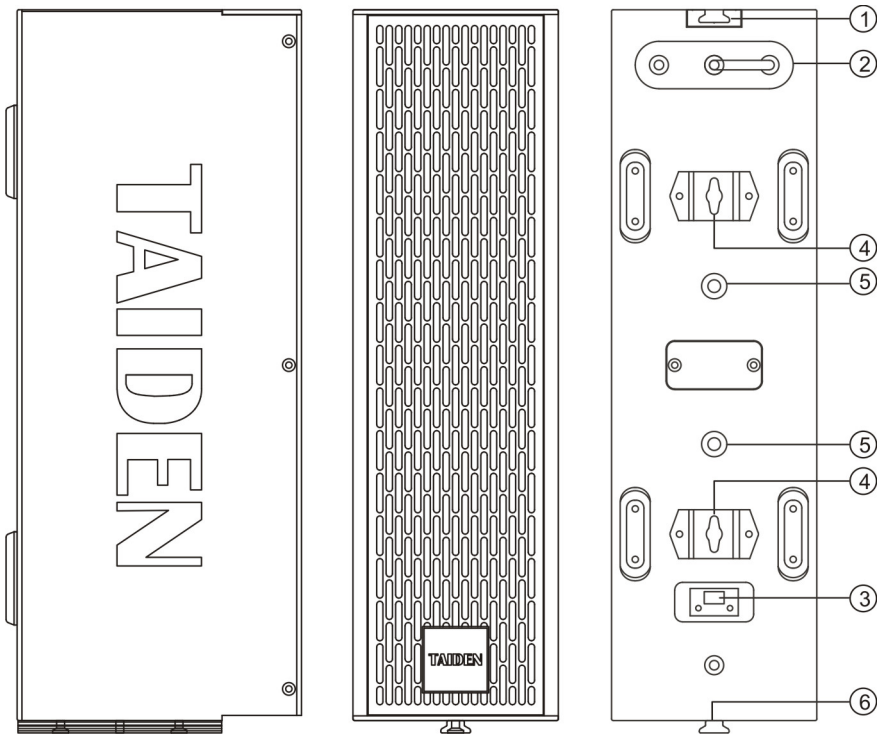
Frequency Range	80Hz-20kHz（±3dB）/60Hz-25kHz(-10dB)
Sensitivity	100dB
Nominal Impedance	8 Ω
Power	Noise Power: 200W(AES)
	PGM Power: 400W
	Peak Power: 800W
Midwoofer Unit	4×4" complex carbon fiber diaphragm midwoofer units
Tweeter	12×0.75" nano carbon fiber diaphragm tweeters
Coverage Pattern	100°(H)×15°(V)
Max SPL	123dB SPL，129 dB SPLpeak
Input Interface	Phoneix 4pin
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	450×130×180 (mm)
Weight	5.2kg
Accessories	2 x wall screw

HCL-404J

Frequency Range	80Hz-20kHz（±3dB）/60Hz-25kHz(-10dB)
Sensitivity	98dB
Nominal Impedance	8 Ω
Power	Noise Power: 200W(AES)
	PGM Power: 400W
	Peak Power: 800W
Midwoofer Unit	4×4" complex carbon fiber diaphragm midwoofer units
Tweeter	12×0.75" nano carbon fiber diaphragm tweeters
Coverage Pattern	100°(H)×40°(V) (+15°~-25°)
Max SPL	121dB SPL，127 dB SPLpeak
Input Interface	Phoneix 4pin
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	450×130×180/97 (mm)
Weight	4.9kg
Accessories	2 x wall screw
Optional accessories	HCL-404BKT Swivel (pan)/tilt wall bracket

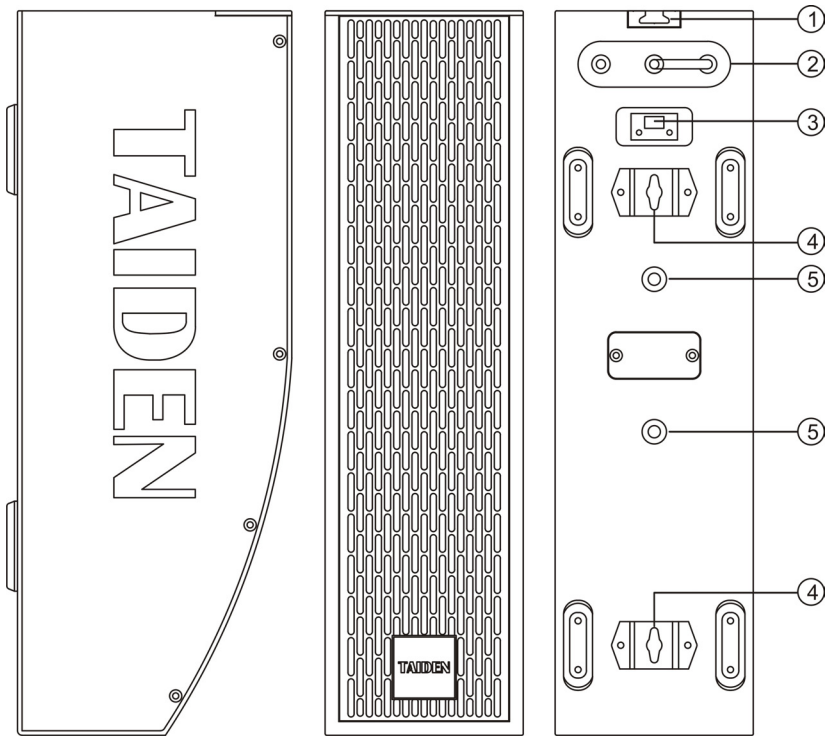
Note: The HCL-404BKT wall bracket is also suitable for the HCL-404+HCL-404J column loudspeaker.

3.4 Functions and instructions



HCL-404

1. Connecting groove, connect to another HCL-404
2. Top speaker connection fixings (when the top loudspeaker is not connected, the connection fixings also can be used to hang the safety rope)
3. Phoenix socket, input/parallel interface
4. Wall mounting bracket, spacing 214mm
5. Mounting holes for HCL-404BKT wall bracket (reserved point, bracket sold separately)
6. Connecting tongue, connect to HCL-404J



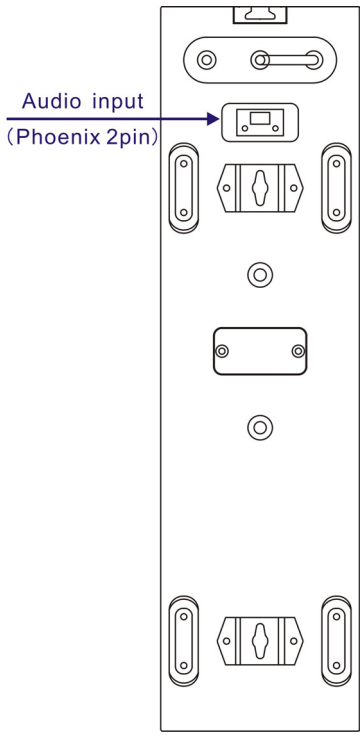
HCL-404J

1. Connecting groove, connect to HCL-404
2. Top speaker connection fixings (when the top loudspeaker is not connected, the connection fixings also can be used to hang the safety rope)
3. Phoenix socket, input/parallel interface
4. Fixed wall mounting brackets, spacing 298 mm (refer to the dimension)
5. Mounting holes for HCL-404BKT wall bracket (bracket sold separately)

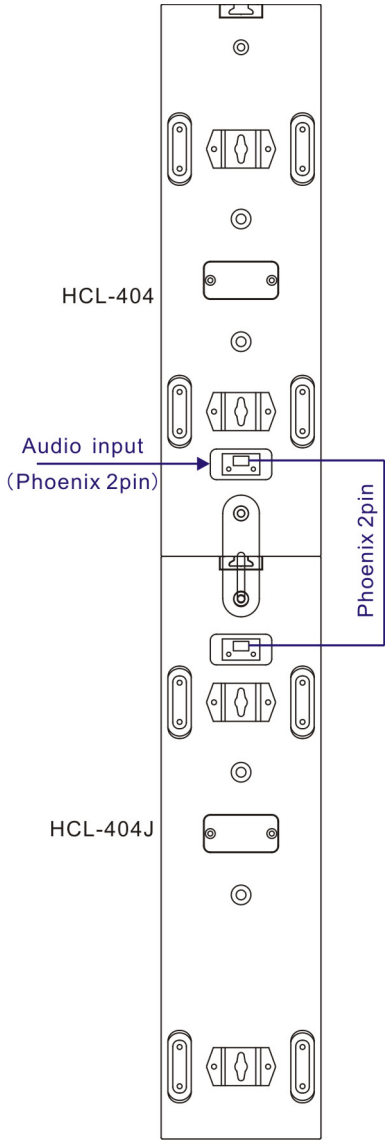
3.5 Connection

HCL-404 series column loudspeaker can be used independently or in parallel.

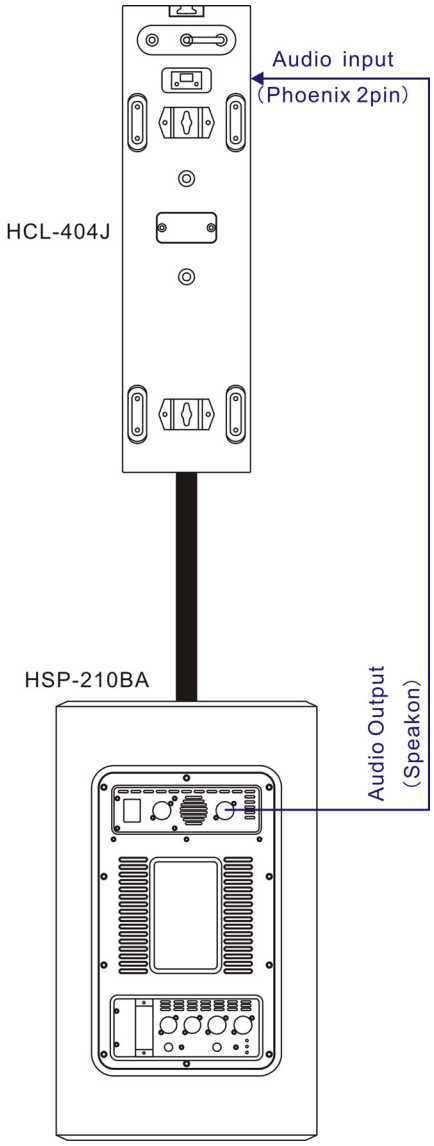
1. HCL-404J (8Ω, 200W)



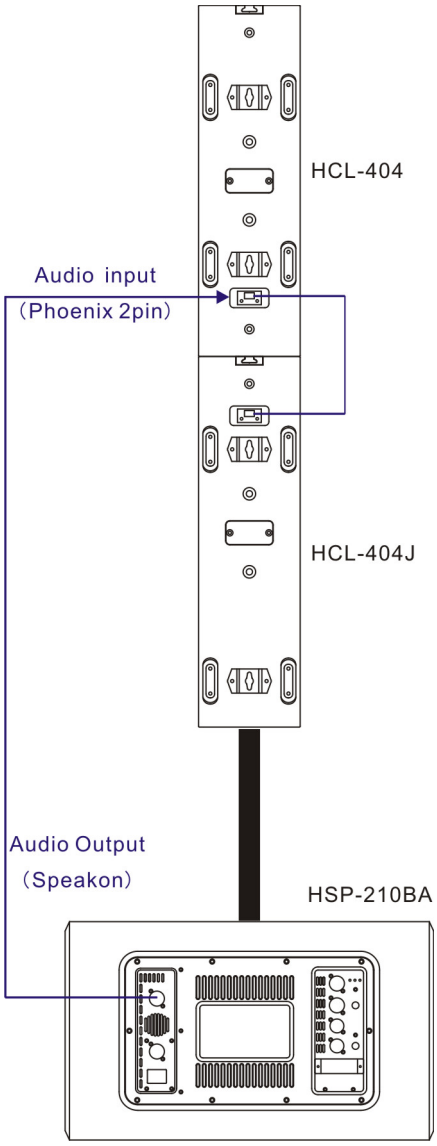
2. HCL-404+HCL-404J (parallel, 4Ω, 400W)



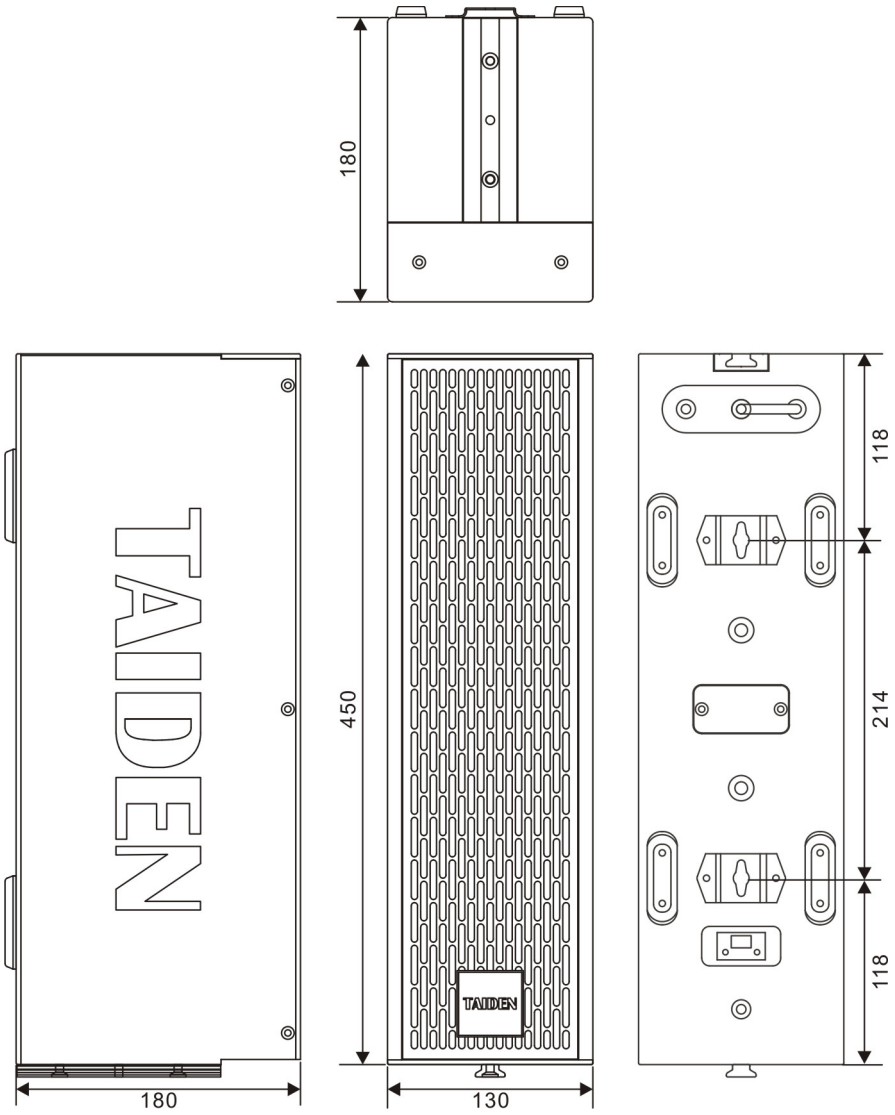
3. HCL-404J+HSP-210BA



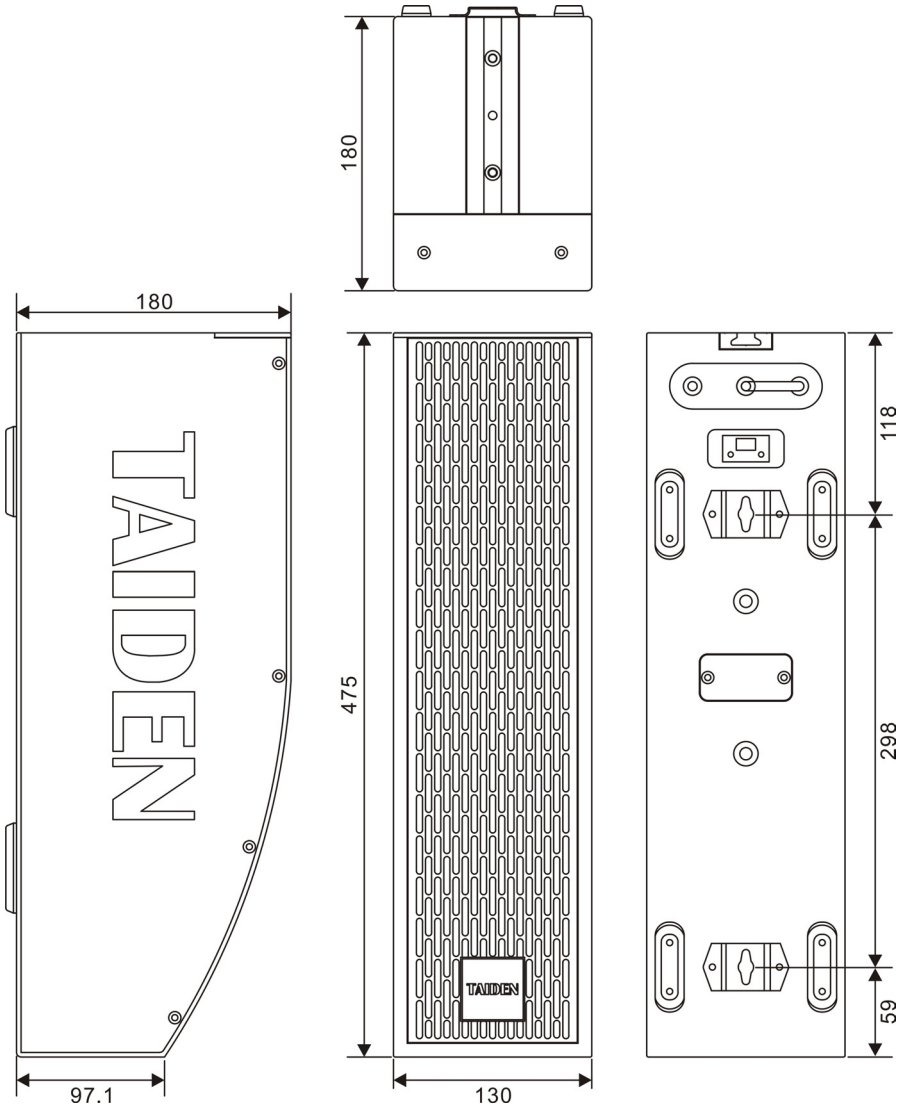
4. （HCL-404+HCL-404J）+HSP-210BA



3.6 Dimensions



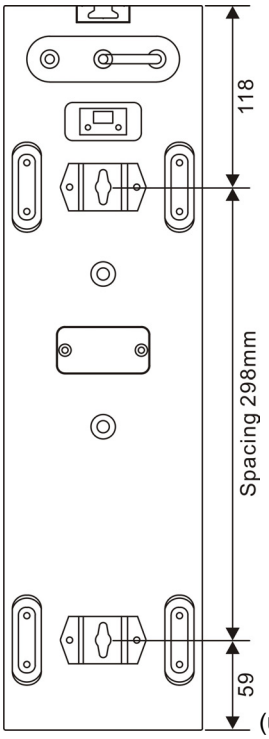
Dimensions for HCL-404 (unit: mm)



Dimensions for HCL-404J (unit: mm)

3.7 Installation

1. Fixed installation for HCL-404J



As shown in the figure on the left, the distance between the two fixed installation positions on the back of the HCL-404J column loudspeaker is 298mm, and the upper installation position is 118mm from the top. The installation is as follows:

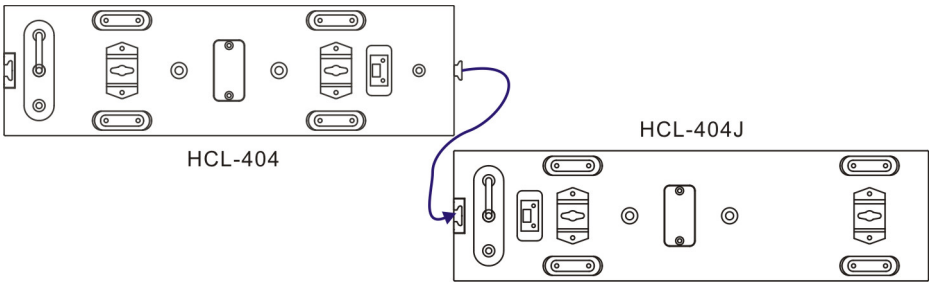
1) Drive two screws at the appropriate height of the wall at an interval of 298mm, and reserve enough height at the top;

2) Connect the audio cable;

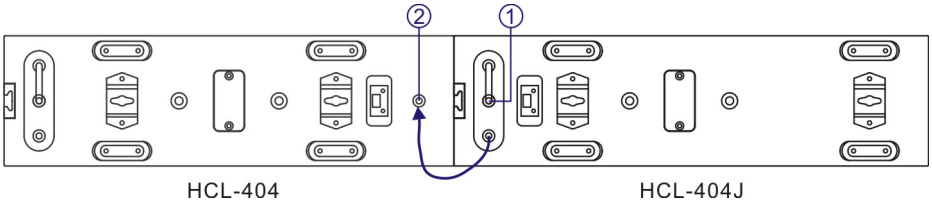
3) Pull up the column loudspeaker and snap the screw into the installation positions.

2. Fixed installation for HCL-404+HCL-404J

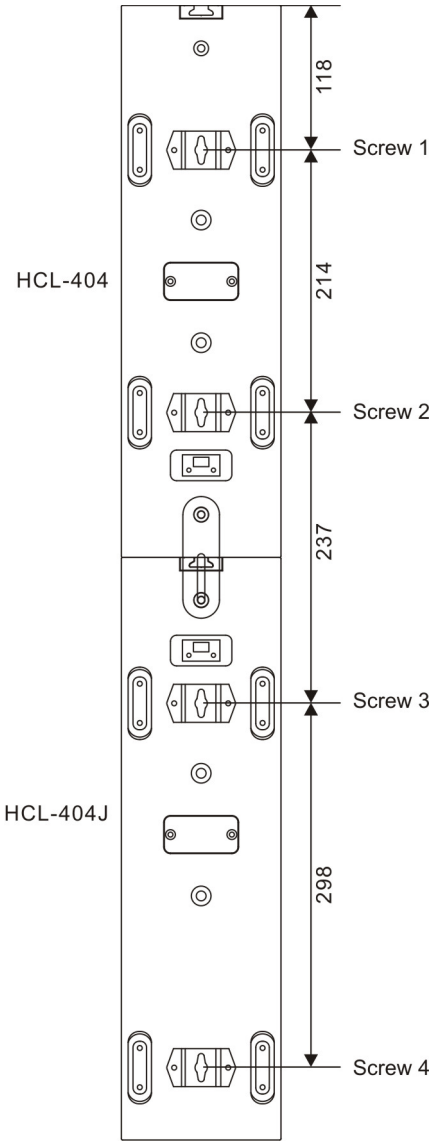
1) Take out HCL-404 and HCL-404J, place them horizontally on the desktop, and connect the tenon-and-mortise structure as shown in the figure below.



2) After docking, as shown in the figure below, loosen the screw 1, remove the screw 2, pull out the fixing plate and rotate it to the 2 position, reinstall the screw 2, and tighten the screws 1 and 2 to complete the assembly of the column loudspeaker.



3) Drive 4 screws at the appropriate height of the wall according to the spacing marked in the figure below, and reserve enough height at the top;



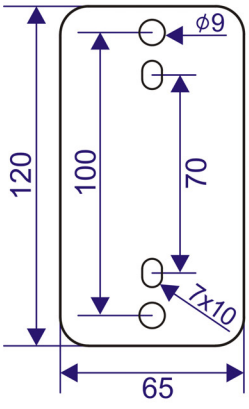
(unit: mm)

4) Connect the audio cables;

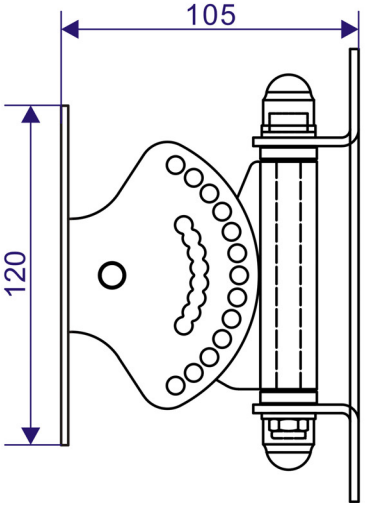
5) Pull up the column loudspeaker and snap the screw into the installation positions.

Note: Be sure to use 4 screws for combined installation.

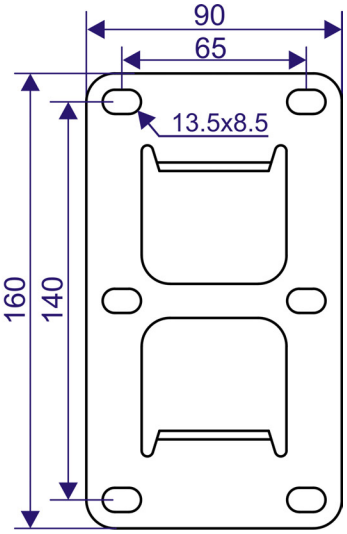
3. HCL-404BKT Swivel (pan)/tilt wall bracket (optional)



Loudspeaker-mount section



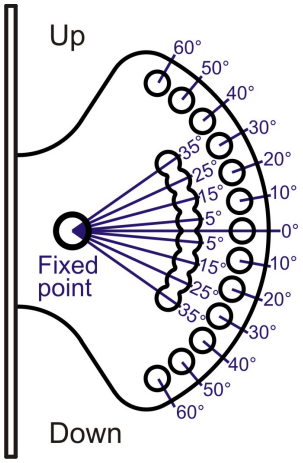
Assembled bracket



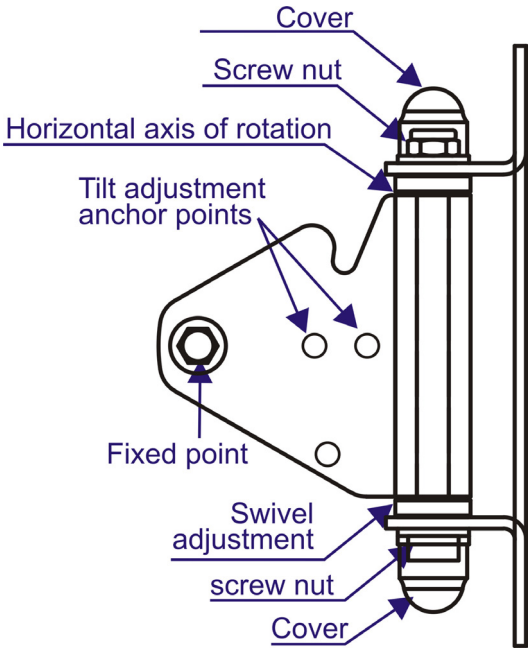
Wall-mount section

The HCL-404BKT bracket is shipped after being assembled by default, so the bracket you receive is one piece. After removing the nut and screw at the fixed point, as well as the movable stud and buckle, the bracket is decomposed into two parts as shown in the figure below, the left section is installed on the back of the sound column and the right section is installed on the wall using standard screw fittings.

- Tilt angle adjustment: reinstall the fixed point screw and nut, reassemble the two parts, adjust the appropriate angle, pass the movable stud through the hole of the corresponding angle (as shown on the left below) and adjust anchor point (as shown on the right below);
- Swivel angle adjustment: remove the cover, use a tool to loosen the nut, rotate it left and right to an appropriate angle, tighten the nut after adjustment, and reinstall the cap.



Loudspeaker-mount section



Wall-mount section

4. Bracket wall mounting for HCL-404J

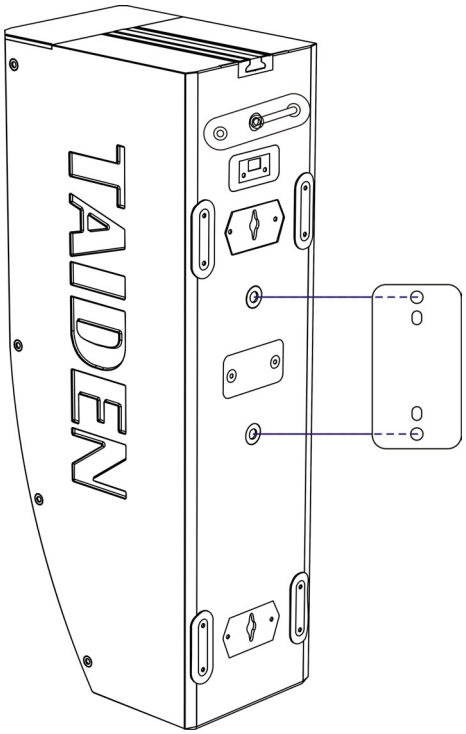
1) Remove the nut and screw of the fixed point of the bracket, as well as the movable studs and buckles;

2) Remove the screws on the back of the column loudspeaker, as shown in the figure below, install the loudspeaker-mount section on the back of the column loudspeaker, and use the original screws to lock the loudspeaker-mount section and the column loudspeaker;

3) Install the wall-mount section using the standard screws;

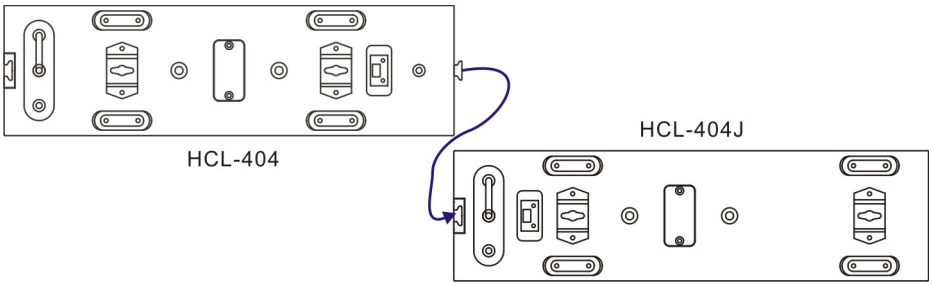
4) Connect the audio cable;

5) Pull up the column loudspeaker, reassemble the loudspeaker-mount section and wall-mount section, and set the required swivel angle and tilt angle.

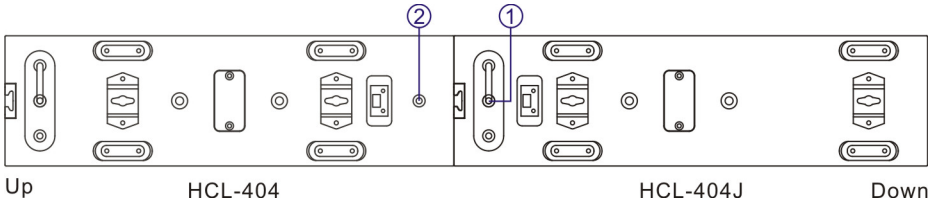


5. Bracket wall mounting for HCL-404+HCL-404J

1) Take out HCL-404 and HCL-404J, place them horizontally on the desktop, and connect the tenon-and-mortise structure as shown in the figure below.

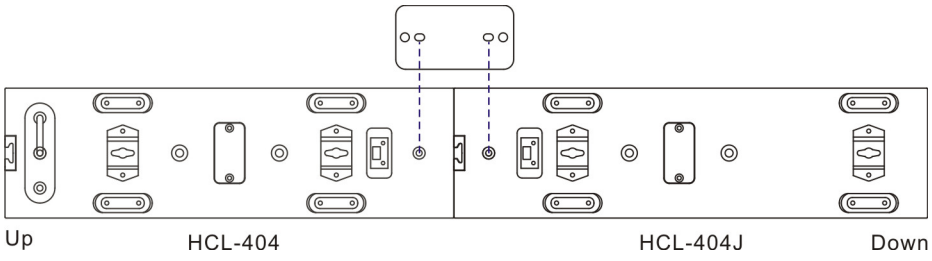


2) After docking, remove screws 1 and 2, and remove the fixing plate as shown in the figure below;



3) Remove the nut and screw of the fixed point of the bracket, as well as the movable studs and buckles;

4) Install the loudspeaker-mount section on the back of the column loudspeaker, and using the standard screws to lock the loudspeaker-mount section and the column loudspeaker;



5) Install the wall-mount section using the standard screws;

6) Connect the audio cables;

7) Pull up the column loudspeaker, reassemble the loudspeaker-mount section and wall-mount section according to the introduction of HCL-404BKT, and set the required swivel angle and tilt angle.

Chapter 4: HSP series Loudspeaker

TAIDEN conference professional sound reinforcement system specially designed and developed a dual 10-inch woofer to further expand the bass of the system, the lowest frequency can reach 35 Hz. It is widely used in large, medium and small conference venues/hotels/banquet halls/multi-functional halls/report halls.

HSP-210B	Dual 10-inch Woofer (2×10" woofers, 4 Ω, 800 W, can be used with HCL-404J or HCL-404+HCL-404J column loudspeaker or HSP-108/110/112 two-way loudspeaker, black)

TAIDEN conference professional sound reinforcement two-way loudspeaker provides different sizes and different power products to choose from, which are:

HSP-108	8-inch Two-way Loudspeaker (1×8" woofer + 1×2" tweeter, gradient rotatable pointing horn, 8 Ω, 200 W, optional HSP-108BKTU U-shaped wall bracket, black)
HSP-110	10-inch Two-way Loudspeaker (1×10" woofer + 1×2" tweeter, gradient rotatable pointing horn, 8 Ω, 300 W, optional HSP-110BKTU U-shaped wall bracket, black)
HSP-112	12-inch Two-way Loudspeaker (1×12" woofer + 1×3" tweeter, gradient rotatable pointing horn, 8 Ω, 400 W, optional HSP-112BKTU U-shaped wall bracket, black)

HSP series Loudspeaker is composed of a complex carbon fiber diaphragm woofer and a nano carbon fiber diaphragm tweeter. Loaded by gradient waveguide horn technology, its 50°~100° gradient horizontal coverage and 60° vertical coverage with rotatable horn make the sound pressure and frequency response more uniform in the coverage area.

- Composite carbon fiber diaphragm + nano carbon fiber diaphragm
- Gradient pointing horn, rotatable

4.1 HSP-210B Dual 10-inch Woofer

Overview

HSP-210B Dual 10-inch Woofers is composed of 2×10" long-throw double-magnetic woofers. The direct structure design ensures a high degree of sound reproduction and transient response. The strengthened box structure and optimal wind resistance design allow it to have a very low f0. It is widely used in large, medium and small conference venues/hotels/banquet halls/multi-functional halls/report halls.

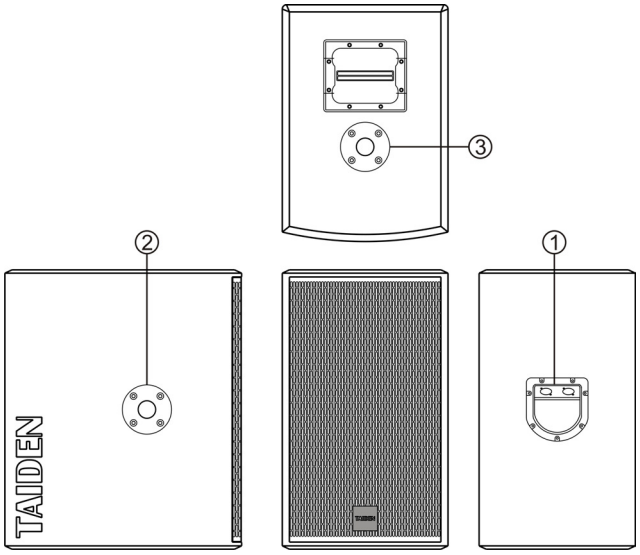
Features

- Long-throw double-magnet woofers
- Effectively extend the bass of the sound reinforcement system

Specifications

Frequency Range	40Hz-300Hz（±3dB）/35Hz-400Hz(-10dB)
Sensitivity	101dB
Nominal Impedance	4 Ω
Power	Noise Power: 800 W (AES)
	PGM Power: 1600 W
	Peak Power: 3200 W
Woofer Unit	2×10" long-throw double-magnet woofers
Max SPL	130dB SPL，136dB SPLpeak
Input Interface	2 × Speakon
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	590×350×500 mm
Weight	24.5kg

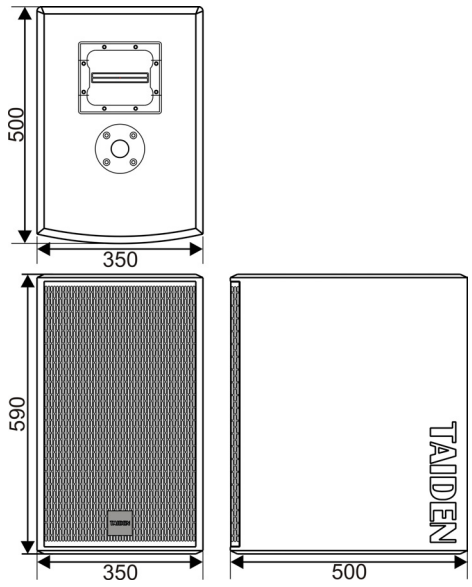
Functions and instructions



1. Audio input/parallel interface (2×Speakon)
2. Rod socket (side, Ø35mm)
3. Rod socket (top, Ø35mm)

Note: Support rod can be used to support HSP series two-way loudspeaker and HCL-404 series column, needs to be purchased separately

Dimensions



Dimensions of HSP-210B (unit: mm)

The top and back of HSP-210B are equipped with rod sockets, which can be directly used with HCL-404J or HCL-404+HCL404J column loudspeaker through the support rod (optional MA-75P2 support rod is required) , and can also be used with HSP-108/110/112 two-way speakers (optional MA-75P1 support rod is required). It is suitable for mobile use places.

Note: when using with HCL-404+HCL-404J through a support rod, HSP-210B must be placed horizontally

4.2 HSP-108 8-inch Two-way Loudspeaker

Overview

HSP-108 8-inch Two-way Loudspeaker is composed of 1×8" woofer and 1×2" tweeter. Loaded by gradient waveguide horn technology, its 50°~100° gradient horizontal coverage and 60° vertical coverage with rotatable horn make the sound pressure and frequency response more uniform in the coverage area.

At the same time, it is equipped with the CRC-Cylindrical-wave front Radial Coupling technology, which effectively improves the transmission and coupling efficiency, transmission distance and the sound quality, and also reduces the interference between each horn.

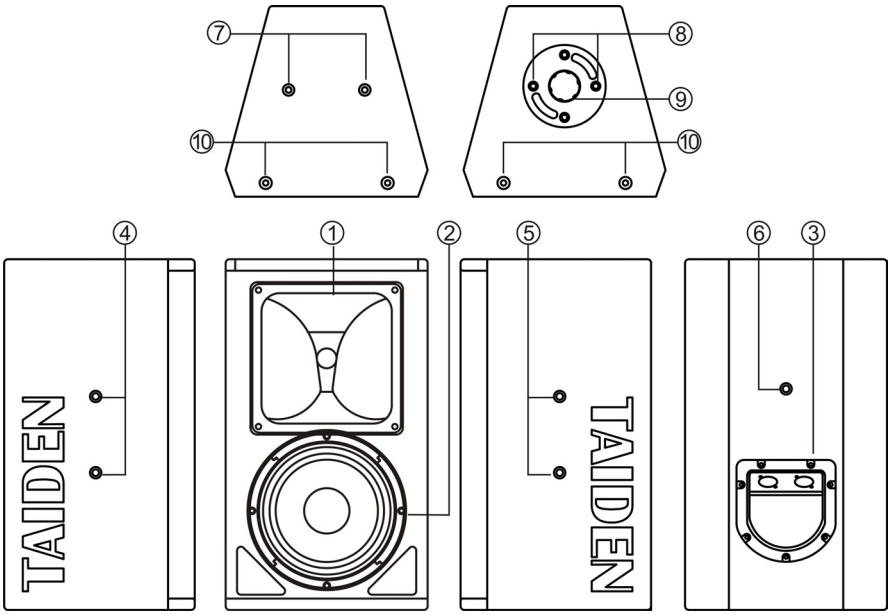
Features

- Composite carbon fiber diaphragm + nano carbon fiber diaphragm
- Gradient rotatable pointing horn

Specifications

Frequency Range	70Hz-20kHz（±3dB）/50Hz-25kHz(-10dB)
Sensitivity	96dB
Nominal Impedance	8 Ω
Power	Noise Power: 200 W (AES)
	PGM Power: 400 W
	Peak Power: 800 W
Woofer Unit	1×8" composite carbon fiber diaphragm
Tweeter	1×2" nano carbon fiber diaphragm
Coverage Pattern	50°-100° (H) gradient × 60° (V) asymmetric, rotatable horn
Max SPL	119dB SPL，125dB SPLpeak
Input Interface	2 × Speakon
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	460 × 265 × 250mm
Weight	11 kg
Optional Accessories	HSP-108BKTU U-shaped wall bracket

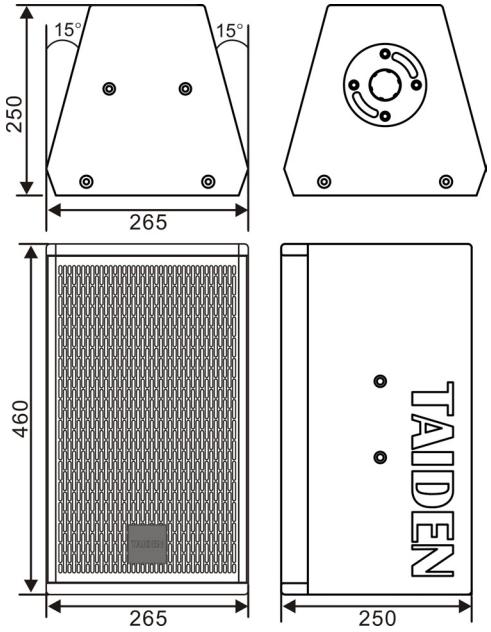
Functions and instructions



1. Treble horn
2. Woofer
3. Input/parallel interface (2×Speakon)
4&5&6&7&8. Hanging points (M8)
7&8. Points for HSP-108BKTU bracket
9. Rod socket (Ø35mm)
10. Mesh fixing screws

Note: Installation accessories need to be purchased separately

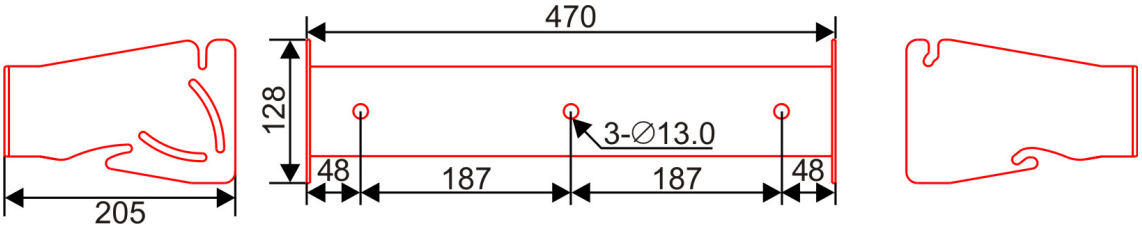
Dimensions and Installation



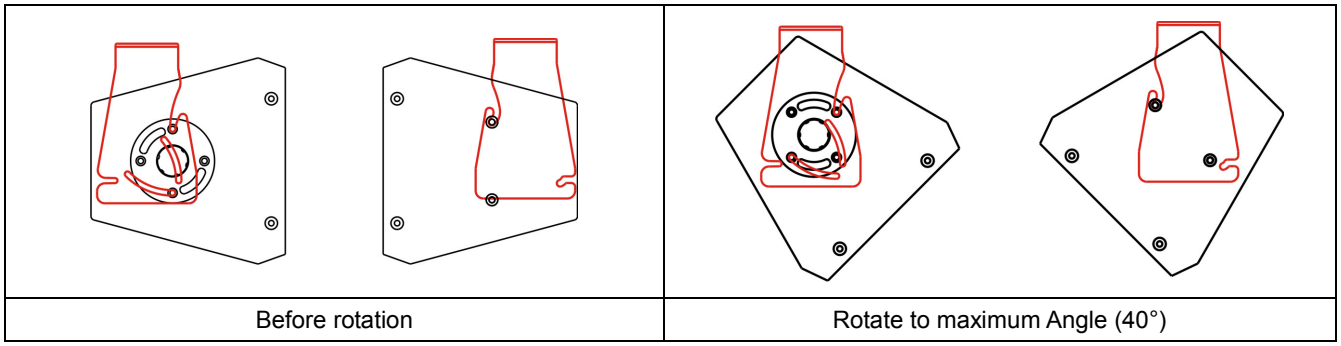
Dimensions of HSP-108 (unit: mm)

HSP-108 8-inch Two-way Loudspeaker

- The bottom comes with a Ø35mm support rod socket, which is suitable for support installation;
- The speaker box is arranged with nine M8 hanging points;
- Optional HSP-108BKTU bracket, wall or ceiling mount, support 40° rotation.

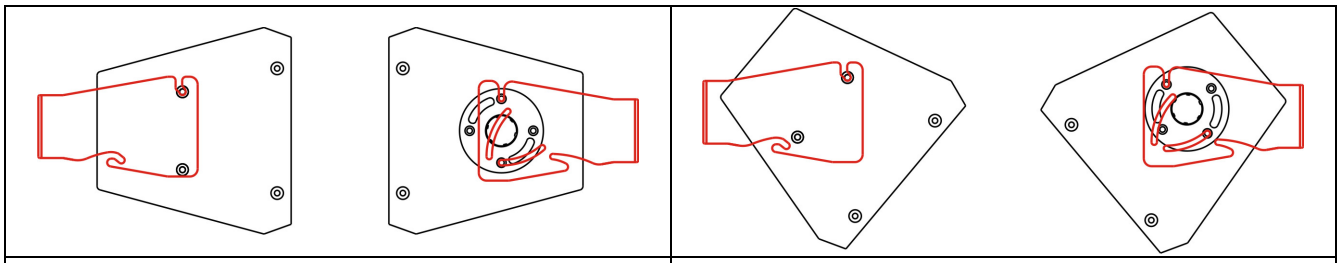


Dimensions of HSP-108BKTU



Before rotation	Rotate to maximum Angle (40°)

Installation diagram (side)



Before rotation	Rotate to maximum Angle (40°)

Installation diagram (back)

The HSP-108BKTU comes standard with three M12×100 mm expansion bolts and two M8 flat head screws:

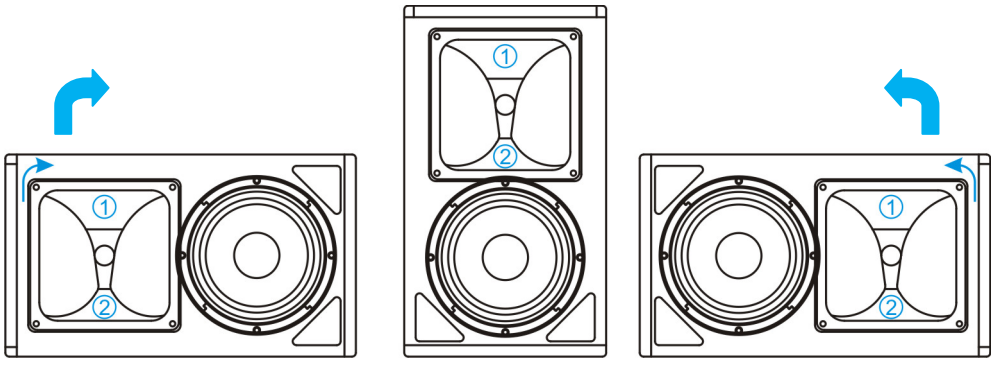
1) Three M12×100 mm expansion screws are used to lock the U-bracket firmly on the load-bearing wall surface. Note: if hoisting is selected, the U-bracket can be firmly suspended by threading rods of appropriate length through the three Ø13.0 holes of the U-bracket;
2) After the U-bracket is fixed, remove the screws on the top and bottom of the loudspeaker box for fixing points and replace them with two M8 screws standard in the bracket packaging, but do not lock them;
3) Remove the M6 screws used to locate the rotation angle and keep them;
4) Lift up the loudspeaker box, and the two M8 screws protruding from the box are stuck into the buckle of the U-bracket;
5) Reinstall the M6 screws removed by 3), and lock the M6 screws after rotating the loudspeaker box to an appropriate angle (supporting angle adjustment of 40°);
6) Lock the other two M8 screws, and the installation is completed.

The loudspeaker can be installed horizontally or vertically. Select a proper installation mode based on site requirements. The LOGO of the HSP-108 loudspeaker supports rotation adjustment. After installation, pull out the logo, rotate it to the visual positive position, and then put it back in the logo clip.

The built-in rotary treble horn coverage range is 50°-100° gradient. The default horn mode is the middle state at the following figure. If the direction of the speaker adjusted, please remove the net cover to fit the direction of the rotation horn, make sure its horizontal cover 50°-100°gradient. See details operation below.

Rotation of the treble horn

HSP-108 8-inch Two-way Loudspeaker built in a rotatable tweeter horn with 50°~100° gradient horizontal coverage (from ① to ② as shown in the following figure). When the loudspeaker is installed horizontally, the tweeter horn needs to be rotated 90 degrees according to the direction of the sideways. The treble horn should always keep ① on the top and ② on the bottom.



Operation:

- Use a tool (M6 Allen key) to remove the mesh fixing screws on the top and bottom;
- Remove the mesh;
- Use a tool (M4 Allen key) to remove the 4 horn fixing screws;
- Rotate horn inorder to keep ① on the top and ② on the bottom (as shown in the figure above);
- Re-tighten the horn fixing screws, and reinstall the mesh.

4.3 HSP-110 10-inch Two-way Loudspeaker

Overview

HSP-110 10-inch Two-way Loudspeaker is composed of 1×10" woofer and 1×2" tweeter. Loaded by gradient waveguide horn technology, its 50°~100° gradient horizontal coverage and 60° vertical coverage with rotatable horn make the sound pressure and frequency response more uniform in the coverage area.

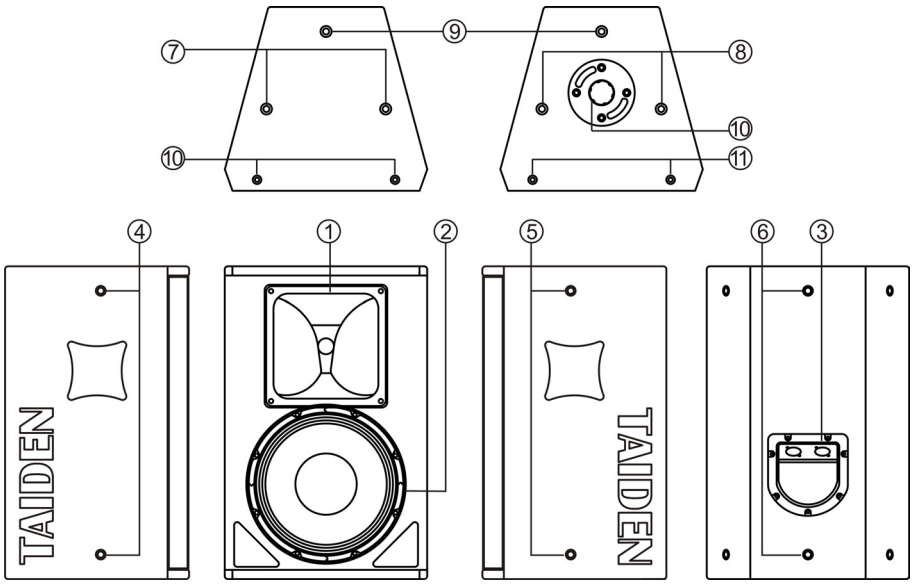
Features

- Composite carbon fiber diaphragm + nano carbon fiber diaphragm
- Gradient rotatable pointing horn

Specifications

Frequency Range	60Hz-20kHz（±3dB）/50Hz-25kHz(-10dB)
Sensitivity	98dB
Nominal Impedance	8 Ω
Power	Noise Power: 300 W (AES)
	PGM Power: 600 W
	Peak Power: 1200 W
Woofer Unit	1×10" composite carbon fiber diaphragm
Tweeter	1×2" nano carbon fiber diaphragm
Coverage Pattern	50°-100° (H) gradient × 60° (V) asymmetric, rotatable horn
Max SPL	123dB SPL，129dB SPLpeak
Input Interface	2 × Speakon
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	510×330×300 mm
Weight	16.7kg
Optional Accessories	HSP-110BKTU U-shaped wall bracket

Functions and instructions



1. Treble horn
2. Woofer
3. Input/parallel interface (2×Speakon)

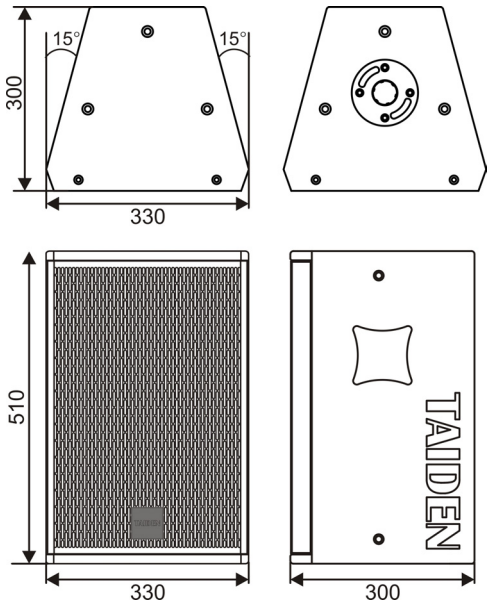
4&5&6&7&8&9. Hanging points (M8)

7&8. Points for HSP-110BKTU bracket

10. Rod socket (Ø35mm)
11. Mesh fixing screws

Note: Installation accessories need to be purchased separately

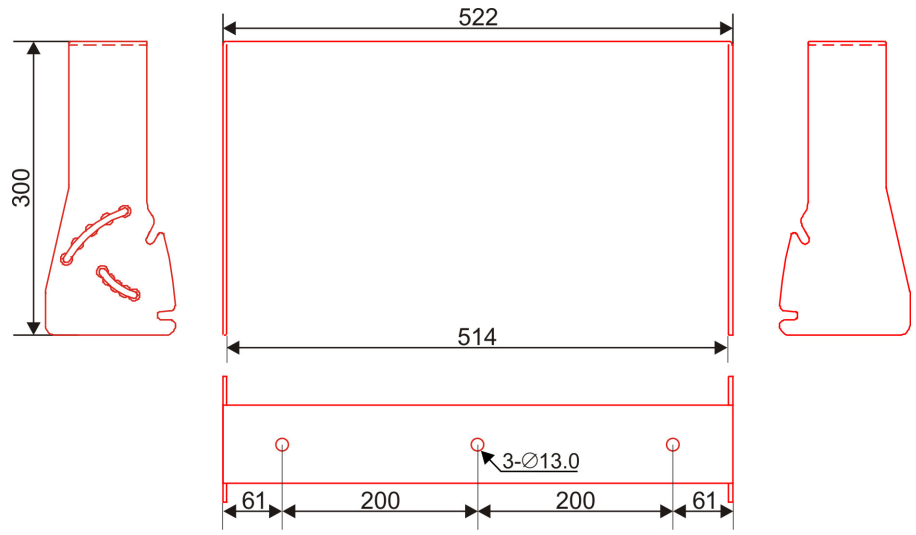
Dimensions and Installation



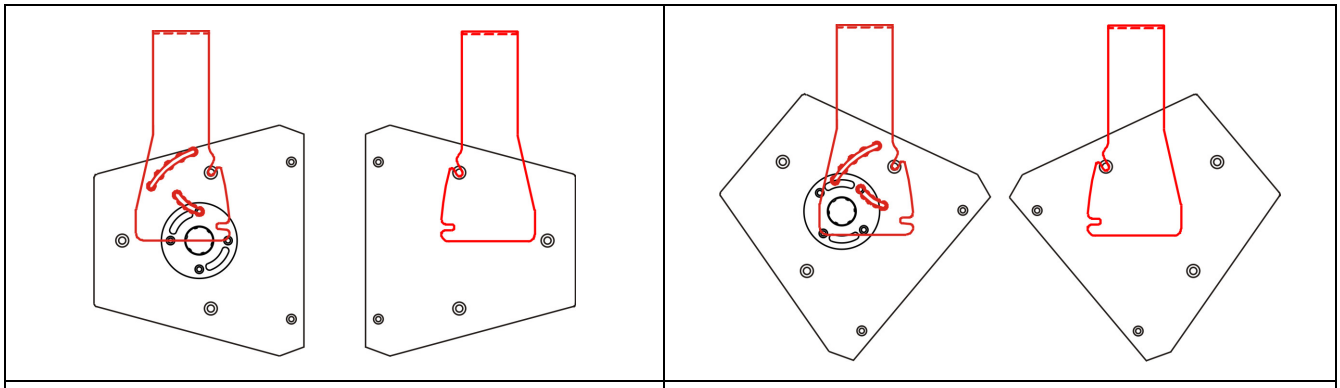
Dimensions of HSP-110 (unit: mm)

HSP-110 10-inch Two-way Loudspeaker

- The bottom comes with a Ø35mm support rod socket, which is suitable for support installation;
- The speaker box is arranged with twelve M8 hanging points;
- Optional HSP-110BKTU bracket, wall or ceiling mount, support 40° rotation.

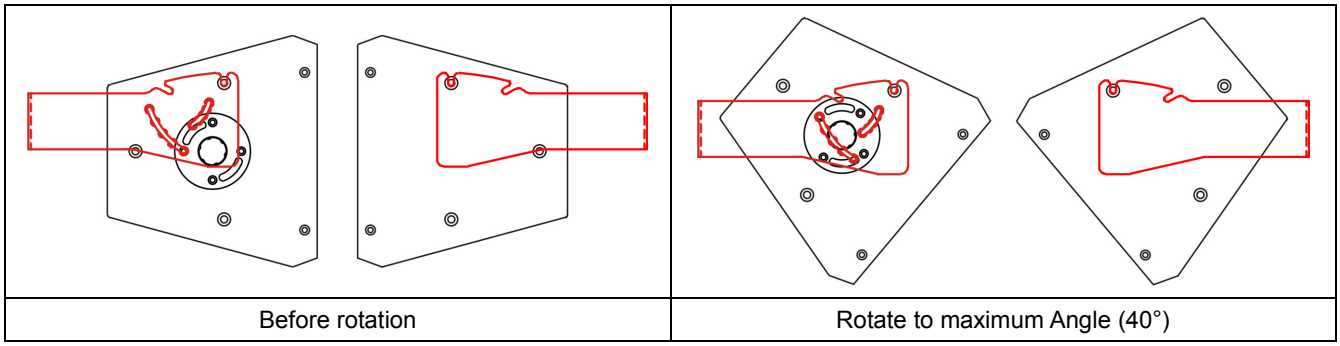


Dimensions of HSP-110BKTU



Before rotation	Rotate to maximum Angle (40°)

Installation diagram (side)



Before rotation	Rotate to maximum Angle (40°)

Installation diagram (back)

The HSP-110BKTU comes standard with three M12×100 mm expansion bolts and two M8 flat head screws:

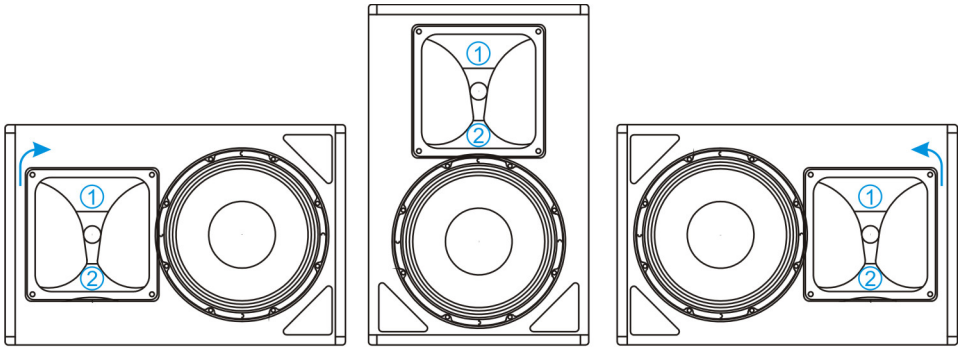
1) Three M12×100 mm expansion screws are used to lock the U-bracket firmly on the load-bearing wall surface. Note: if hoisting is selected, the U-bracket can be firmly suspended by threading rods of appropriate length through the three Ø13.0 holes of the U-bracket;
2) After the U-bracket is fixed, remove the screws on the top and bottom of the loudspeaker box for fixing points and replace them with two M8 screws standard in the bracket packaging, but do not lock them;
3) Remove the M6 screws used to locate the rotation angle and keep them;
4) Lift up the loudspeaker box, and the two M8 screws protruding from the box are stuck into the buckle of the U-bracket;

5) Reinstall the M6 screws removed by 3), and lock the M6 screws after rotating the loudspeaker box to an appropriate angle (supporting angle adjustment of 40°);
6) Lock the other two M8 screws, and the installation is completed.

The loudspeaker can be installed horizontally or vertically. Select a proper installation mode based on site requirements. The LOGO of the HSP-110 loudspeaker supports rotation adjustment. After installation, pull out the logo, rotate it to the visual positive position, and then put it back in the logo clip.
The built-in rotary treble horn coverage range is 50°-100° gradient. The default horn mode is the middle state at the following figure. If the direction of the speaker adjusted, please remove the net cover to fit the direction of the rotation horn, make sure its horizontal cover 50°-100°gradient. See details operation below.

Rotation of the treble horn

HSP-110 10-inch Two-way Loudspeaker built in a rotatable tweeter horn with 50°~100° gradient horizontal coverage (from ① to ② as shown in the following figure). When the loudspeaker is installed horizontally, the tweeter horn needs to be rotated 90 degrees according to the direction of the sideways. The treble horn should always keep ① on the top and ② on the bottom.



Operation:

- Use a tool (M6 Allen key) to remove the mesh fixing screws on the top and bottom;
- Remove the mesh;
- Use a tool (M4 Allen key) to remove the 4 horn fixing screws;
- Rotate horn inorder to keep ① on the top and ② on the bottom (as shown in the figure above);
- Re-tighten the horn fixing screws, and reinstall the mesh.

4.4 HSP-112 12-inch Two-way Loudspeaker

Overview

HSP-112 12-inch Two-way Loudspeaker is composed of 1×12" woofer and 1×3" tweeter. Loaded by gradient waveguide horn technology, its 50°~100° gradient horizontal coverage and 60° vertical coverage with rotatable horn make the sound pressure and frequency response more uniform in the coverage area.

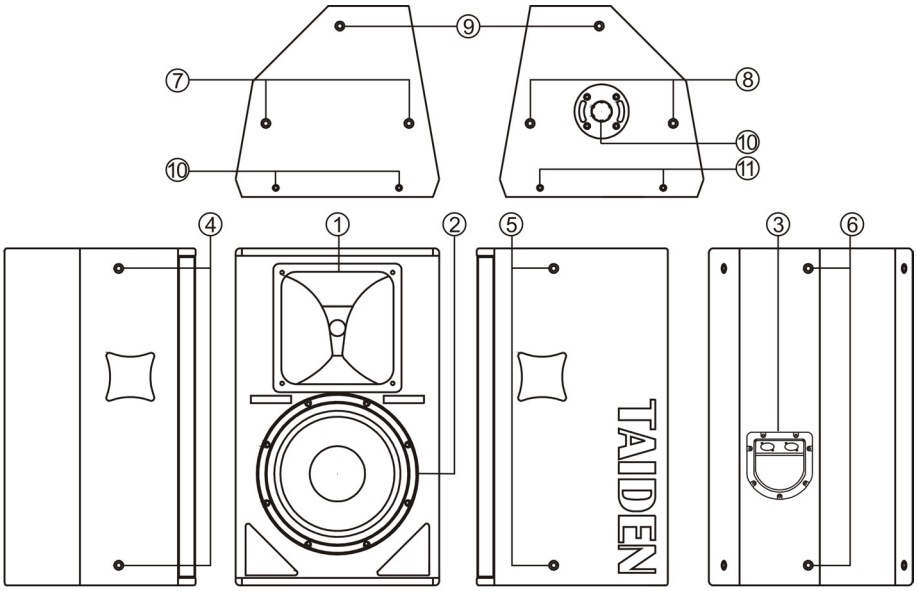
Features

- Composite carbon fiber diaphragm + nano carbon fiber diaphragm
- Gradient rotatable pointing horn

Specifications

Frequency Range	50Hz-20kHz（±3dB）/45Hz-25kHz(-10dB)
Sensitivity	99dB
Nominal Impedance	8 Ω
Power	Noise Power: 400 W (AES)
	PGM Power: 800 W
	Peak Power: 1600 W
Woofer Unit	1×12" composite carbon fiber diaphragm
Tweeter	1×3" nano carbon fiber diaphragm
Coverage Pattern	50°-100° (H) gradient × 60° (V) asymmetric, rotatable horn
Max SPL	125dB SPL，131dB SPLpeak
Input Interface	2 × Speakon
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	670×405×380 mm
Weight	22.5kg
Optional Accessories	HSP-112BKTU U-shaped wall bracket

Functions and instructions



1. Treble horn
2. Woofer
3. Input/parallel interface (2×Speakon)

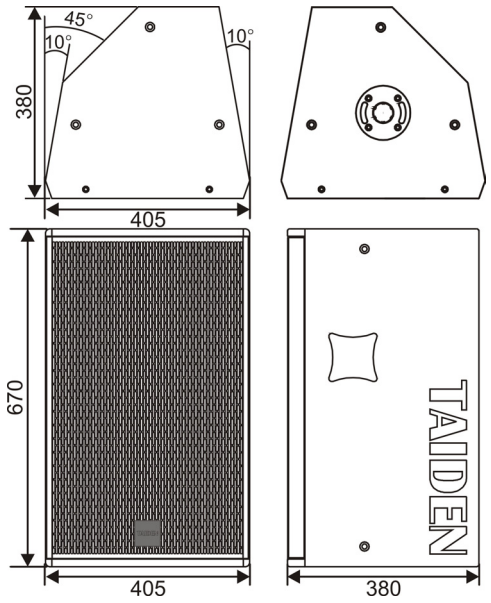
4&5&6&7&8&9. Hanging points (M8)

7&8. Points for HSP-112BKTU bracket

10. Rod socket (Ø35mm)
11. Mesh fixing screws

Note: Installation accessories need to be purchased separately

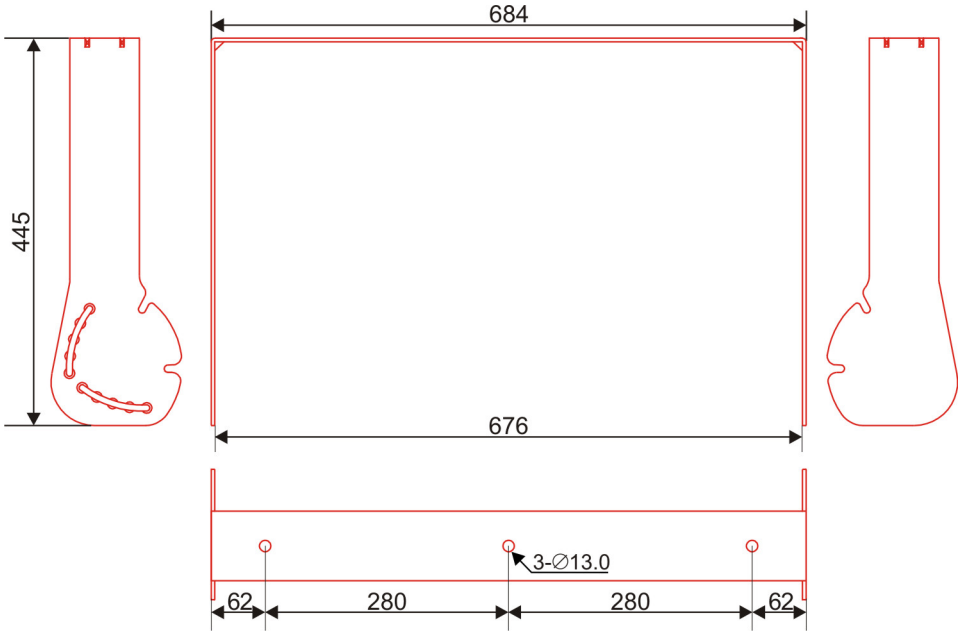
Dimensions and Installation



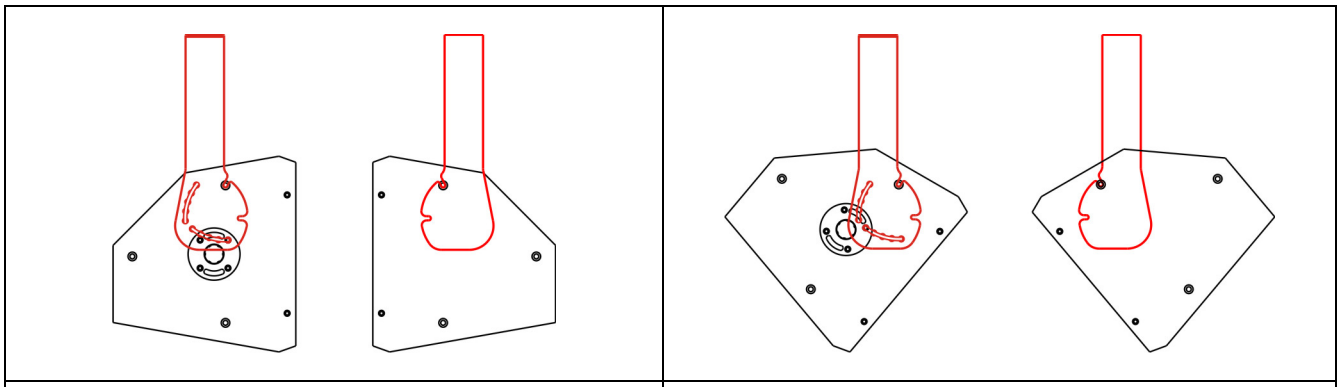
Dimensions of HSP-112 (unit: mm)

HSP-112 12-inch Two-way Loudspeaker

- The bottom comes with a Ø35mm support rod socket, which is suitable for support installation;
- The speaker box is arranged with twelve M8 hanging points;
- Optional HSP-112BKTU bracket, wall or ceiling mount, support 40° rotation.

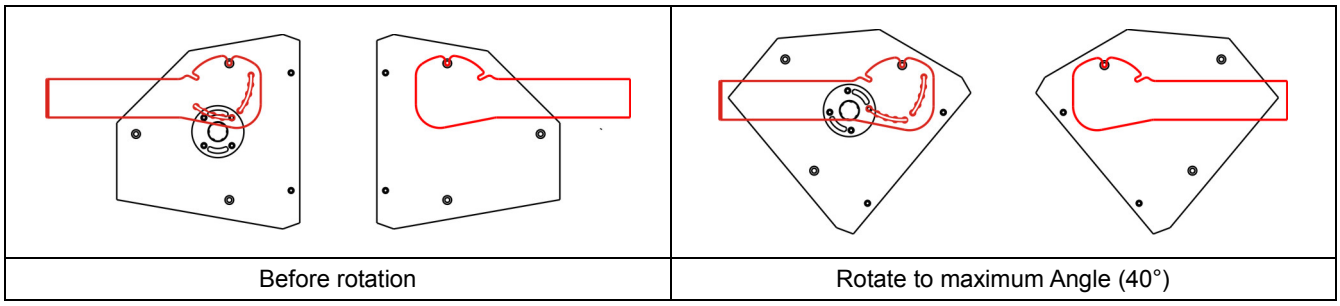


Dimensions of HSP-112BKTU



Before rotation	Rotate to maximum Angle (40°)

Installation diagram (side)



Before rotation	Rotate to maximum Angle (40°)

Installation diagram (back)

The HSP-112BKTU comes standard with three M12×100 mm expansion bolts and two M8 flat head screws:

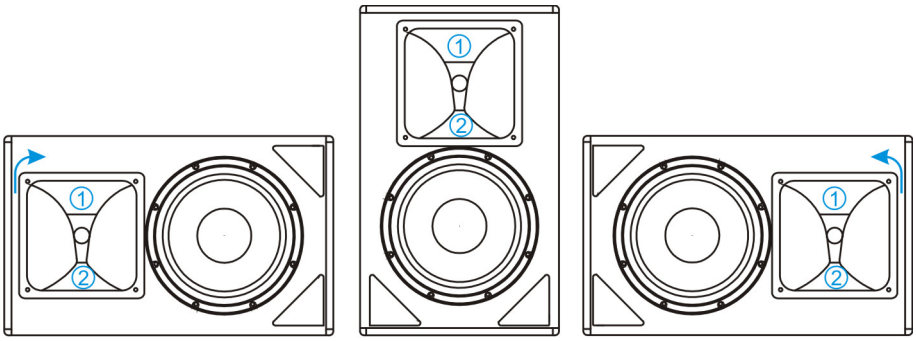
1) Three M12×100 mm expansion screws are used to lock the U-bracket firmly on the load-bearing wall surface. Note: if hoisting is selected, the U-bracket can be firmly suspended by threading rods of appropriate length through the three Ø13.0 holes of the U-bracket;
2) After the U-bracket is fixed, remove the screws on the top and bottom of the loudspeaker box for fixing points and replace them with two M8 screws standard in the bracket packaging, but do not lock them;
3) Remove the M6 screws used to locate the rotation angle and keep them;
4) Lift up the loudspeaker box, and the two M8 screws protruding from the box are stuck into the buckle of the U-bracket;
5) Reinstall the M6 screws removed by 3), and lock the M6 screws after rotating the loudspeaker box to an appropriate angle (supporting angle adjustment of 40°);
6) Lock the other two M8 screws, and the installation is completed.

The loudspeaker can be installed horizontally or vertically. Select a proper installation mode based on site requirements. The LOGO of the HSP-112 loudspeaker supports rotation adjustment. After installation, pull out the logo, rotate it to the visual positive position, and then put it back in the logo clip.

The built-in rotary treble horn coverage range is 50°-100° gradient. The default horn mode is the middle state at the following figure. If the direction of the speaker adjusted, please remove the net cover to fit the direction of the rotation horn, make sure its horizontal cover 50°-100°gradient. See details operation below.

Rotation of the treble horn

HSP-112 12-inch Two-way Loudspeaker built in a rotatable tweeter horn with 50°~100° gradient horizontal coverage (from ① to ② as shown in the following figure). When the loudspeaker is installed horizontally, the tweeter horn needs to be rotated 90 degrees according to the direction of the sideways. The treble horn should always keep ① on the top and ② on the bottom.



Operation:

- Use a tool (M6 Allen key) to remove the mesh fixing screws on the top and bottom;
- Remove the mesh;
- Use a tool (M4 Allen key) to remove the 4 horn fixing screws;
- Rotate horn inorder to keep ① on the top and ② on the bottom (as shown in the figure above);
- Re-tighten the horn fixing screws, and reinstall the mesh.

Chapter 5 HSP series Active Loudspeaker

TAIDEN conference professional sound reinforcement system specially designed and developed a dual 10-inch powered woofer to further expand the bass of the system, the lowest frequency can reach 35 Hz. It is widely used in large, medium and small conference venues/hotels/banquet halls/multi-functional halls/report halls.

HSP-210BA	Dual 10-inch Powered Woofer (2×10" woofers, 4 Ω, 800 W, built-in 2000W class D power amplifier, with FIR algorithm, DSP adjustable, can be connected to HCL-404 series column loudspeaker or HSP seired two-way loudspeaker directly, black)

TAIDEN conference professional sound reinforcement two-way powered loudspeaker provides different sizes and different power products to choose from, which are:

HSP-108A	8-inch Two-way Powered Loudspeaker (1×8" woofer + 1×2" tweeter, gradient pointing horn, 8 Ω, 200 W, built-in 600W power amplifier, with FIR algorithm, DSP adjustable, black)
HSP-110A	10-inch Two-way Powered Loudspeaker (1×10" woofer + 1×2" tweeter, gradient pointing horn, 8 Ω, 300 W, built-in 600W power amplifier, with FIR algorithm, DSP adjustable, black)
HSP-112A	12-inch Two-way Powered Loudspeaker (1×12" woofer + 1×3" tweeter, gradient pointing horn, 8 Ω, 400 W, built-in 600W power amplifier, with FIR algorithm, DSP adjustable, black)

HSP series Two-way Powered Loudspeaker is composed of a complex carbon fiber diaphragm woofer and a nano carbon fiber diaphragm tweeter. Loaded by gradient waveguide horn technology, its 50°~100° gradient horizontal coverage and 60° vertical coverage with rotatable horn make the sound pressure and frequency response more uniform in the coverage area.

- Composite carbon fiber diaphragm + nano carbon fiber diaphragm
- Gradient pointing horn, rotatable
- Adjustable DSP with FIR algorithm

5.1 HSP-210BA Dual 10-inch Powered Woofer

Overview

HSP-210BA Dual 10-inch Powered Woofer is composed of 2×10" long-throw double-magnetic woofers. The direct structure design ensures a high degree of sound reproduction and transient response. The strengthened box structure and optimal wind resistance design allow it to have a very low f0. The built-in 2-in and 4-out DSP processing module and dual-channel power amplifier module can provide continuous and stable power output for extended full-range speakers and achieve overall sound reinforcement. The DSP module can set a variety of working modes with one key to switch and plug and play. It is widely used in large, medium and small conference venues/hotels/banquet halls/multi-functional halls/report halls.

Features

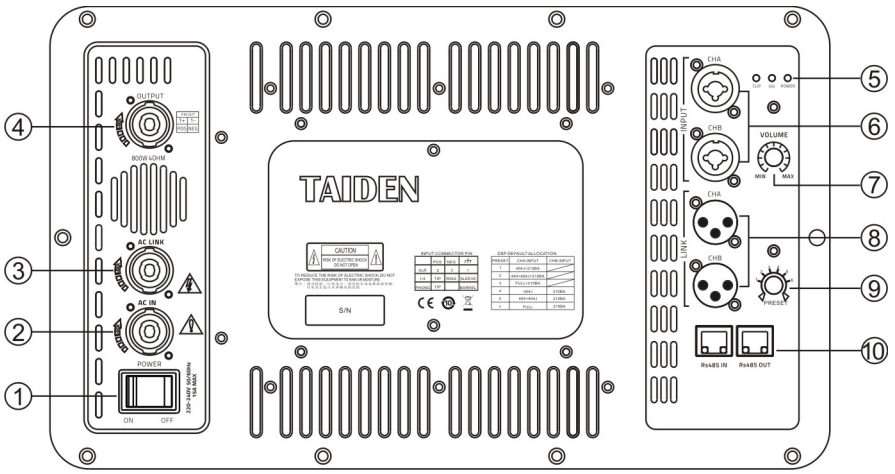
- Long-throw double-magnet woofers
- DSP adjustable
- Effectively extend the bass of the sound reinforcement system

Specifications

Power Amplifier	
THD+N	(THD 1kHz,-10dB/4Ohm) <0.2%
Frequency Response	10 Hz-20 kHz (±1 dB)
Input Impedance	20 k Ohm / 10k Ohm
SNR	>100 dB
Crosstalk Suppression	>70 dB
Damping Coefficient	>300
Total Output Power	2000W / 4Ohm
Amplifier Output Stage	Class D

Loudspeaker	
Frequency Range	40Hz-300Hz（±3dB）/35Hz-400Hz(-10dB)
Sensitivity	101dB
Nominal Impedance	4 Ω
Rated Power	800 W (AES)
Woofer Unit	2×10" long-throw double-magnet woofers
Max SPL	130dB SPL，136dB SPLpeak
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	590×350×500 mm
Weight	28.5kg

Functions and instructions



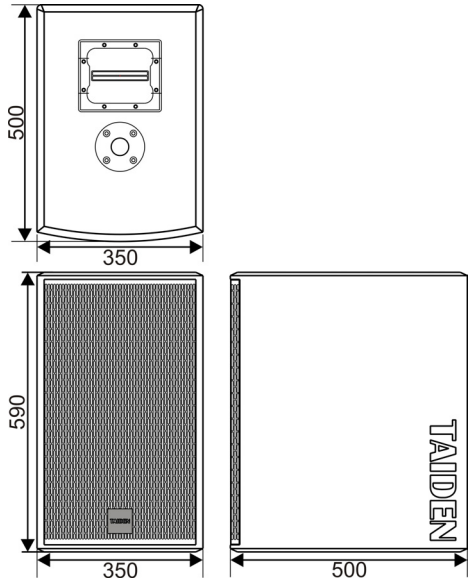
1. Power switch
2. Power input interface
3. Power link interface
   link one HSP-210BA at most
4. Audio output interface,
   can be connected to passive loudspeaker directly
5. Clip/Signal/Power indicators
6. Audio input interface×2,
   compatible with XLR and Ø6.35mm TRS/TS plugs
7. Volume adjustment knob
8. Audio signal link interface
9. Preset mode selection knob, details for the table
10. RS485 interface ×2, reserved

Note: Support rod can be used to support HSP series two-way loudspeaker and HCL-404 series column, needs to be purchased separately.

Table: preset mode details

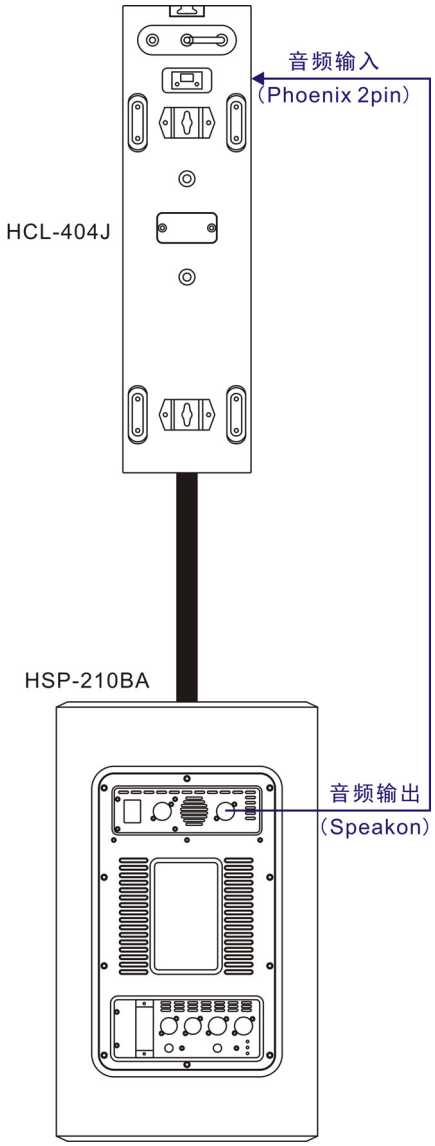
PRESET	CHA INPUT	CHB INPUT	Description
1	404J+210BA		SPEAKON OUT interface ④ connected to HCL-404J Audio inputs from channel A, and outputs to HCL-404J and HSP-210BA, built-in preset file for HCL-404J
2	404+404J+210BA		SPEAKON OUT interface ④ connected to HCL-404+HCL-404J Audio inputs from channel A, and outputs to HCL-404+HCL-404J and HSP-210BA, built-in preset file for HCL-404+HCL-404J
3	FULL+210BA		SPEAKON OUT interface ④ connected to other passive loudspeaker Audio inputs from channel A, and outputs to passive loudspeaker and HSP-210BA, no preset file
4	404J	210BA	SPEAKON OUT interface ④ connected to HCL-404J Audio inputs from channel A, and outputs to HCL-404J, built-in preset file for HCL-404J Audio inputs from channel B, and outputs to HSP-210BA
5	404+404J	210BA	SPEAKON OUT interface ④ connected to HCL-404+HCL-404J Audio inputs from channel A, and outputs to HCL-404+HCL-404J, built-in preset file for HCL-404+HCL-404J Audio inputs from channel B, and outputs to HSP-210BA
6	FULL	210BA	SPEAKON OUT interface ④ connected to other passive loudspeaker Audio inputs from channel A, and outputs to other passive loudspeaker, no preset file Audio inputs from channel B, and outputs to HSP-210BA

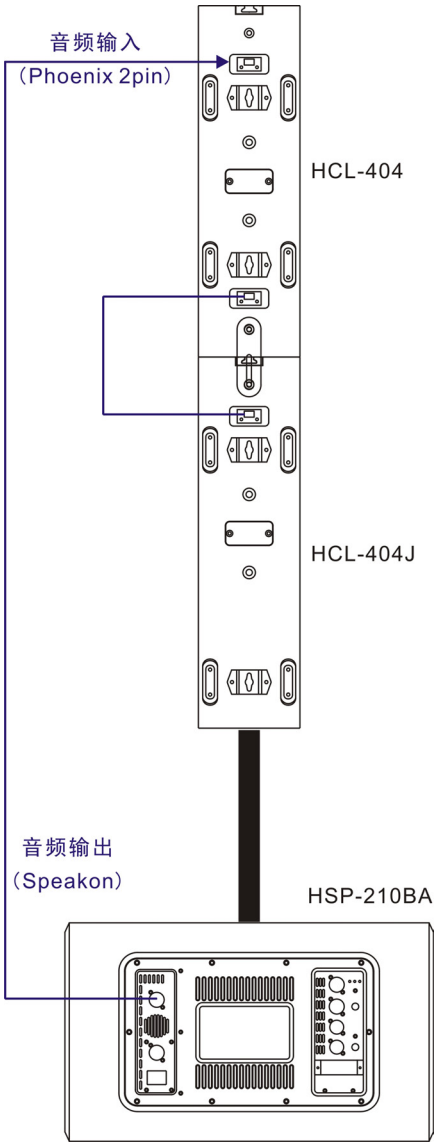
Dimensions



Dimensions of HSP-210BA (unit: mm)

For non-fixed use places, the top and back of HSP-210B are equipped with rod sockets, which can be directly used with HCL-404J or HCL-404+HCL404J column loudspeaker through the support rod (optional MA-75P2 support rod is required) , and can also be used with HSP-108/110/112 two-way speakers (optional MA-75P1 support rod is required).





Note: When using with HCL-404+HCL-404J through a support rod, HSP-210BA must be placed horizontally

Chapter 6 HSC Series Ceiling Loudspeaker

TAIDEN conference professional sound reinforcement ceiling loudspeakers provide different size and different power products to choose from, which are:

HSC-106W	6.5-inch Ceiling Loudspeaker (1×6.5"+1×1.4" coaxial drive units, 8 Ω, 150 W, 110° wide coverage angle, magnetic mask, white)
HSC-108W	8-inch Ceiling Loudspeaker (1×8"+1×2" coaxial drive units, 8 Ω, 200 W, 110° wide coverage angle, white)
HSC-112	12-inch Ceiling Loudspeaker (1×12"+1×3" coaxial drive units, 8 Ω, 350 W, black)
HSC-115	15-inch Ceiling Loudspeaker (1×15"+1×3" coaxial drive units, 8 Ω, 450 W, black)

Different from other normal ceiling loudspeakers, HSC Series are comprised of professional coaxial units which have higher sensitivity and better headroom design.

- High sensitivity, large dynamic, professional coaxial unit
- The large box has a narrow coverage angle, and the small box has a wide coverage angle, making it more flexible to use

HSC-112/115: 90°(H)×70°(V) coverage angle design
HSC-106W/108W: 110° coverage angle design

- Constant resistance design to achieve high-fidelity sound reproduction
- Special waveguide design, more accurate directivity and more uniform coverage
- Common magnetic design, less high/bass path difference, smoother sound

6.1 HSC-106W 6.5-inch Series Ceiling Loudspeaker

Overview

Different from other normal ceiling loudspeakers, HSC Series are comprised of professional coaxial units which have higher sensitivity and better headroom design. HSC-106W has 110° coverage pattern. The uniform arrangement is conducive to improve sound field uniformity and sound transmission gain.

The tweeter and woofer adopt a common magnetic design, which minimizes the path difference between the high and low frequencies, so that the tweeter and woofer are as close to the acoustic coaxial as possible, and the sound is smoother. It is suitable for small and medium-sized conference rooms with low ceiling height (recommended 3-5m), and can achieve a more uniform sound field with less quantity.

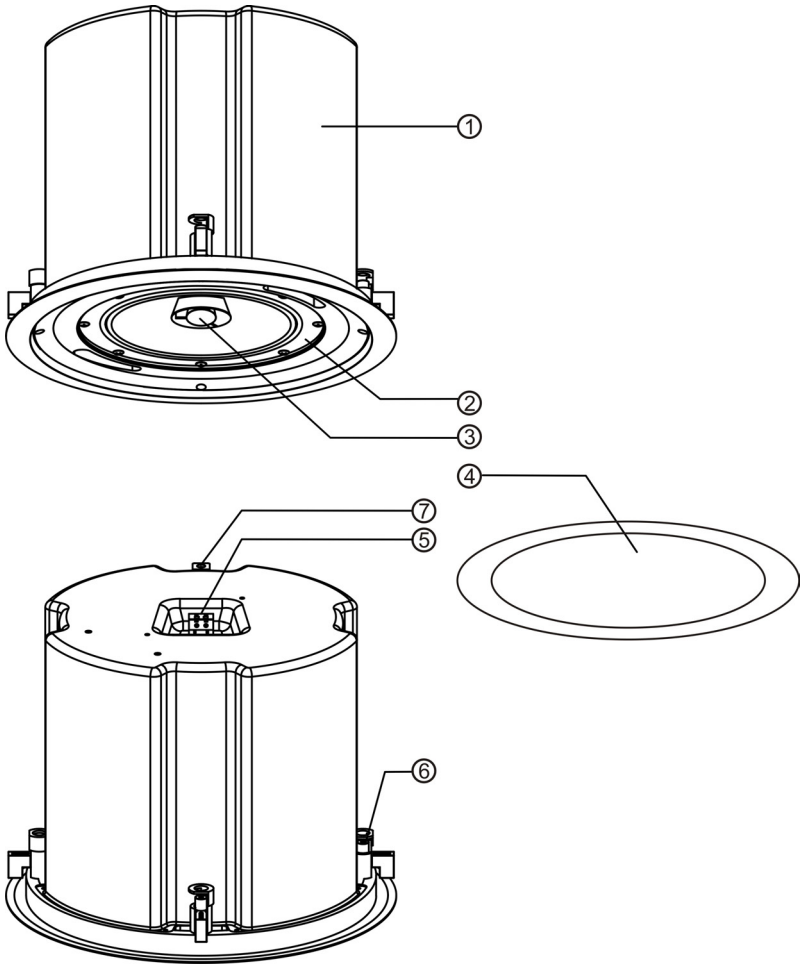
Features

- 1 × 6.5" + 1 × 1.4" coaxial drive units
- Magnetic mesh cover
- 110° coverage pattern

Specifications

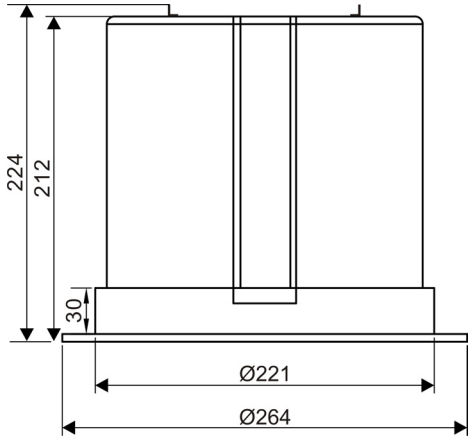
Frequency Range	90Hz-18kHz（±3dB）/80Hz-20kHz(-10dB)
Sensitivity	94dB
Nominal Impedance	8 Ω
Power	Noise Power: 150W(AES)
	PGM Power: 300W
	Peak Power: 600W
Woofer Unit	1×6.5"
Tweeter	1×1.4"
Coverage Pattern	110°(H)×110°(V)
Max SPL	116dB SPL，122dB SPLpeak
Input Interface	Pluggable Terminal Blocks
Enclosure Material	ABS panel + metal box
Dimensions (H × W × D)	Ø264×212 (mm)
Weight	5.0 kg

Functions and instructions



1. Loudspeaker box
2. Woofer
3. Tweeter
4. Magnetic mesh cover
5. Input/parallel interface
6. Rotatable mounting key
7. Hanger component

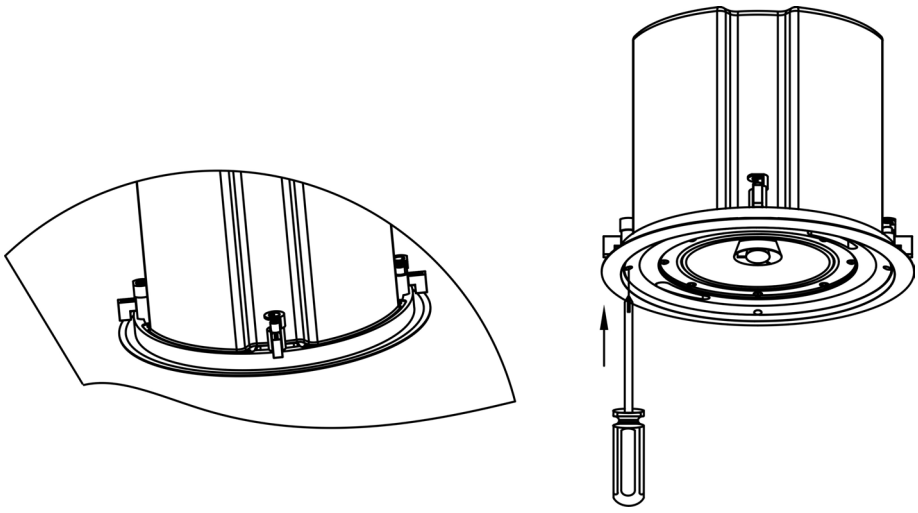
Dimensions and Installation

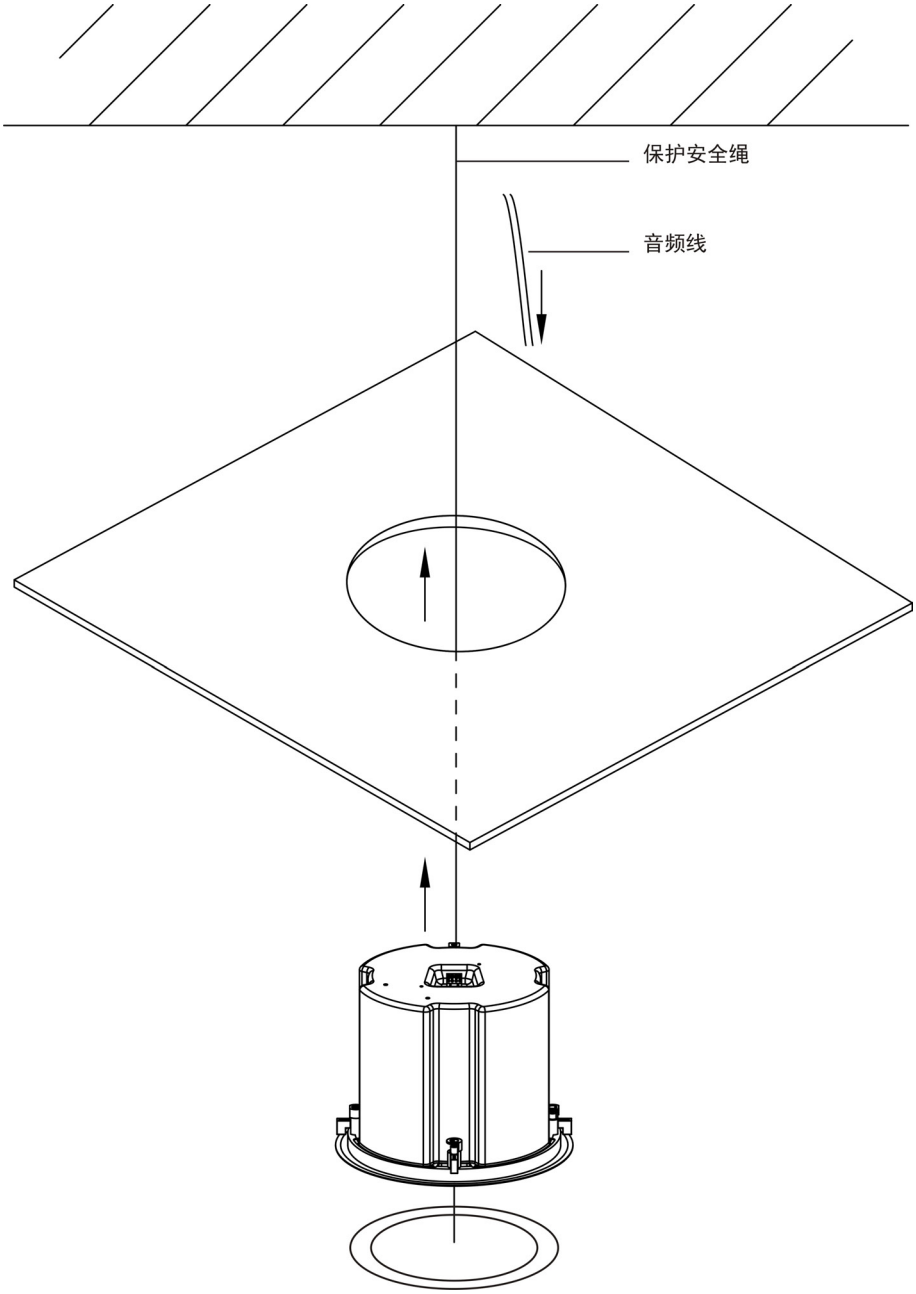


Dimensions of HSC-106W (unit: mm)

This product is easy to install on the ceiling, please confirm the installation point first, the ceiling opening size is Ø221mm, and the top reserved height is greater than 224mm (including safety rope hanger component).

Rotate the plastic mounting key to lock the product in a specific place.




保护安全绳
音频线

6.2 HSC-108W 8-inch Series Ceiling Loudspeaker

Overview

Different from other normal ceiling loudspeakers, HSC Series are comprised of professional coaxial units which have higher sensitivity and better headroom design. HSC-108W has 110° coverage pattern. The uniform arrangement is conducive to improve sound field uniformity and sound transmission gain.

The tweeter and woofer adopt a common magnetic design, which minimizes the path difference between the high and low frequencies, so that the tweeter and woofer are as close to the acoustic coaxial as possible, and the sound is smoother. It is suitable for small and medium-sized conference rooms with low ceiling height (recommended 3-5m), and can achieve a more uniform sound field with less quantity.

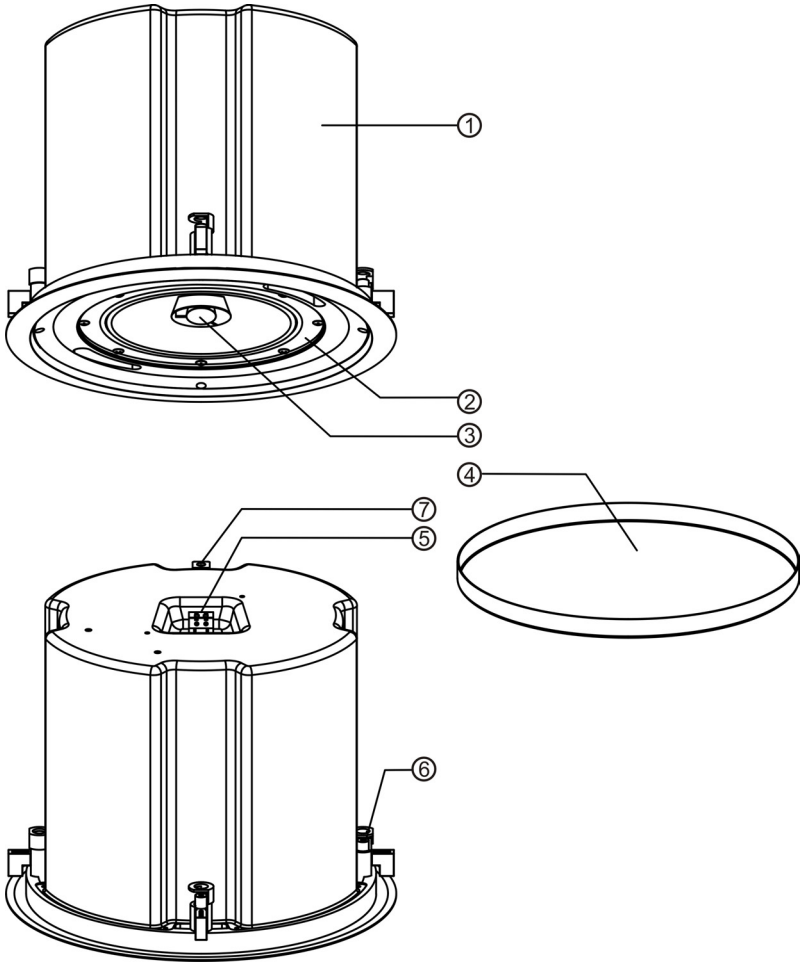
Features

- 1 × 8" + 1 × 2" coaxial drive units
- 110° coverage pattern

Specifications

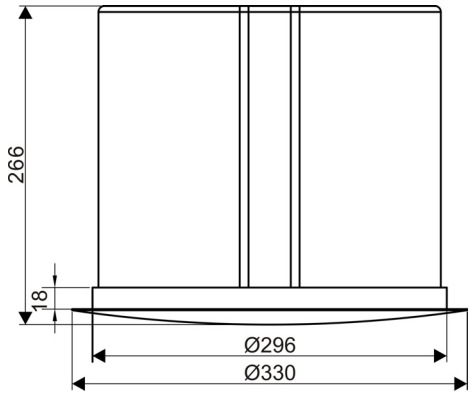
Frequency Range	65Hz-18kHz（±3dB）/55Hz-20kHz(-10dB)
Sensitivity	96dB
Nominal Impedance	8 Ω
Power	Noise Power: 250W(AES)
	PGM power: 500W
	Peak Power: 1000W
Woofer Unit	1×8"
Tweeter	1×2"
Coverage Pattern	110°(H)×110°(V)
Max SPL	120dB SPL，126dB SPLpeak
Input Interface	Pluggable Terminal Blocks
Enclosure Material	ABS panel + metal box
Dimensions (H × W × D)	Ø330×266 (mm)
Weight	7.0 kg

Functions and instructions



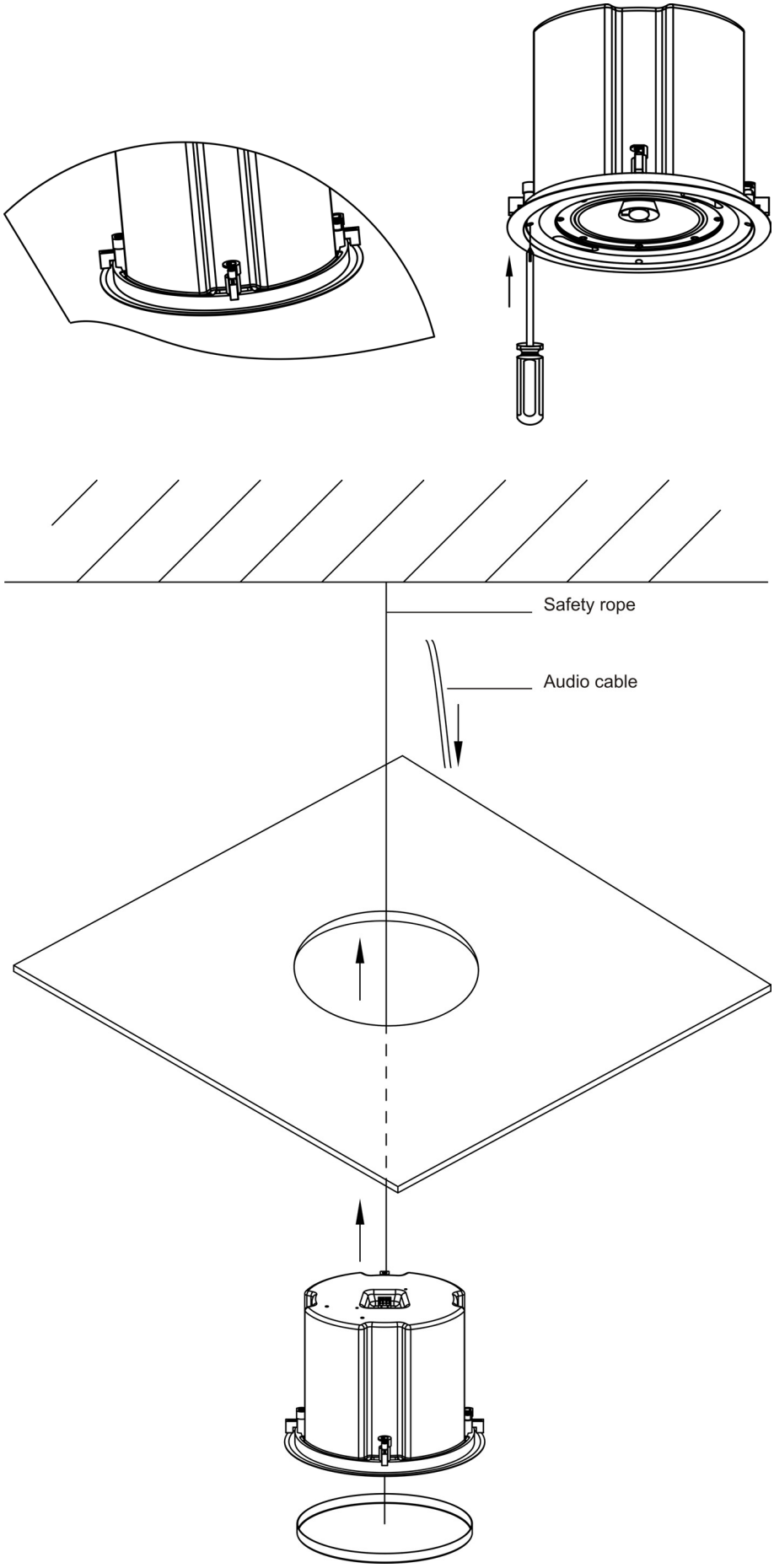
1. Loudspeaker box
2. Woofer
3. Tweeter
4. Magnetic mesh cover
5. Input/parallel interface
6. Rotatable mounting key
7. Hanger component

Dimensions and Installation



This product is easy to install on the ceiling, please confirm the installation point first, the ceiling opening size is Ø296mm, and the top reserved height is greater than 266mm.

Rotate the plastic mounting key to lock the product in a specific place.


Safety rope
Audio cable

6.3 HSC-112 12-inch Series Ceiling Loudspeaker

Overview

Different from other normal ceiling loudspeakers, HSC Series are comprised of professional coaxial units which have higher sensitivity and better headroom design. HSC-112 has 90°(H)×70°(V) coverage pattern. The uniform arrangement is conducive to improve sound field uniformity and sound transmission gain.

The tweeter and woofer adopt a common magnetic design, which minimizes the path difference between the high and low frequencies, so that the tweeter and woofer are as close to the acoustic coaxial as possible, and the sound is smoother.

The tweeter horn adopts a special waveguide design to achieve different diffusion angle control in the horizontal and vertical directions, with more accurate directivity and more uniform coverage.

It is suitable for meeting places, lecture halls, banquet halls, etc. with high floor height (more than 5m is recommended). The 90°(H)×70°(V) coverage angle makes the sound field projection of each speaker approximate to a rectangle, effectively reducing the sound field overlap, so as to effectively reduce the blind area of the sound field and obtain a more uniform sound field coverage effect.

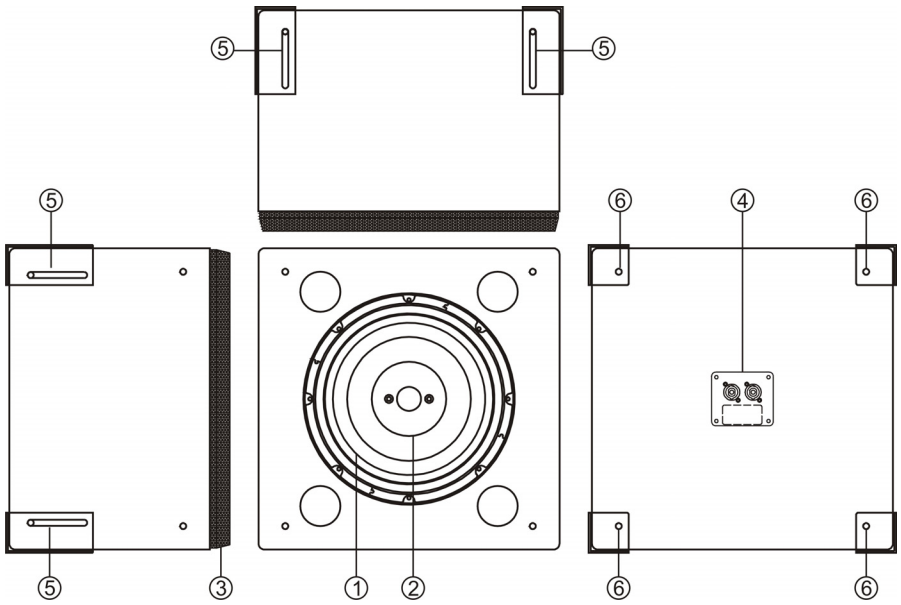
Features

- 1 × 12" + 1 × 3" coaxial drive units
- 90°(H)×70°(V) coverage pattern

Specifications

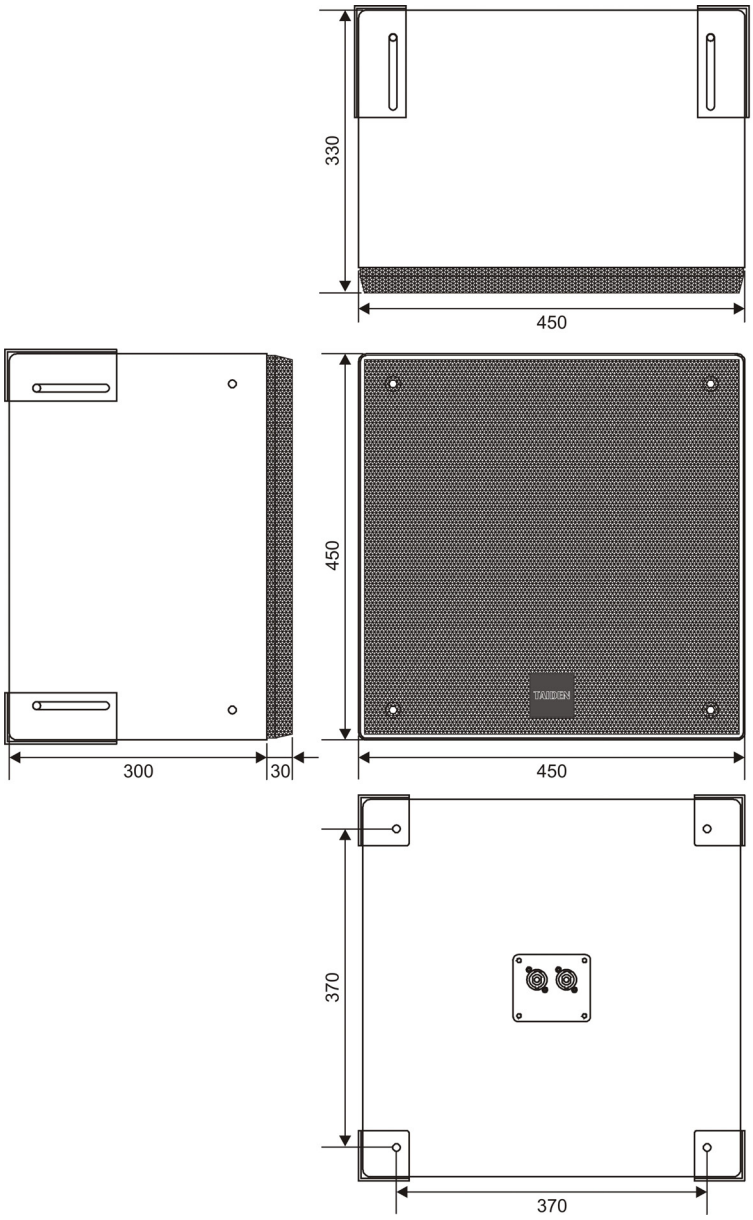
Frequency Range	45Hz-18kHz（±3dB）/40Hz-20kHz(-10dB)
Sensitivity	98dB
Nominal Impedance	8 Ω
Power	Noise Power: 350W(AES)
	PGM Power: 700W
	Peak Power: 1400W
Woofer Unit	1×12"
Tweeter	1×3"
Coverage Pattern	90°(H)×70°(V)
Max SPL	123dB SPL，129dB SPLpeak
Input Interface	2×Speakon
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	450×450×330 (mm)
Weight	18 kg

Function and instruction



1. Woofer
2. Tweeter horn
3. Cover
4. Input/parallel interface
5. Side view of hanger component
6. Bottom view of hanger component with Ø9mm hole

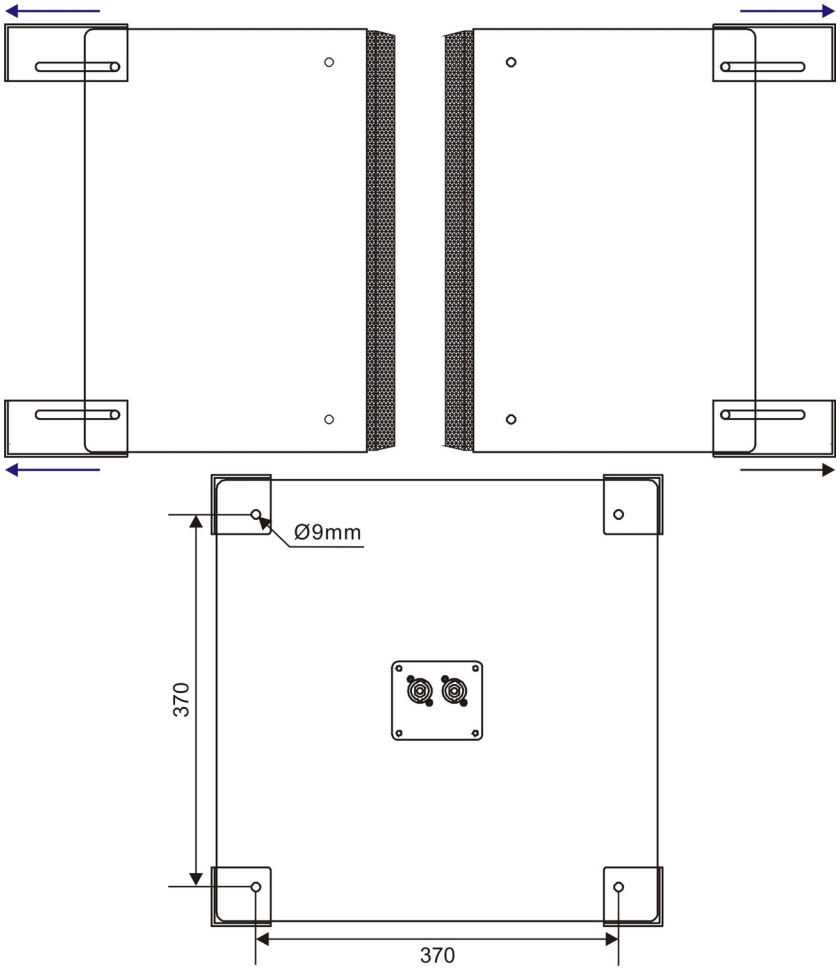
Dimensions



Dimensions of HSC-112 (unit: mm)

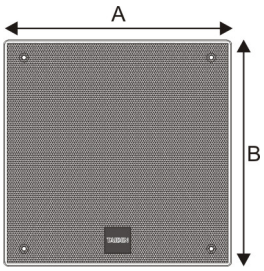
Installation

HSC-112 ceiling loudspeaker is heavy and needs to be hung on the ceiling with ropes or booms. The four corners of the back of the HCS-112 loudspeaker are equipped with hanger components as standard. When installing, first use a tool (M8 Allen key) to loosen the screws between the hanger component and the loudspeaker box, slide the hanger component to the other end of the chute, and then re-install it. Tighten the screws.



HSC-112 Figure of Hoisting

Installation precautions:



Covering Angle in direction A: 90°

Covering Angle in direction B: 70°

6.4 HSC-115 15-inch Ceiling Loudspeaker

Overview

Different from other normal ceiling loudspeakers, HSC Series are comprised of professional coaxial units which have higher sensitivity and better headroom design. HSC-115 has 90°(H)×70°(V) coverage pattern. The uniform arrangement is conducive to improve sound field uniformity and sound transmission gain.

The tweeter and woofer adopt a common magnetic design, which minimizes the path difference between the high and low frequencies, so that the tweeter and woofer are as close to the acoustic coaxial as possible, and the sound is smoother.

The tweeter horn adopts a special waveguide design to achieve different diffusion angle control in the horizontal and vertical directions, with more accurate directivity and more uniform coverage.

It is suitable for meeting places, lecture halls, banquet halls, etc. with high floor height (more than 5m is recommended). The 90°(H)×70°(V) coverage angle makes the sound field projection of each speaker approximate to a rectangle, effectively reducing the sound field overlap, so as to effectively reduce the blind area of the sound field and obtain a more uniform sound field coverage effect.

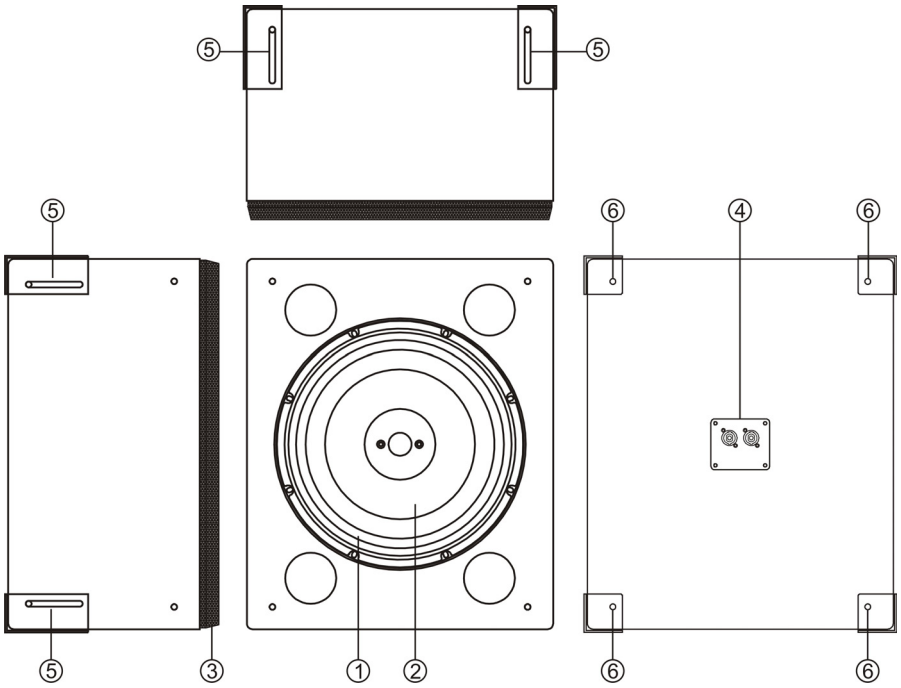
Features

- 1 × 15" + 1 × 3" coaxial drive units
- 90°(H)×70°(V) coverage pattern

Specifications

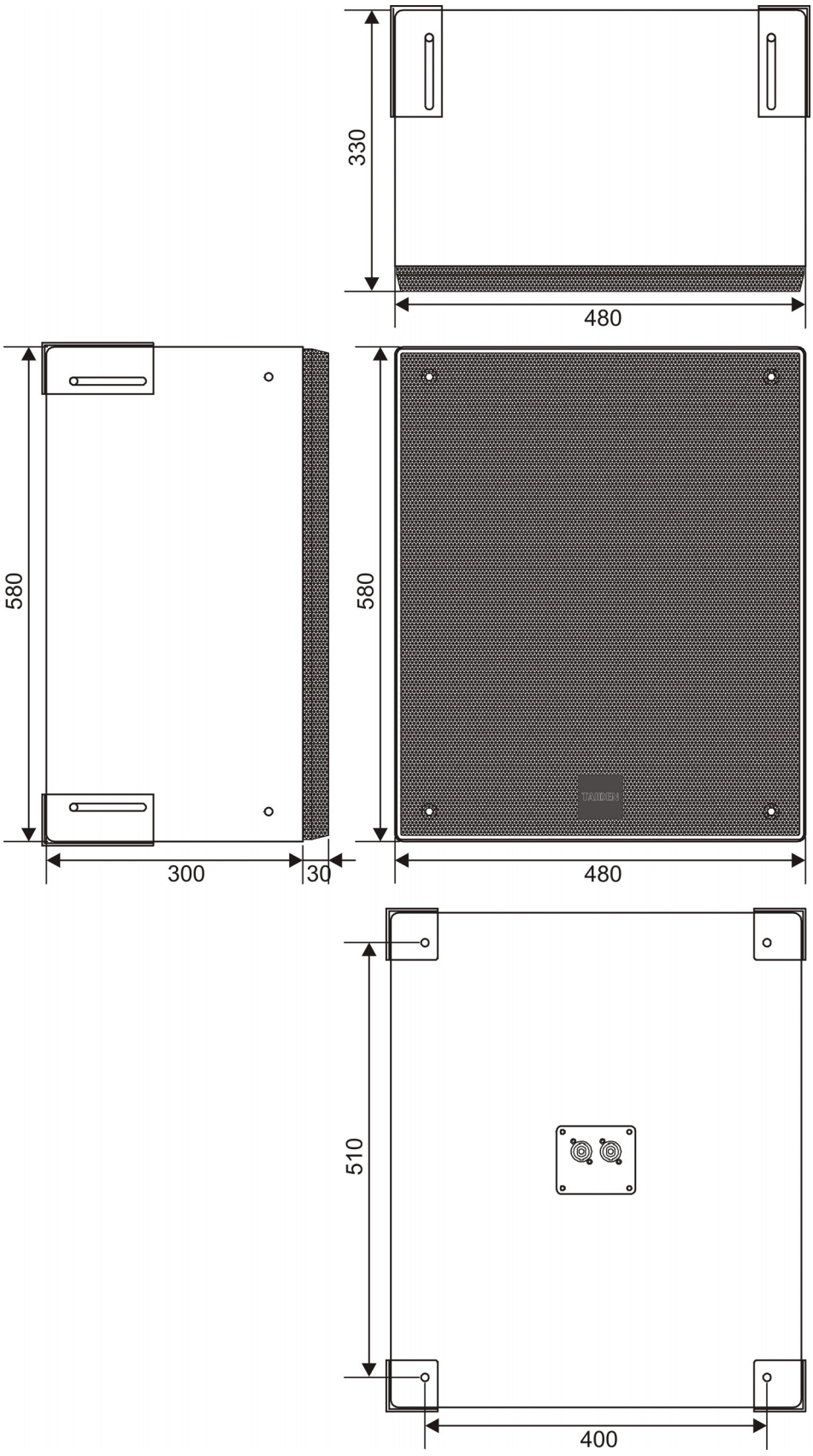
Frequency Range	40Hz-18kHz（±3dB）/38Hz-20kHz(-10dB)
Sensitivity	100dB
Nominal Impedance	8 Ω
Power	Noise Power: 450W(AES)
	PGM Power: 900W
	Peak Power: 1800W
Woofer Unit	1×15"
Tweeter	1×3"
Coverage Pattern	90°(H)×70°(V)
Max SPL	127dB SPL，133dB SPLpeak
Input Interface	2×Speakon
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	580×480×330 (mm)
Weight	20 kg

Functions and instructions



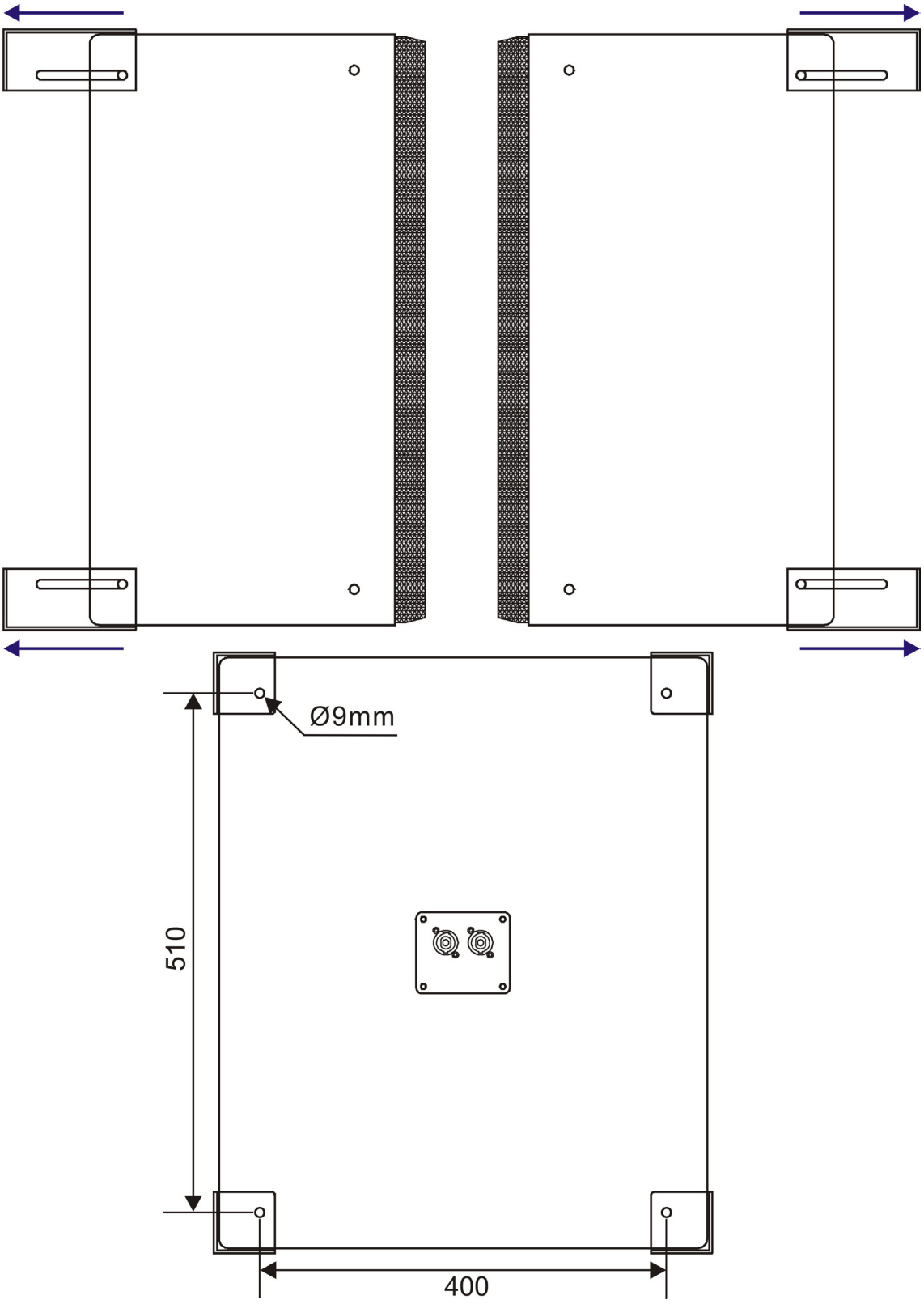
1. Woofer
2. Tweeter horn
3. Cover
4. Input/parallel interface
5. Side view of hanger component
6. Bottom view of hanger component with Ø9mm hole

Dimensions and Installation

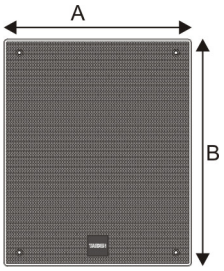


Dimensions of HSC-115 (unit: mm)

HSC-115 ceiling loudspeaker is heavy and needs to be hung on the ceiling with ropes or booms. The four corners of the back of the HCS-115 loudspeaker are equipped with hanger components as standard. When installing, first use a tool (M8 Allen key) to loosen the screws between the hanger component and the loudspeaker box, slide the hanger component to the other end of the chute, and then re-install it. Tighten the screws.



Installation precautions:



Covering Angle in direction A: 90°

Covering Angle in direction B: 70°

Chapter 7 HSM-112 12-inch Passive Coaxial Monitor Loudspeaker

7.1 Product Introduction

High-quality 12" coaxial speaker effectively solves the problems of the different transmission path between the drivers and at the same time has a smooth off-axis response and uniform near-field hearing.

The tilt angle of the cabinet can be adjusted via the cabinet feet, which is more convenient to adapt to different usage scenarios. It is suitable for stage monitoring and main sound reinforcement of various types of conference and music scenes.

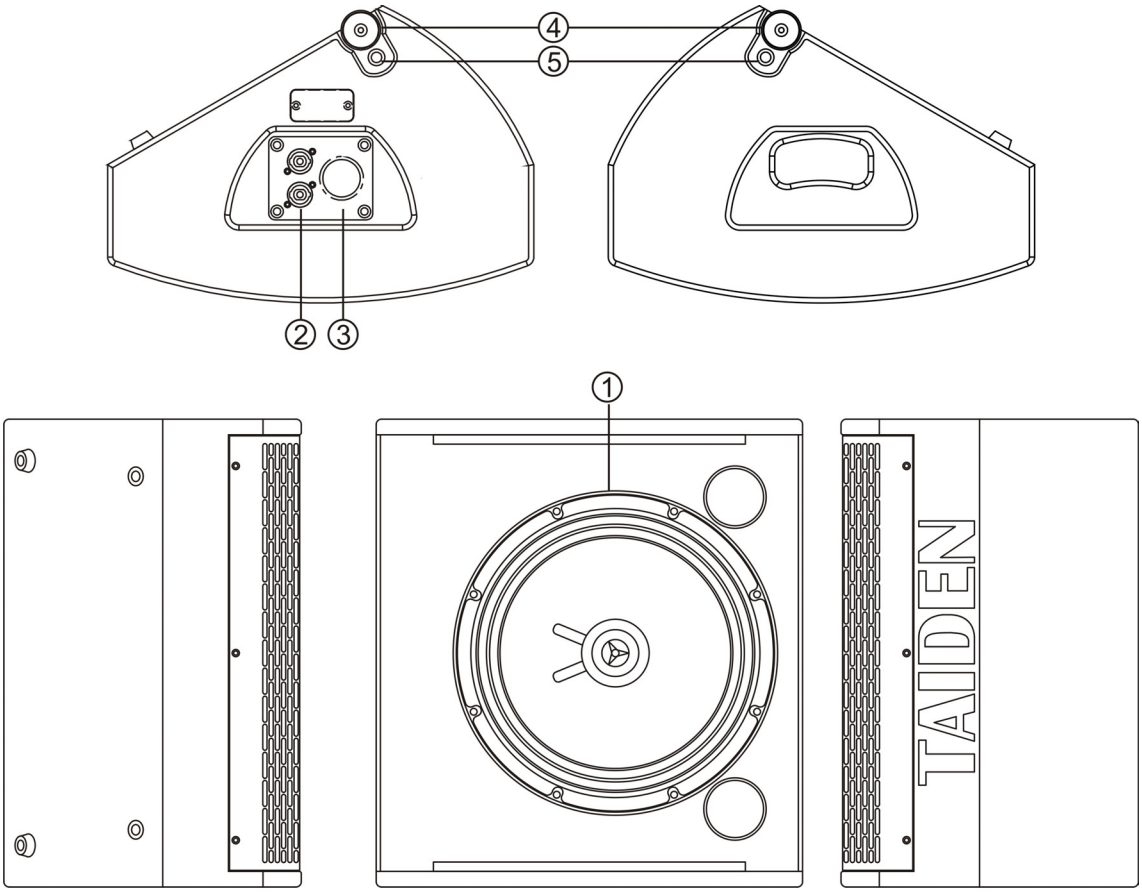
- Composite carbon fiber diaphragm + nano carbon fiber diaphragm
- 1 × 12" + 1 × 3" coaxial drive units
- Adjustable angle of cabinet, accurate coverage of the listening area

HSM-112	12-inch Coaxial Monitor Loudspeaker (1×12"+1×3" coaxial drive units, 8 Ω, 350 W, black)

7.2 Specifications

Frequency Range	65Hz-18kHz（±3dB）/50Hz-20kHz(-10dB)
Sensitivity	100dB
Nominal Impedance	8 Ω
Power	Noise Power: 350W(AES)
	PGM Power: 700W
	Peak Power: 1400W
Midwoofer Unit	1 × 12" complex carbon fiber diaphragm woofer
Tweeter	1 × 3" nano carbon fiber diaphragm tweeter
Coverage Pattern	90°(H)×90°(V)
Max SPL	125dB SPL，131dB SPLpeak
Input Interface	2 x Speakon
Enclosure Material	Birch + black polyurea finish
Dimensions (H × W × D)	450×410×286 mm
Weight	15.5kg

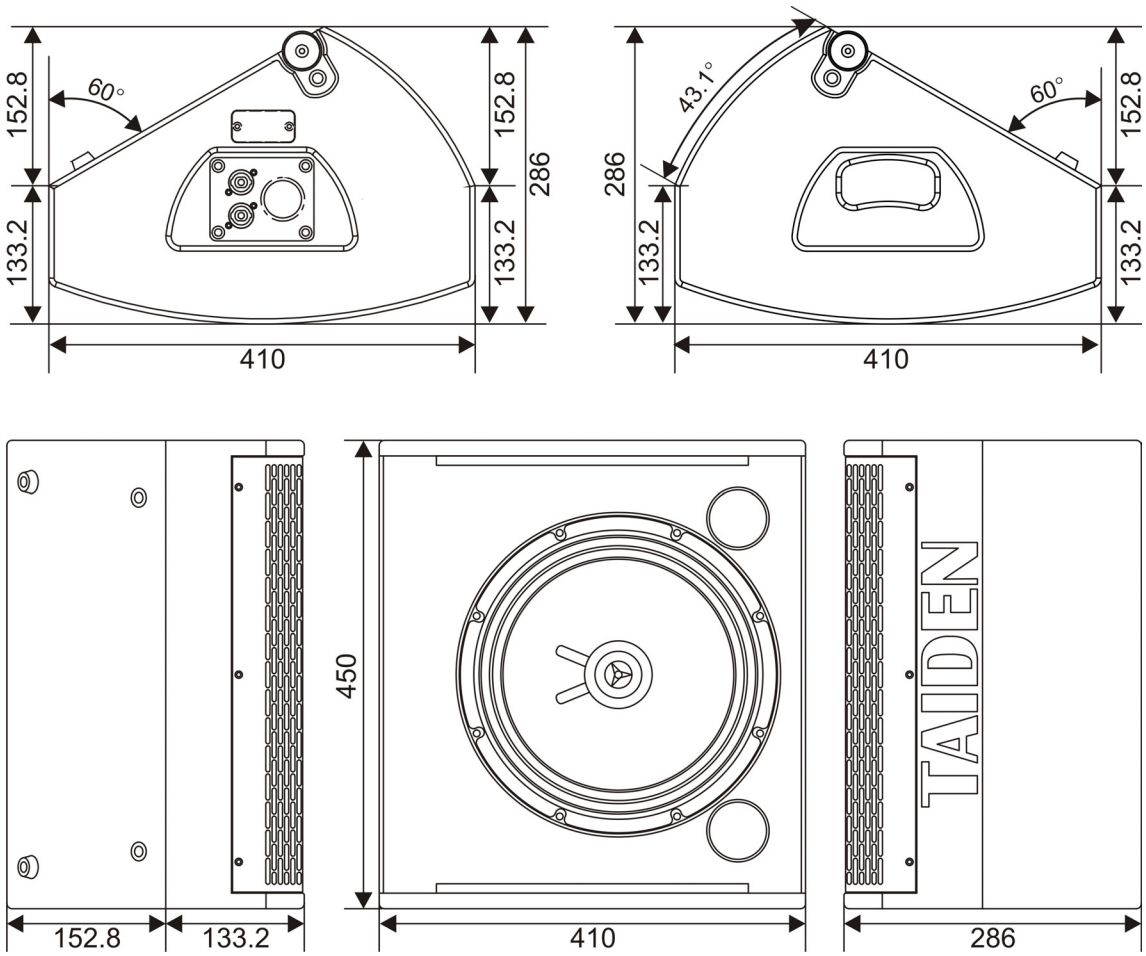
7.3 Functions and instructions



1. Coaxial drive units
2. Input/parallel interface (2×Speakon, PIN: 1+, 1-)
3. Rod socket (Ø35mm)
4. Cabinet feet (adjustable, factory default)
5. Fixing points for cabinet feet / HSM-112BKT bracket

Note: Installation accessories need to be purchased separately

7.4 Dimensions



Chapter 8 Working Environment and Maintenance

Suitable working environment and proper maintenance methods can effectively extend service life of the equipment. For maintenance please read the contents of this section carefully.

8.1 System specifications

In public areas ensure that the cables attached to the system units, including extension cables, are run and laid out in a neat and tidy manner where they do not interfere and hinder public walk ways.

- Terminating and maintenance of optical fiber should be carried out by strictly trained technical staff;
- There must be a complete design and construction drawings, for the convenient and reliability for future construction and inspection;
- During construction, always pay attention not to press the optical fiber cable by weight or prick by hard objects; In addition, traction force shall not exceed the maximal laying tension;
- When pulling through the wall or the floor, protective plastic tube with protective seal should be used, and fill the tube with flame retardant filler; A certain amount of plastic pipelines can also be laid inside the building;

8.2 Environment requirement

- Ensure that the area is a dust-free environment.
- Ensure adequate ventilation.
- Ensure adequate lighting. But be sure that the lighting does not impede the operator in the control room and normal system operation.
- Do not place objects on the top of units. They could fall into vents or could cover them and thus prevent proper cooling of electronic components inside the units. By falling into a unit, objects could cause trouble such as fire and electric shock.
- To avoid the risk of shock or permanent damage to the system units, do not expose units to rain or moisture.
- Do not attempt to remove the top cover of the system main units as you will be exposed to a shock hazard. The covers should only be removed by qualified service personnel. If any repair or maintenance is required, contact the **TAIDEN** service center in your region.
- Equipment is only for indoor use. Do not expose it to sunlight.

WARNING: Damage to the power cable may cause fire or a shock hazard!

8.3 Ventilation

Maintain good ventilation: ventilation holes are provided on top of the main units. Place the units on a hard and level surface to ensure proper ventilation.

8.4 Cleaning

Do not use alcohol, ammonia or petroleum based liquids or abrasive cleaners to clean the equipment. Unplug first and clean with a soft cloth slightly dampened with mild soap and water solution. Assure yourself that the relevant unit is dry before operating it.

8.5 Storage

If the units are not to be used for a long period of time, disconnect the mains supply from all mains supplied units. Store them in a dust-free dry area with adequate ventilation.

8.6 System environmental conditions

Working conditions fixed/stationary/transportable

Temperature range:

- Transport: -40 °C to +70 °C
- Operating: 0 °C to +45 °C

Max. relative humidity: < 95% (not condensing)

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