Nearity

NEARITY CONFERENCE SPEAKERMIC

User Manual

N

Model: AW-A21S

V1.0

Content

1. Product Overview

● 1.1 Product Introduction

The A21S is the latest conference room noise reduction speakermic. Equipped with AI audio deep learning algorithm and a newly upgraded 8-element omnidirectional microphone array, it can effectively eliminate reverberation echoes and more than 300+ noise in conference rooms, providing excellent call sound quality. With high-quality speakers, it realizes low-latency transparent dual talk.

## ● 1.2 Features

AI 2.0

New Upgraded AI2.0 Algorithm
Loaded with advanced Deeplearning algorithms, it more effectively eliminates acoustic reverberation, echo and more than 300 common conference room noises including keyboard sounds, footsteps, air conditioning noise, etc.

- Full duplex communication
Advanced full-duplex allows both sides to speak and be heard simultaneously, essential during intense discussion or brainstorming.
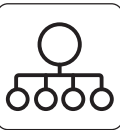
- Daisy-chain room expansion
Right-size your audio footprint by connecting up to 8 A21S units by POE to ensure every voice is heard, regardless of room size.
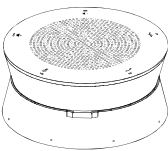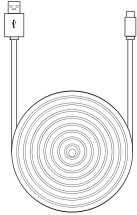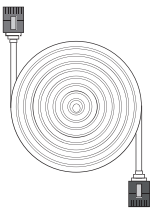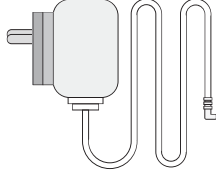
- Best-in-class audio experience
The A21S adopts unique far-field voice processing and audio clock synchronization technology to achieve uniform sound pickup and amplification, so that speaking in any direction in the conference room is as natural as face-to-face communication.
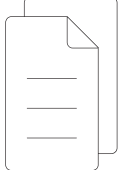
- Customizable audio settings
USB plug-and-play. Easy setup and used-play, flexible installation, and compatible with leading UC platforms.

● 1.3 Packing List

A21S * 1	USB cable (3m) * 1	Cat6 Ethernet cable * 1	Power Adapter * 1	User manual * 1

● 1.4 Basic Information

1.4.1 Physical Structure

② High Quality full-range speaker

① Professional separated acoustic structure
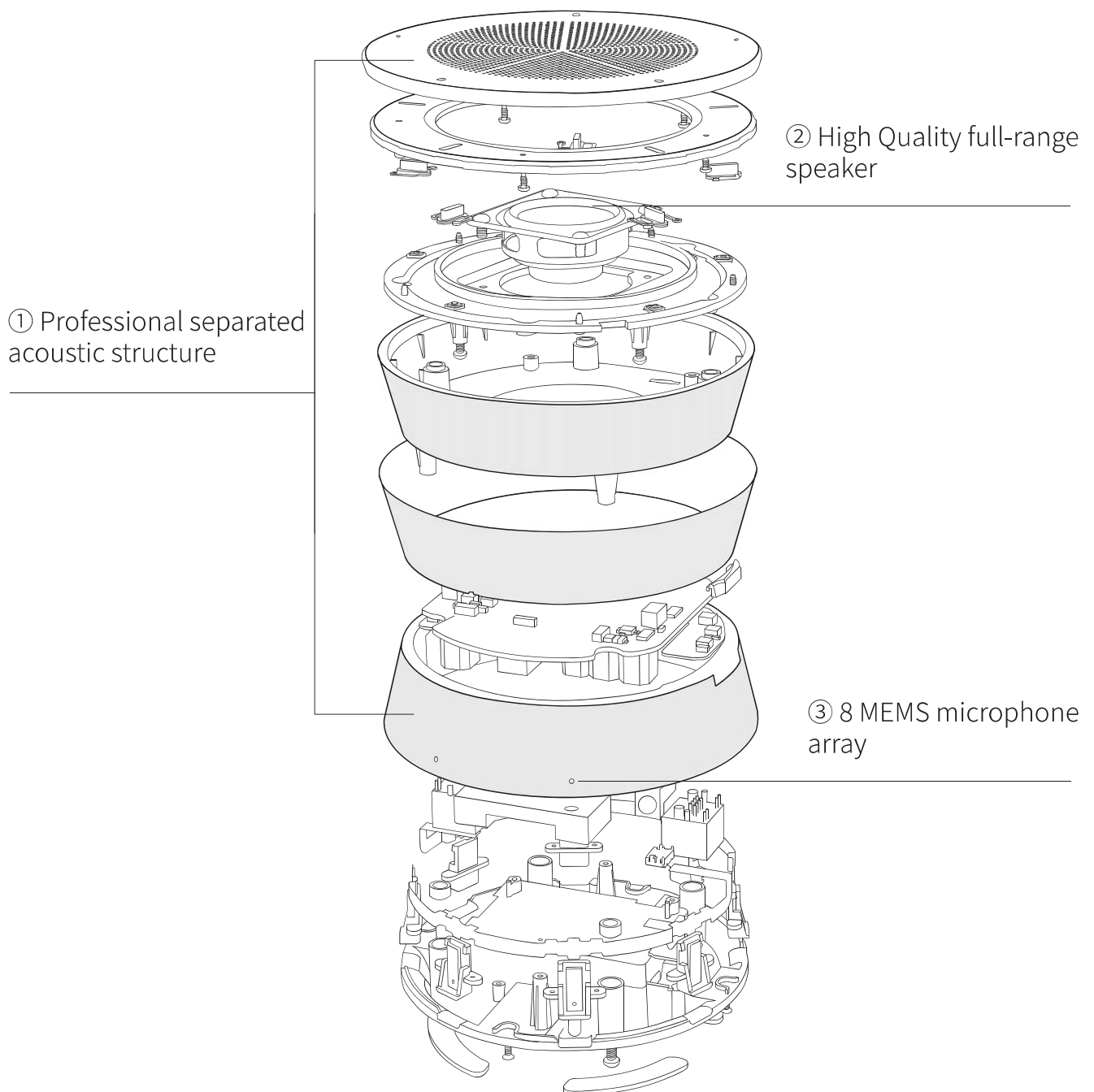
③ 8 MEMS microphone array
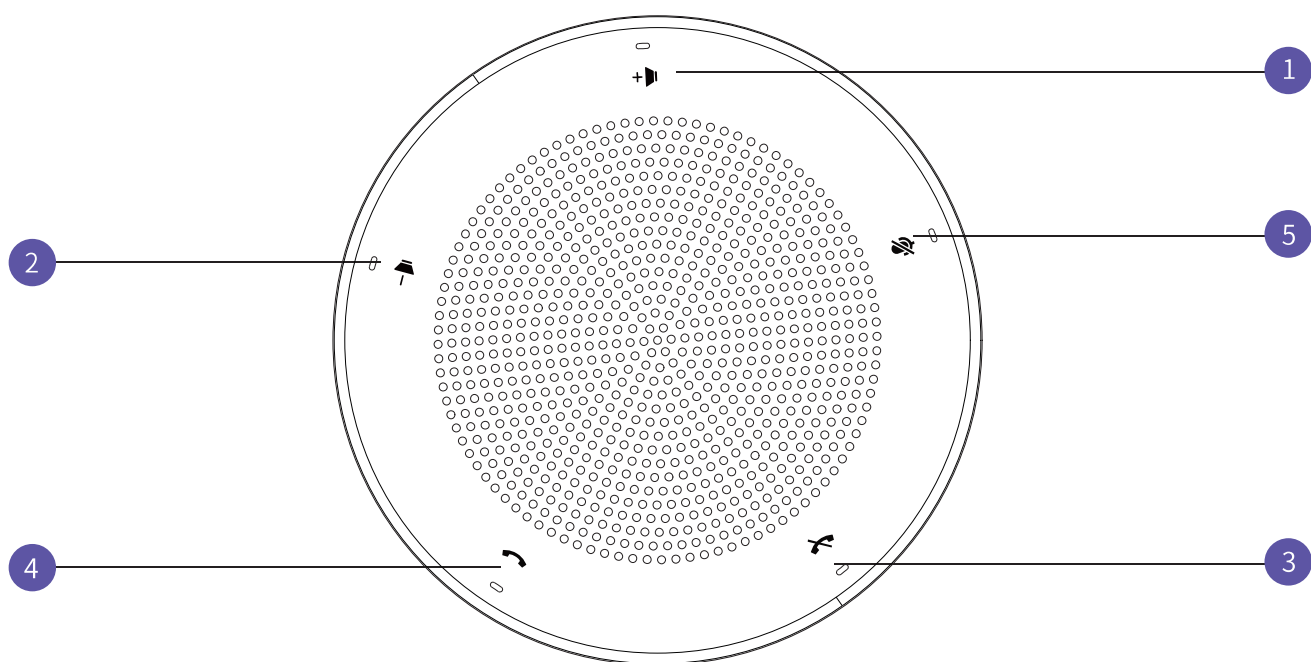
① Volume＋

② Volume－

③ End call*

④ Anwser call*

⑤ Mute（Press and hold the mute button for more than 10 seconds, the indicator light turns yellow and a prompt tone appears, which can turn off the AI audio algorithm; Press the mute button twice more, and the indicator will turn red and then green to restore the AI audio algorithm.）

（*Answer call and End call button should match with the specific VC software.)
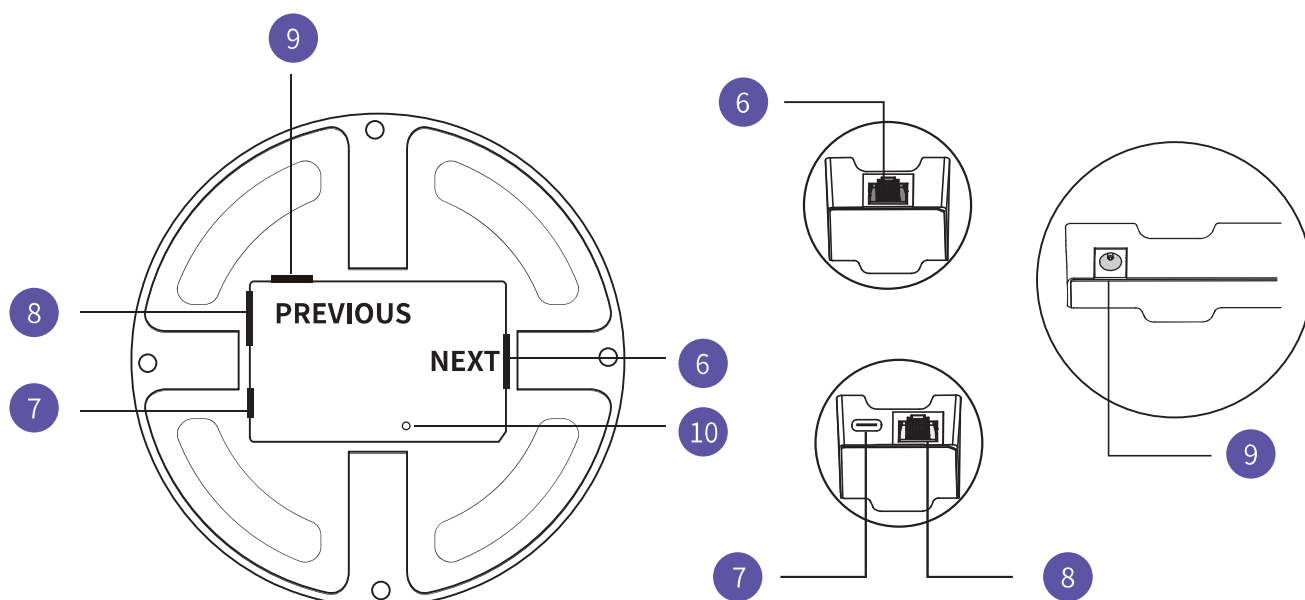
⑥ POE output (for daisy-chain the next A21S)

⑦ USB Type-C

⑧ POE input (for daisy-chain with the previous A21S)

⑨ DC power port

⑩ Reset button

1.4.2 Dimenssion

62.6 mm

121.7 mm

34.2 mm

121.7 mm

40.00 mm

63.59 mm

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2. Deployment

● 2.1 Connection

2.1.1 Single A21S connects with Laptop/PC
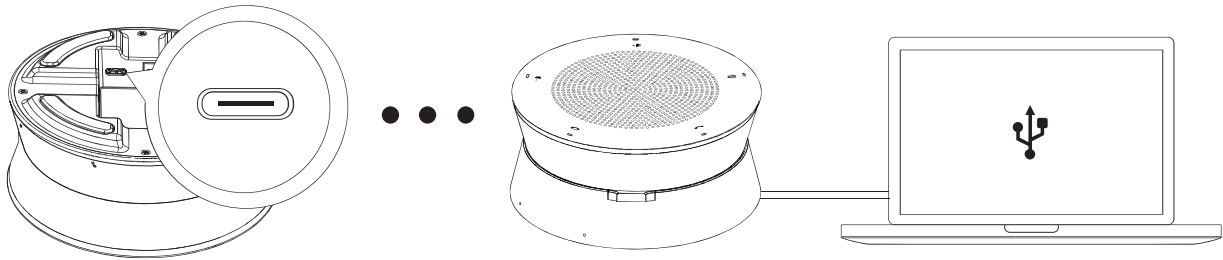
When using one unit, no additional power is required. A single USB port can provide both power and data transfer.
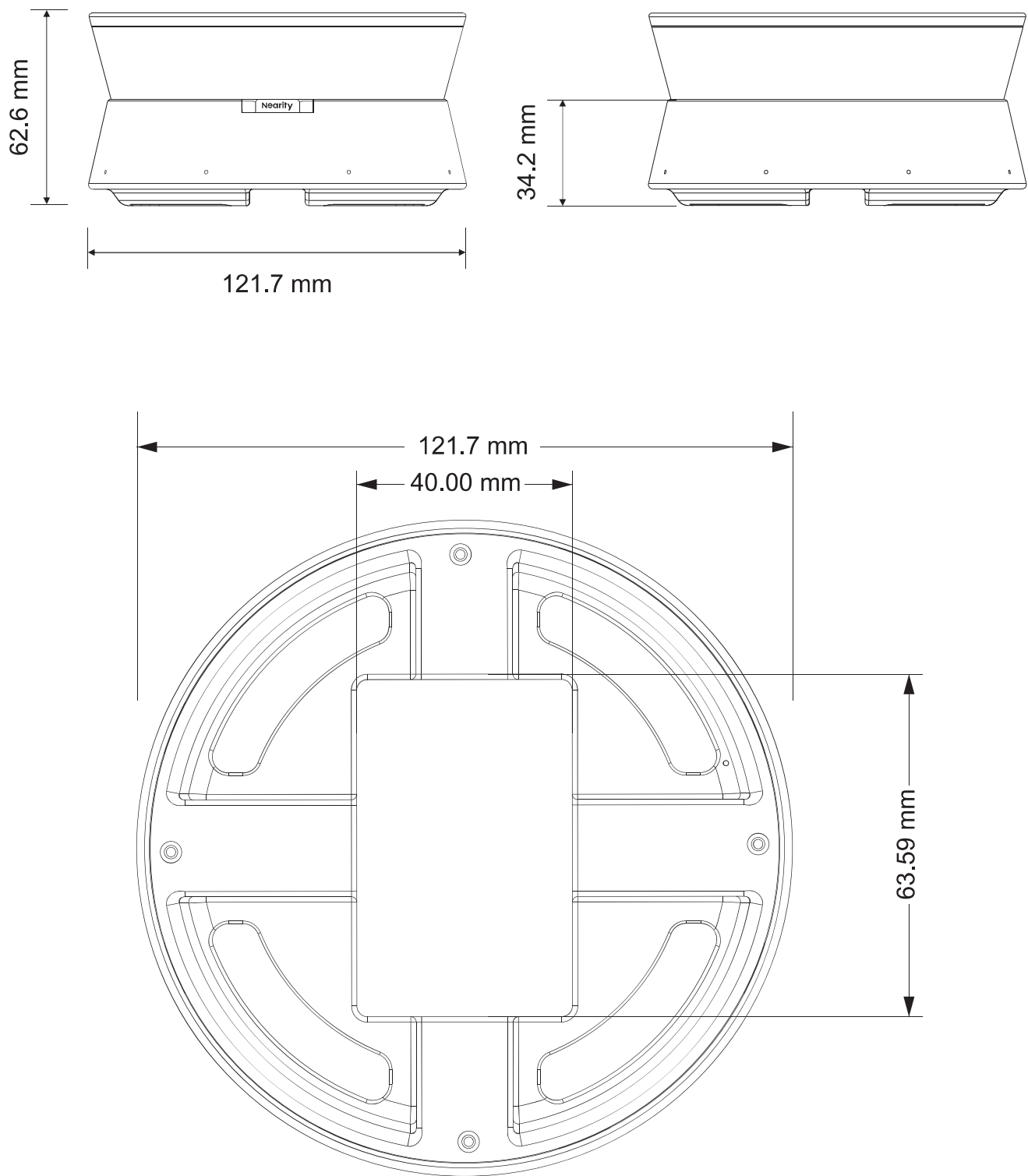
2.1.2 Daisy-chain connection

The latest cascading technology allows up to 8 devices to connect smoothly and provide uninterrupted high-quality presentations for meetings.
When cascading, if there are no more than 4 cascade devices, the first A21S can be connected to a PC via USB and powered directly through the adapter.
If there are more than 4 cascaded devices, a PoE injector is added between the 4th and 5th to achieve 8 cascades.

NEXT   PREVIOUS

IN   OUT
POE injector

*Note: PoE injector need to be provided by a third party and are not included in the packing list
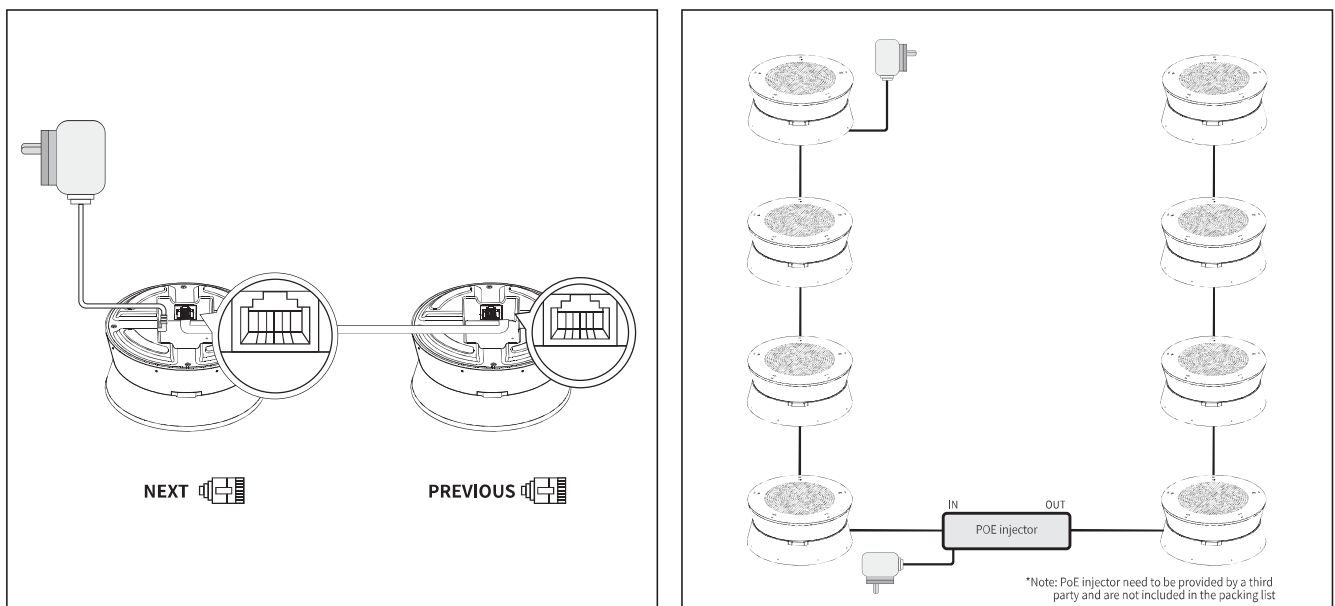
The Daisy Chain technology enables the A21S to be a perfect fit for different-sized meeting rooms, from small to large.

● 2.2 Installation Instructions

2.2.1 Desktop Installation

Place the A21S device on the top of your desk, in the middle between each speaker or in the middle of the desk.

Single placement

Multiple placements
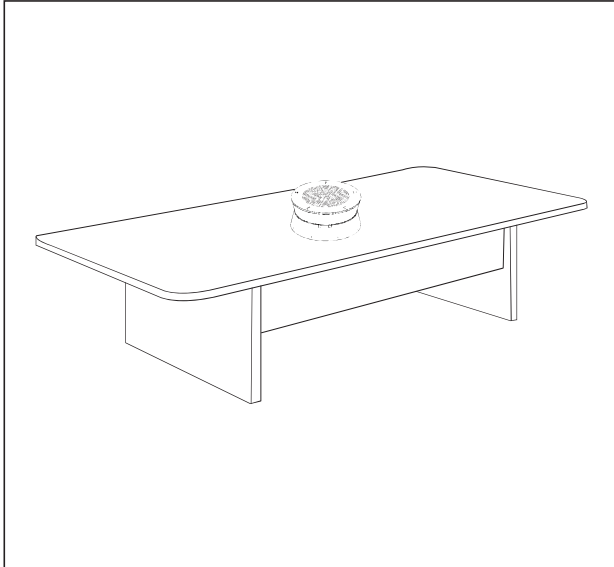

Support pickup distance up to 40 meters

2-3metes

8metes

Straight line placement

8metes

U-shaped placement
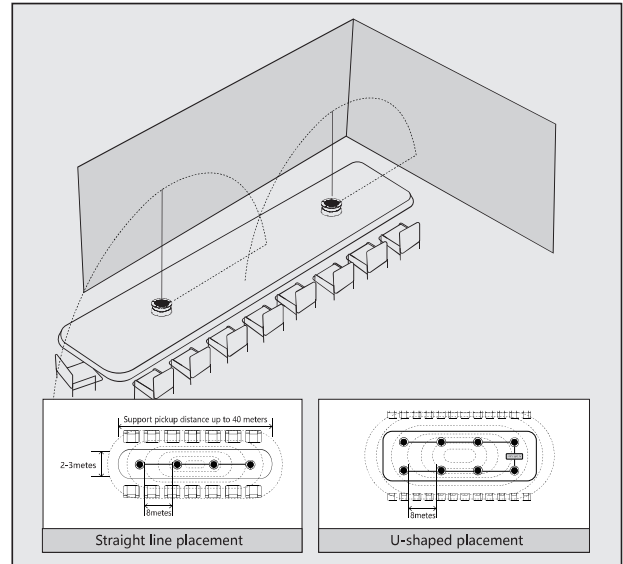
2.2.2 Bracket Installation

The A21S can be secured to a tabletop using a fixed bracket for stability in use.
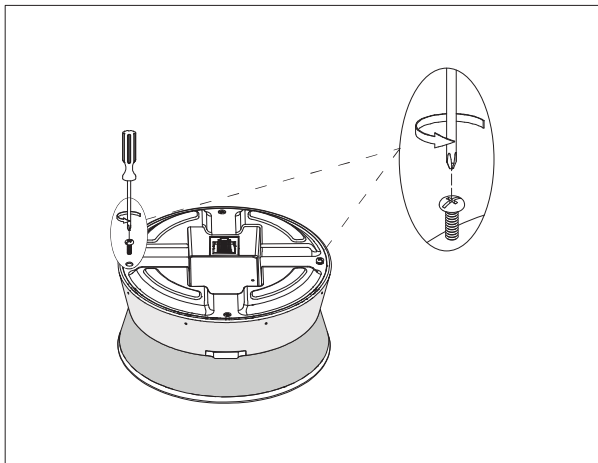
Take out the two screws that were already in the bottom of the A21S. Line up the holes at each end of the long metal plate. Put the flat-headed long screws through the holes to attach the metal plate to the bottom of the A21S. Finally, use the bracket to attach the A21S to the table.
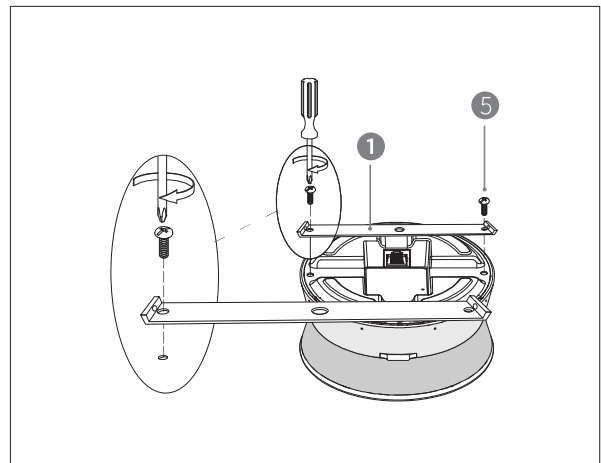
② Line up the holes on the small metal plate with the U-shaped groove on the larger metal plate. Then, use small screws with flat heads to keep them in place.
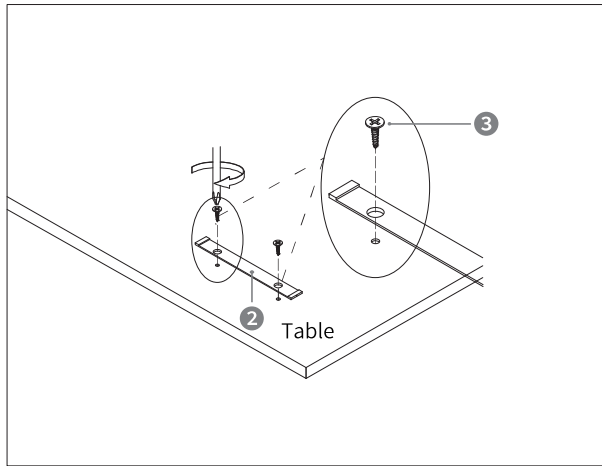
③ Use pointed self-tapping screws to secure the short iron plate to the tabletop. Once the screws are in place, the installation is finished.
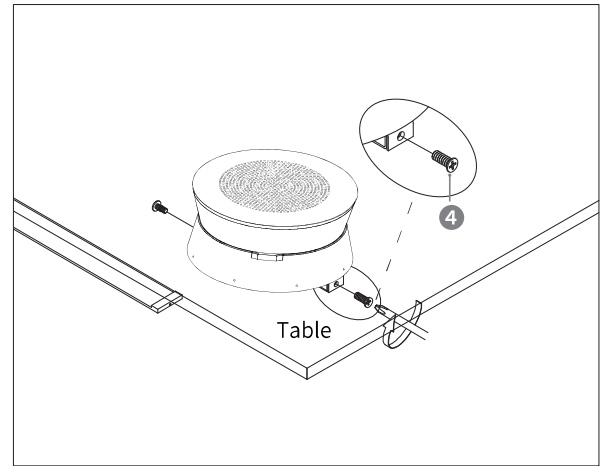
④ The diagram shows that the fixed installation is now finished.

3. Operation Guide

● 3.1 Indicators

Solid blue-white:	Connected and in use.
Solid green:	Connected and being called by authenticated (HID interoperability) software.
Solid Red:	Muted.
Flashing blue-white:	Firmware Upgrading.
Solid Yellow:	DC power is supplied, but USB connection has failed.
Mute light enhancement display status:	1. The mute key is blue-white, and other keys are red, indicating that the device is in mute state; 2. The mute key is red and other keys are blue-white, indicating that the device is in unmute state.

● 3.2 Nearsync Tool

3.2.1 Downloading link

Download the Nearsync on the official website.https://nearity.co/resources/dfu

3.2.2 Nearsync Operation

3.2.2.1 Product information

After the A21S is connected to the computer via USB, nearsync automatically recognizes the device information.

1. Device picture
2. Device information
3. When there are multiple units daisy-chain, it will show serveral picture here. for example, A21S daisy-chain.
4. You can switch the device you want to manager by clicking on the picture here.

3.2.2.2 Upgrade Firmware

3.2.2.2.1 Upgrade online

1. Choose the unit you want to update.
2. Select the firmware version you want to update. The latest versions will be displayed under the menu.
3. Click Update to start.
4. When updating finishes, the device will restart automatically.

3.2.2.2.2 Local update

Sometimes we need to customize the firmware version according to the current room sound environment. Ensure you've already gotten the firmware from our technical team before you start the local update.

1. Choose the file on your PC/Laptop
2. Click the Update button to start. And it will show the update process as follow：

3. When updating finishes, the device will restart automatically.

4. Specification

Technical Specifications	
Microphone Features	8 MEMS microphone array
	Effective pickup distance: 5m(16ft)
	Sensitivity: -38dBFS 94dB SPL@1kHz
	SNR: 63dBV/Pa 94dB SPL@1kHz,A-weighted
Speaker Characteristics	Rated output power: 4Ω/3W
	Speaker frequency response: 220Hz~12kHz
	Speaker volume: 80±3dB @1m
	THD<5%
Audio Characteristics	Beamforming
	Voice Activity Detector(VAD)
	AI noise suppression
	Full-duplex
	AI Reverb and Echo cancellation
	Automatic Gain Control (AGC)
Daisy-chain	Up to 4 units via POE connection, up to 8 with POE injector
Physical Characteristics	Height: 64mm (2.5 inches)
	Width: 120mm (4.7 inches)
	Depth: 120mm (4.7 inches)
	Net weight: 544g (19.19 oz)
	Color: Deep Tarnish
Power and Connectivity	External power supply: DC 48V/0.65A or USB 5V/0.5A
	Compatible operating systems: Windows/Mac/Linux
	USB port: USB 2.0 Type-C
Packing List	1x A21S
	1x USB cable (3m)
	1x UTP ethernet Cable (Cat6) (3m)
	1x Adapter (1.5m)
	1x User manual

5. FAQ

Q: How to confirm if the device is working normally?

A: According to the connection method above, after connecting the USB to the computer, you can use the following steps to check:

- **Light:** The device indicator is blue-white
- **Playback:** The PC selects A21S as the speaker device, and plays the audio source. Make sure there is no noise, lag and other phenomena
- **Recording:** Open Audicity or other recording software to see if the waveform changes evenly, play the recording file and confirm whether the sound quality is normal

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Q: What video conference software is Nearity devices compatible with?

A: No restrictions. Nearity devices employ the international standard USB connection method, making them compatible with most major video conferencing software, such as Zoom, Teams, Google Meet, Tencent Meeting, and Webex.

Q: How many people can A21S cover as recommendation?

A: According to best practice design, it is recommended that one A21S microphone cover a radius of 2-4 meters, or 6-8 people. When A21S is daisy chained up to 4 units, it can cover an area of approximately 40 square meters, accommodating up to 35 people.

Q: Why do online participants hear their echo in the meeting?

A: Check if the conference software uses A21S for both the microphone and speaker at the same time. NEARITY A21S has an 8-element array that uses beamforming technology to eliminate acoustic and room echo, ensuring clear communication in conference rooms even in challenging environments. .

Q: Why do remote participants hear continuous distractions during meetings?

A: Check if the conference room has any ultrasonic, infrared, or other sensors. If so, turn them off and try again.

Q: When multiple A21S are daisy-chained, the indicator of the second A21T turns yellow and does not function correctly.

Check if all A21S units' firmware versions are the same.

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**Q: When multiple A21S are connected with daisy chain technology, the second one is not activated.**

A: :Check if the following two occurred:

1. The primary A21S is not connected to the power source;

2. The order of the network cable connections is incorrect. Refer to Chapter 2.1.2 for more information.

⚠ CAUTION

- Please keep the device horizontally;
- Connect the device using the provided cable. The standard USB cable length is 3m, but you can purchase a longer one if needed (we recommend UGREEN brand). The maximum recommended length for a USB cable is 5m. If you need a longer cable, buy an extension cable with a signal amplifier; otherwise, it may cause signal instability, resulting in equipment not being recognized, noise, and other issues;
- Ensure that the USB connection is stable. Avoid frequently plugging and unplugging, as well as applying external force, as this may damage the USB interface or cable;
- When cascading multiple devices, be sure to connect DC power supply;
- Do not cover the microphone hole shown in the image below. Doing so may affect the quality of your audio.

8 MEMS microphone array
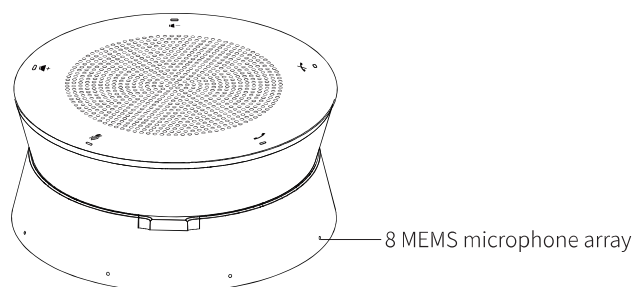
- Ensure that nothing is blocking the device on the table;
- When cleaning the table, make sure not to wipe the device;
- Unauthorized disassembly and strong impacts can cause damage to the device;
- The equipment should be kept away from high temperature environment, heat source, strong magnetic field, strong electric field;
- Consistent exposure to loud noises can cause hearing loss;
- The A21S has a sound pickup range of up to 3 meters in a quiet, reverberation-free environment. For larger areas, increase the number of A21S for daisy-chaining, or purchase a longer CAT6 cable;