



# Yealink ProAudio System User Guide v1.1

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Is there a number limitation when directly connecting the Yealink ProAudio equipment to a host device?

What audio devices are supported by Yealink host devices?

What is the maximum number of CM20 and CS10 supported by Yealink host devices?

# About This Guide

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This design guide is applicable to the Yealink Pro Audio solution. Following this guide, you will be able to correctly complete the hardware deployment and software tuning of Yealink ceiling microphones and ceiling speakers, as well as troubleshoot some common functional interferences.

## Targeted Audience

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This document is intended for Yealink partners, distributors, and installers who seek guidance in preparing conference rooms for installing Yealink ProAudio series devices.

## Purpose

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Based on our understanding of audio systems, from a simple audio design to a complex audio system deployment, it is not simply a matter of stacking devices and increasing quantities. A quantifiable deployment guide with clear standards can reduce most problems in actual deployments and avoid disputes.

For the Yealink Pro Audio solution, we will provide deployment guidance based on quantified parameters given by the devices, and provide instructions for the deployment of the entire solution based on these parameters.

## Required Skills

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Before you begin, you must be familiar with the following concepts:

- Knowledge of conference room audio systems and acoustics.
- Communication infrastructure, video conferencing, and voice or data devices.
- Experience and knowledge in A/V wiring and management.

## Related Documents and Resources

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Please refer to the following websites for information related to this product:

- [Yealink Support](#) is the gateway to accessing product services, software, and documentation.
- [The Yealink Document Center](#) provides support documents for products, displayed in HTML5 format for easy access and viewing of installation, configuration, or management content.

# Summary of Changes

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## Changes of Guide Version 1.1

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Major updates have occurred to the following section:

- [Yealink CS10 Ceiling Speaker Coverage Area](#)
- [What audio devices are supported by Yealink host devices?](#)
- [What is the maximum number of CM20 and CS10 supported by Yealink host devices?](#)
- [Method 1: In-Ceiling Deployment without Bracing Bridge](#), updated the ceiling requirements.
- [Method 2: In-Ceiling Deployment with Bracing Bridge](#), updated the ceiling requirements.
- [Deploy CS10](#), updated the ceiling requirements.

# Precautions before Deployment

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## Deployment Space

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### Acoustic Environment of the Deployment Space

Before designing the deployment plan for the entire space, there should be a clear understanding and definition of the acoustic environment of this space. Based on the acoustic environment of the room, different deployment and adjustment plans should be chosen. Yealink categorizes the acoustic environment of the space into different levels and adapts its unique intelligent noise reduction and echo cancellation algorithms to different levels of acoustic environments, ensuring an excellent balance between sound loss and noise & reverberation elimination. Additionally, the acoustic environment of the room will also affect the actual coverage range and deployment positions of microphones and speakers, which will be demonstrated accordingly in Yealink's recommended deployment tools.

### Reverberation Time (RT60)

Yealink uses the common RT60 value as a measure of the reverberation level in a deployment space. RT60 refers to the time required for the sound of a particular frequency to reach a stable state in indoor propagation, i.e., the time required for the sound field to decay by 60 dB after the sound source stops emitting sound.

When sound waves propagate in a medium, energy loss and attenuation occur due to transmission, absorption, etc. Therefore, in a space with a defined shape and size, if the energy absorbed by each reflection is very low, the remaining energy after many reflections will still be relatively high, indicating a long reverberation time. Conversely, if the energy absorbed by each reflection is high, the remaining energy after fewer reflections will be very low, indicating a relatively short reverberation time.

The length of the reverberation time affects the sound effect and the perception of the listener in a room. If the reverberation time is too long, the sound will become blurred. If the reverberation time is just right, it will have a higher acoustic comfort. For example, in acoustically ideal places with just the right reverberation time (such as theaters), sound can be enhanced, making it sound richer and fuller.

### Noise Criteria (NC) curves

The Noise Criteria (NC) curves are references used by Yealink to define the level of noise within a space. These curves quantify the environmental noise in a room by measuring the maximum value of the complete sound spectrum in an empty room. This value is used to assess whether the environmental noise in the room will affect people working or living in it, and it also affects speech clarity.

The table below represents Yealink's definition of acoustic environments, where most conventionally decorated meeting rooms (with at least two sides using soft materials and no large areas of rigid material facades) can achieve a "good" level.

**According to the definitions in the table, for example, when a room has an RT60 value of 600ms and a noise level of 36dBA, we refer to the reverberation level of this room as "good" and the noise level as "excellent".**



Environmental grade	RT60 reverberation	Noise Criteria (NC) equivalent
Terrible	> 1000ms	> 55dBA
Average	800-1000ms	48-55dBA
Good	500-800ms	42-48dBA
Excellent	300-500ms	35-42dBA
Perfect	< 300ms	<35dBA

## Deployment Space Specifications

For a design of an audio system solution, it should ultimately serve the room in which the solution is deployed. Consequently, factors within this room will also determine the deployment of the audio solution. Here are the factors that may impact the design of an audio system solution:

### Space Usage

The current usage of the deployment space determines the foundation of the types of audio system equipment. Specialized uses may have specific requirements for the deployment of equipment. For example: Spaces requiring local amplification functionality need to selectively choose microphone types and consider the gain levels of different speakers in the venue to avoid feedback issues. In larger training rooms/classrooms, microphone devices may not be deployed at every audience seating position.

### Space Dimensions & Shape

The dimensions of the deployment space have two impacts on the audio scheme, namely:

Item	Description
Area	The size of the deployment space directly influences the quantity of devices used in the space.
Height	<p>The height of the deployment space directly affects hardware selection and gain levels of playback devices, among other deployment factors, and indirectly influences the quantity of devices used.</p> <p>The shape of the room affects the reflection relationship of each surface, forming unique acoustic characteristics.</p> <p>Additionally, speaker usage types can also be determined based on volume, although this will not be discussed in this document for the time being.</p>

### Indoor Decoration

Interior decoration directly determines the acoustic characteristics of a room. For example, materials used for walls, ceilings, and floors, as well as the presence of specialized acoustic treatments such as absorbers or diffusers, can impact the sound effects and reverberation characteristics of a room. Additionally, the layout and furnishings of a room also affect sound reflection and absorption, requiring deployment engineers to customize adjustments based on actual conditions.

Item	Description
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Item	Description
Seating Arrangement	For certain meeting room spaces where there is no presentation requirement, sound sources outside of the seating positions are rarely present. Therefore, when considering deployment, the focus should be on ensuring that the sound effects at the seating positions meet the requirements.
Wall Materials	In general, surfaces made of rigid materials (such as metal, glass, etc.) have stronger abilities to reflect sound and weaker abilities to absorb sound compared to surfaces made of soft materials (such as wood panels, acoustic foam, etc.).
Ceiling Design	If the space has a ceiling with a grid structure, customization should be based on the actual position of the ceiling grid. For ceilings with limited space, "low-profile" microphones and speakers may need to be selected to meet deployment needs.
Air Conditioning Vent Design	In modernly decorated spaces, the design of air conditioning vents can have an impact on the deployment of audio systems. The airflow from the air conditioning creates a stable source of noise, and sometimes there may be continuous vibrations, which pose challenges to the design and interference resistance capabilities of microphone and speaker positions.

## Deployment Plan Confirmation

After confirming the deployment environment, equipment should be selected based on the survey results, and the final deployment positions of the equipment should be confirmed. This is the last step in audio system design.

## Equipment Model Selection

### Microphone Selection

#### Yealink CM20 Microphone Parameters

Specification	Description
Maximum Sound Pressure Level (SPL)	94dBSPL @ 1kHz, THD < 3%
Signal-to-Noise Ratio (SNR)	86dB at 1kHz, 94dBSPL A-Weighted
Sensitivity	0 dBV/Pa 94dBSPL @ 1kHz
Dimensions	Diameter × Height: 223.683.0 mm (8.803 × 3.267 in)

#### Yealink CM20 Microphone Coverage Area

The following data represents the recommended radius of high-quality sound pickup range of the CM20 microphone as the deployment height changes under different environmental acoustic rating conditions. Please determine the deployment position based on the actual acoustic conditions of the room; parts marked with "-" are deployment methods not recommended by Yealink.

#### CM20 Coverage Radius

Ceiling Height	Meter	2.4	2.7	3.0	3.3	3.6	4.0	4.5	5.0	5.5	6.0	6.5	7.0	
	Feet	7.8	8.8	9.8	10.8	11.8	13.0	14.8	16.4	18.0	19.7	21.3	23.0	
Terrible		1.6	1.3	0.9	—	—	—	—	—	—	—	—	—	Meter
Average		2.2	2.0	1.7	1.4	0.7	—	—	—	—	—	—		
Good		3.8	3.7	3.6	3.4	3.2	2.9	2.3	1.3	—	—	—	—	
Excellent		4.9	4.8	4.7	4.5	4.4	4.1	3.8	3.3	2.6	1.4	—	—	
Perfect		5.9	5.8	5.7	5.6	5.5	5.3	5.0	4.6	4.2	3.6	2.8	1.5	

**Note:**

- Under the corresponding deployment height listed in the current table, the recommended pickup radius indicates the CM20's high-quality sound pickup capability at a height of 1.2m horizontally from the source.
- Yealink defines high-quality sound pickup not only by ensuring that the objective STIPA value exceeds A-Level but also by guaranteeing a subjectively excellent fidelity level in terms of sound perception.
- Yealink devices feature echo cancellation algorithms specifically developed for conference scenarios, which can effectively eliminate echoes while ensuring an excellent level of duplex communication between both parties, thus maintaining a high-quality standard for real-time calls.

## Speaker Selection

### Yealink CS10 Speaker Specifications

Specification	Description
Maximum Sound Pressure Level (SPL)	99dB @20W 1m
Sensitivity	88dB @1m 1W
Power	20W
Nominal Coverage Angle	120°
Dimensions	LF: 145 millimeters (5.7 inches) woofer HF: 28 millimeters (1.1 inches) tweeter

### Yealink CS10 Ceiling Speaker Sound Pressure Level

The table below shows the sound pressure levels that the CS10 can achieve while maintaining a continuous output power of 20W at different horizontal deployment heights. These values are measured directly under the speaker, with the height standardized to 1.2m (average seated height of a person). Please ensure that the sound pressure level of the CS10 meets the volume requirements at the required deployment height.

## Speaker Sound Pressure Level

Ceiling Height	Meter	2.4	2.7	3.0	3.3	3.6	4.0	4.5	5.0	5.5	6.0
	Feet	7.8	8.8	9.8	10.8	11.8	13.0	14.8	16.4	18.0	19.7
CS10	@20W	99	96	94	92	90	89	88	87	86	85

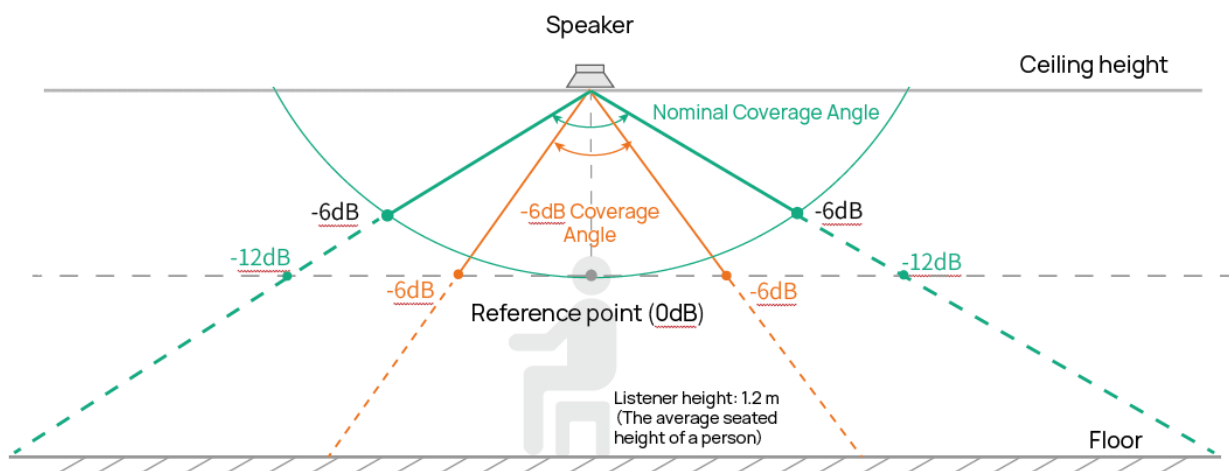
## Yealink CS10 Ceiling Speaker Coverage Area

The coverage area of Yealink speakers is calculated based on the nominal coverage radius and the -6dB coverage radius used for quantifying deployment specifications, both measured at a listener height of 1.2m. For initial rough estimates, you can use the nominal radius as a reference. However, for precise deployment design, please use the -6dB radius for calculation.

## CS10 Coverage Radius

Ceiling Height	Meter	2.4	2.7	3.0	3.3	3.6	4.0	4.5	5.0	5.5	6.0
	Feet	7.8	8.8	9.8	10.8	11.8	13.0	14.8	16.4	18.0	19.7
CS10 Nominal Radius (Nominal Coverage)		2.1	2.6	3.1	3.6	4.2	4.8	5.7	6.6	7.4	8.3
CS10 Effective Radius (-6dB Coverage)		1.0	1.2	1.5	1.7	1.9	2.3	2.7	3.1	3.5	3.9

Meter





# Confirmation of Deployment Positions (Yealink Deployment Recommendation)

## Logic for the Recommended Solution

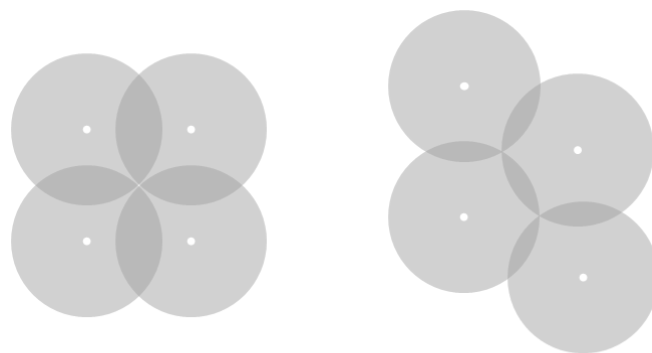
Sound is intangible, but with the data provided in this section, the coverage areas of microphones and speakers can be visually abstracted. These coverage areas can be represented as circles on the deployment floor plan. By using these circles to simulate the actual deployment areas of microphones and speakers, the quantity of devices in the audio system can be calculated accordingly.

Yealink utilizes a dedicated deployment tool to provide recommended deployment schemes for all Yealink users. Within this tool, the recommended range for microphones is based on the data provided in the [Yealink CM0 Microphone Coverage Range](#) section's table, while the recommended range for speakers is based on the "-6dB Coverage Range" table in the [Yealink Ceiling Speaker Coverage Range](#) section.

Before configuring an audio system, it's crucial to determine the number of input and output devices. Then, choose processing devices with suitable channels and performance according to the required quantity and desired adjustment effects.

## Arrangement Features and Coverage Method

For Yealink's recommended deployment schemes, the first consideration is to adhere to square-like arrangement requirements whether it's microphones or speakers. This ensures that as much space as possible within the current room is covered by high-quality pickup areas. However, due to the need for a distance between speakers and microphones to ensure optimal sound processing effects (the minimum distance between the deployment centers of CM20 and CS10 devices should not be less than 60cm), Yealink's communication solutions require determining the deployment orientation of microphones first, then adjusting the recommended deployment positions of speakers based on the aforementioned constraints.

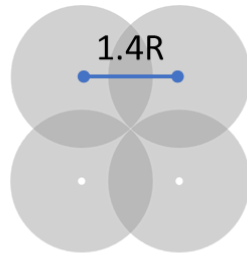


Squire Pattern

Hexagonal Pattern

## Yealink Ceiling Microphone Coverage Mode and Quantity Calculation Preparation

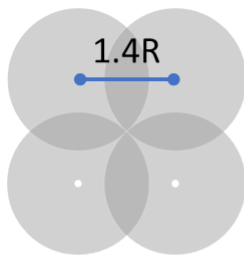
Yealink microphones utilize the "minimum overlapping area" principle as the recommended deployment method. This means that circles with square characteristic layouts are tangentially arranged, with the distance between adjacent circle centers approximately 1.4 times the coverage radius. The benefit of this deployment method is to ensure that the entire plane space is covered while using the minimum number of devices possible.



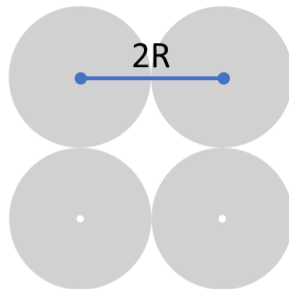
Minimum Overlap

## Yealink Ceiling Speaker Coverage Mode and Quantity Calculation Preparation

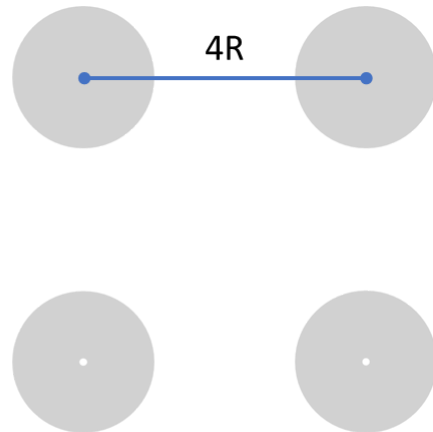
Due to variations in deployment space size and ceiling microphone deployment positions across different spaces, Yealink has introduced a range-based approach for recommending deployment positions of ceiling speakers to adapt to different ceiling microphone deployment schemes. The recommended deployment of speakers is confined to the range between "minimum overlapping area" and "2.0 times the edge-to-edge distance". This means that the distance between the centers of adjacent speaker devices will be controlled within the range of approximately 1.4 times to 4 times the -6dB coverage radius. Yealink believes that within this range interval, uniform spatial sound fields can be achieved while ensuring the magnitude of sound pressure level in indoor scenarios.



Minimum Overlap



Edge-to-Edge



2.0 x Edge-to-Edge

## Yealink Deployment Tool Coverage Method

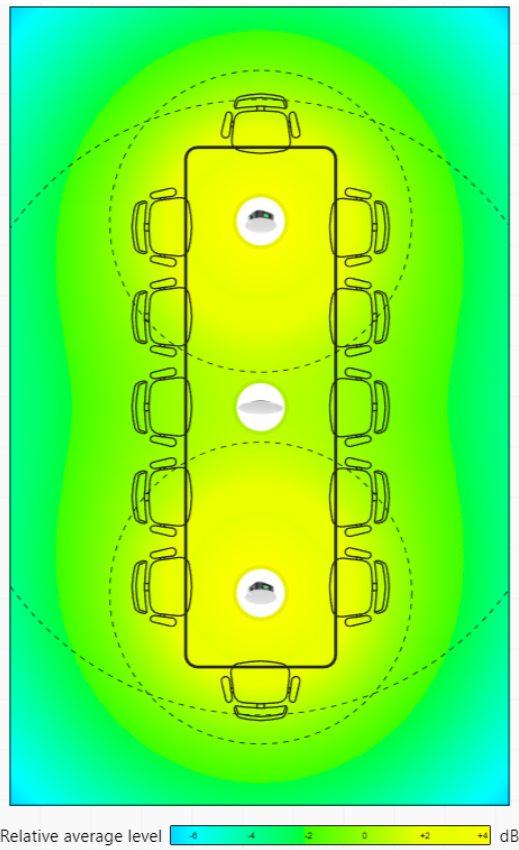
Yealink's recommended deployment tool defaults to generating recommended microphone and speaker deployment schemes centered around the conference table. All devices will be symmetrically distributed along the x-axis and y-axis of a Cartesian coordinate system with the center point as the origin.

## Yealink Recommended Deployment Tool

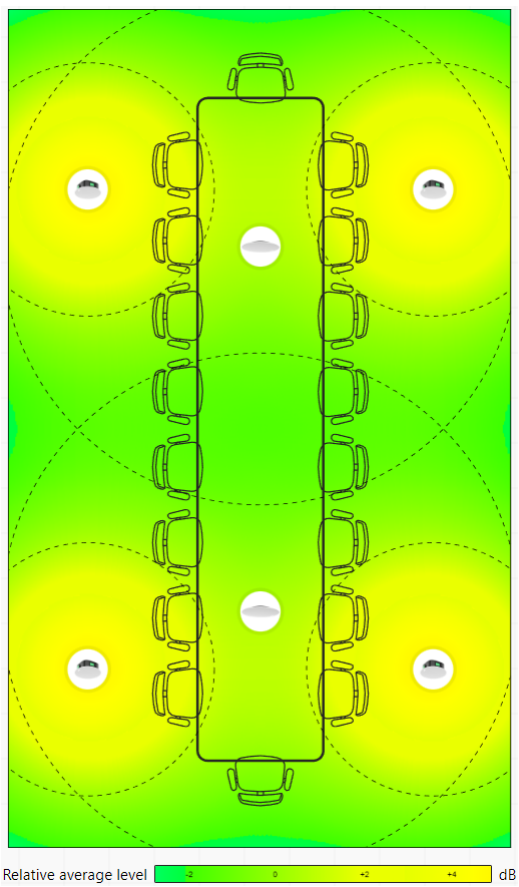
Please visit <https://design-tools.ymcs.yealink.com/control-deploy-tool/> to access Yealink's recommended deployment schemes for different scenarios.

## Example: Speaker and Microphone Coverage Area

Medium-Large Meeting Room (5 × 8 m):



Extra-Large Meeting Room (6 × 10 m):



# Hardware Deployment

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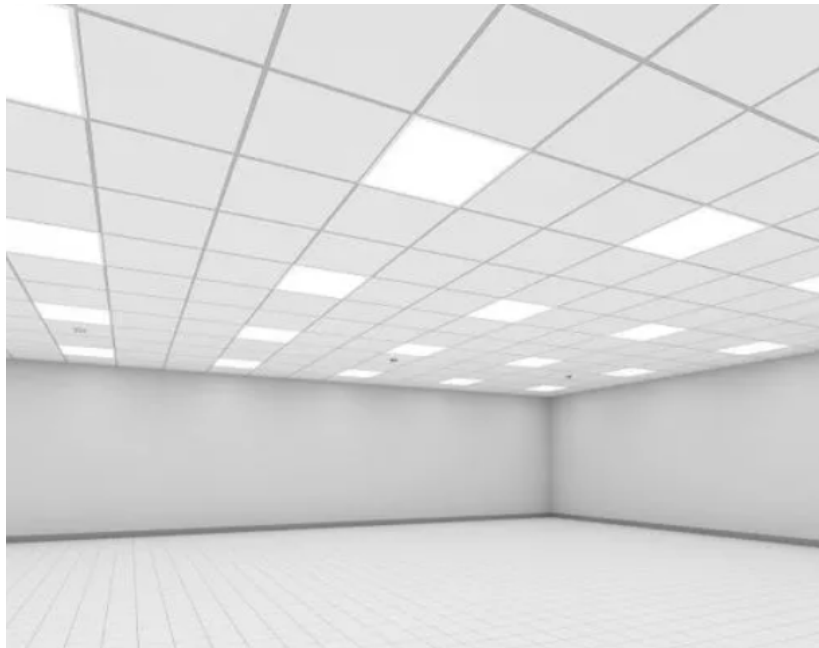
## Notice on Ceiling Related Content

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This chapter mainly shows you the classification standards of various types of ceilings, so that you can choose the installation method that is more suitable for you. The ceiling is divided into two types according to its composition: removable ceiling and integrated ceiling. If you are unable to determine what type your ceiling belongs to, refer to the following.

### Removable ceiling panel

Removable ceiling is a flexible and easy-to-install ceiling system, characterized by the ability to be easily disassembled and reinstalled. This type of ceiling is usually composed of movable panels or modules, which can be installed individually or in combination onto a support or grid system. Removable ceiling is one of the common ceiling structures nowadays.

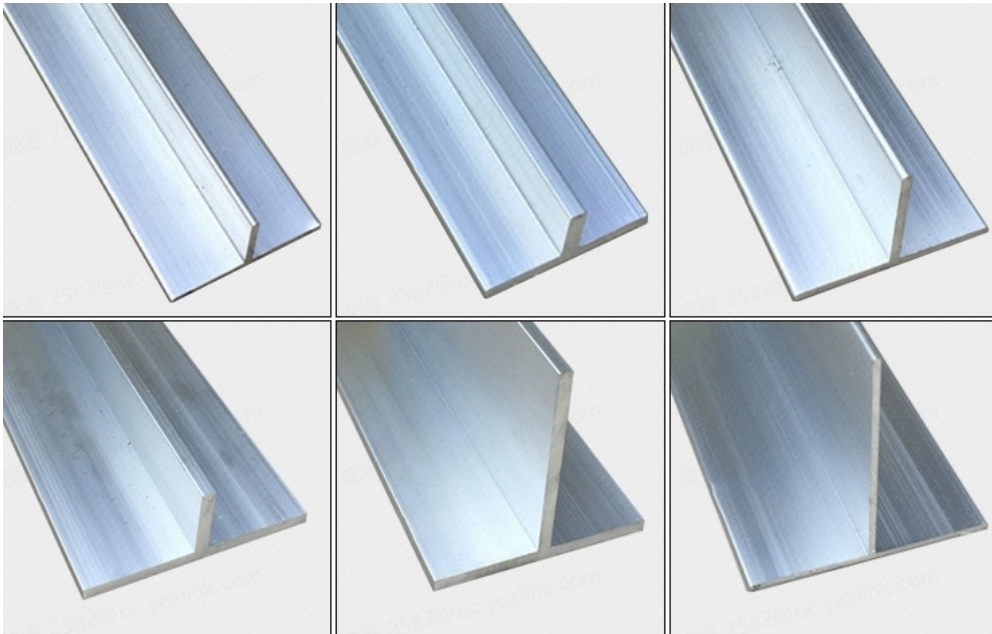


### Common Classifications of Ceiling Frameworks

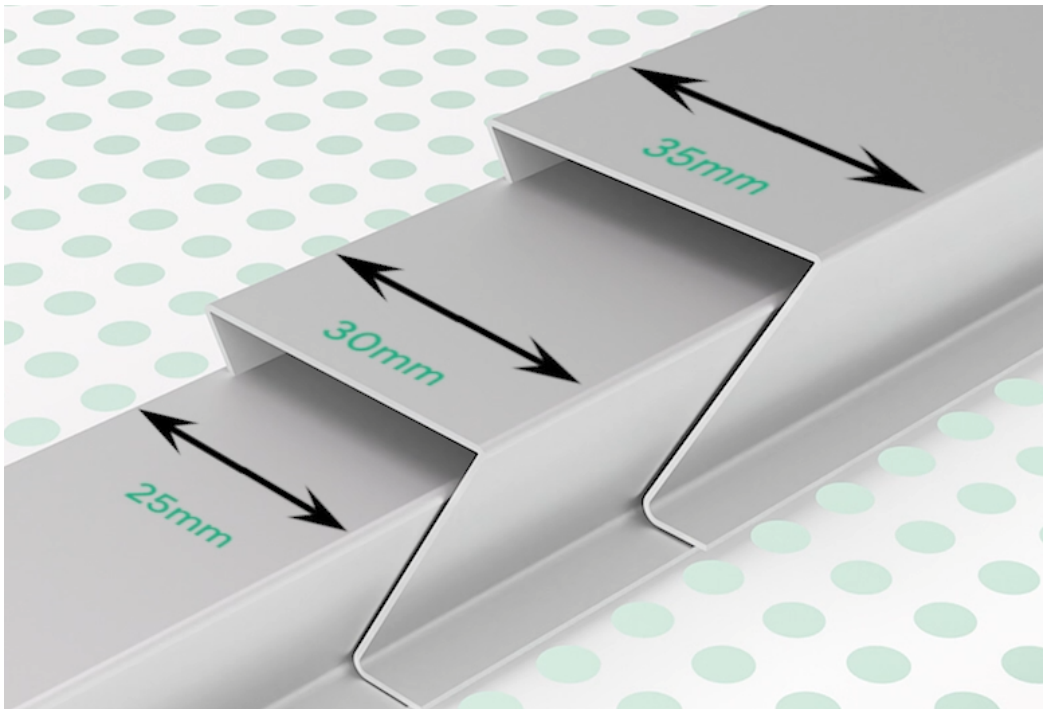
CS10 and CM20 are compatible with detachable ceiling panels. Common ceiling panel frames include T-bar frames and triangular frames. You can confirm your frame structure based on the diagram below.

**T-bar:** If you choose to use bracing bridges to assist in fixing, the adaptable slot heights for the T-bar frame are 22, 24, 32, and 38 mm.





**Triangular frame:** The adjustable bracket can be fixed to the frame with screws, and the adaptable slot widths are 25, 30, and 35 mm.



Your ceiling may have a framework of a different shape. You can decide whether to use a retractable bracket based on your actual situation. If you want to learn more, you can consult [Yealink technical support](#).

### Ceiling Panel Classification

Common ceiling panel materials: gypsum board, metal panels, composite materials, wood, etc.

Generally, the load-bearing capacity of metal panels is stronger than gypsum and PVC panels.

The weight-bearing capacity varies for different materials, and the specific load capacity is also affected by the thickness of the suspended ceiling panel. please choose accessories based on the actual load-bearing capacity of your ceiling structure.

CS10 has a minimum load-bearing requirement of 4.7kg for the suspended ceiling panel.

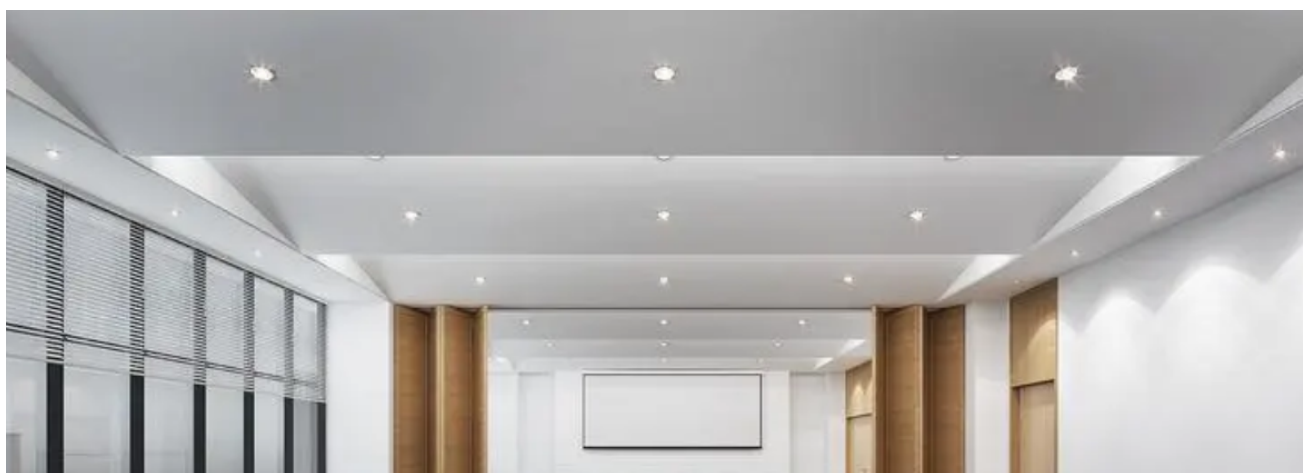
- If the load-bearing capacity of your ceiling is greater than 4.7kg, you can use the assembly fixing bracket to deploy device rather than the bracing bridge.
- If the load-bearing capacity of your ceiling panel is less than 4.7kg, but the load-bearing capacity of your ceiling frame is greater than 6.3kg, you need to use adjustable brackets to assist in securing the equipment.

CM20 has a minimum load-bearing requirement of 1.38kg for the suspended ceiling panel.

- If the load-bearing capacity of your ceiling is greater than 1.38kg, you can choose not to use the telescopic bracket and directly install the C-ring.
- If the load-bearing capacity of your ceiling panel is less than 1.38kg, but the load-bearing capacity of your ceiling frame is greater than 2.8kg, you need to use adjustable brackets to assist in securing the equipment.

## Integrated Ceiling

Integrated ceiling refers to a ceiling made of a single board or unit, without obvious seams or divisions. This type of ceiling usually presents a continuous, flat appearance, resembling a decorative panel that covers the entire ceiling.



There are two ways to install ProAudio equipment on integrated ceilings. You can choose to install it by punching holes like a removable ceiling, and the CM20 can be optionally suspended.

About the installation of integrated ceiling, there are several points you need to understand as much as possible before installation:

- If your meeting room is under renovation, it is recommended to reserve installation and maintenance holes for equipment during the renovation.
- If you need to make holes in the ceiling, please be sure to have it done by professional renovation workers.
- CS10 requires your ceiling to have a load-bearing capacity of no less than 4.7 kg.

## Package Contents

**CS10 packaging material**

**CM20 packaging material**

## CS10 packaging material

- CS10
- White magnetic mesh cover (Standard), black is optional: You can choose according to the style of your conference room.
- Assembly Fixing Bracket (Standard): Used to balance the pressure of the equipment on the ceiling panel, providing better sound performance
- Dust cover (Standard): Used to secure the network cable and prevent dust.
- 6 dust cover screws (Standard).
- Deployment Instruction Template (Standard): Used to assist in drilling holes in the ceiling
- Multilingual QSG (Standard): English, French, German, Spanish, Chinese
- Bracing Bridge (to be provided by user): Used to distribute the pressure of the ceiling board and transfer the pressure to the ceiling framework

## CM20 packaging material

- CM20
- White magnetic mesh cover (Standard), black is optional: You can choose according to the style of your conference room.
- Deployment Instruction Template (Standard): Used to assist in drilling holes in the ceiling
- Assembly Fixing Bracket (Standard): Used to balance the pressure of the equipment on the ceiling panel, providing better sound performance
- Bracing Bridge (Standard): Used to distribute the pressure of the ceiling board and transfer the pressure to the ceiling framework.
- Dust cover (Standard): Used for ceiling-mounted fixed equipment and dust prevention.
- 5 dust cover screws, 20 bracing bridge crews (Standard).
- Multilingual user manual (Standard): English, French, German, Spanish, Chinese.
- Suspend Pole Adapter + Length-Adjustable Pole (Optional): Used for hoisting.
- Suspension Rope Assembly (Optional).
- On-Ceiling Components (Optional).
- Expansion screws and nuts (Optional).

## Installation Instructions

Yealink ProAudio equipment installation requires a certain level of professionalism. You can choose to install it yourself or have professional installers do it for you. During the installation process, you need to pay attention to the following matters:

Item	Description
Items need to prepare	<ul style="list-style-type: none"><li>• A ladder.</li><li>• Electric screwdriver.</li><li>• Cat5e Ethernet cable (or better): Please arrange the Ethernet cable before starting the installation operation.</li><li>• Utility knife or other cutting tools for punching holes in the ceiling.</li><li>• Used to assist in fixing the compiled lines or other wires (can be selected according to the actual situation).</li></ul>
Safety operation precautions	<p>Install with at least two people collaborating, and ensure the installation is done in a secure manner as much as possible.</p> <ul style="list-style-type: none"><li>• Ceiling drilling may result in dust and debris, please protect your eyes.</li><li>• Please wear protective gear when using tools.</li><li>• The device does not automatically tighten or fix itself, so please support the device until you tighten the screws to avoid it falling off.</li></ul>

Item	Description
	CS10 ceiling deployment, in order to obtain a better meeting experience, it is best for your meeting room to meet the following conditions.
Deployment Best Practices	<ul style="list-style-type: none"> <li>The recommended height from the ceiling is 2.7 to 4 meters, and it is best to keep the equipment at this height range-</li> <li>The normal sitting posture for a meeting is best when the distance from the ear to the ground is around 1.2m, and the standing height from the ground is best between 1.5 to 1.8 meters.</li> </ul>

## Deploy CM20

### Method 1: In-Ceiling Deployment without Bracing Bridge

#### Introduction

This installation method is suitable for removable ceiling structures. Generally, such ceilings consist of a framework and ceiling panels. In this situation, you can use the assembly fixing bracket to deploy CM20.

#### Precautions before Installation

Before installation, there are some important points you need to know about the installation process, so that you can better adapt to your ceiling.

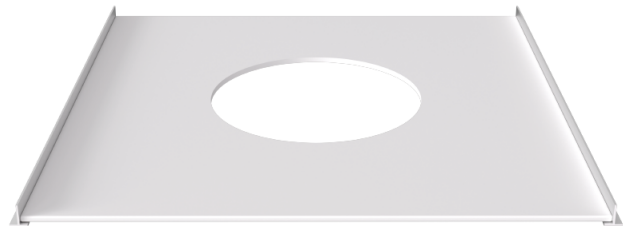
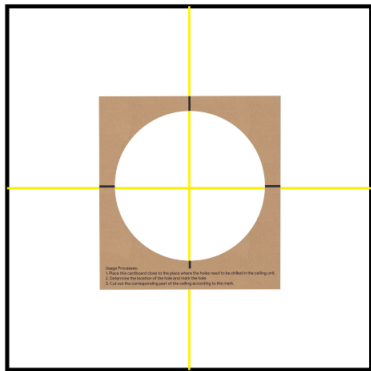
Item	Description
Ceiling Installation Guidelines	<p>If your ceiling meets the following requirements, you can use the assembly fixing bracket to deploy devices:</p> <ul style="list-style-type: none"> <li><a href="#">Removable ceiling panel</a>.</li> <li>The ceiling thickness should not exceed 3.5 cm.</li> <li>Your ceiling's load-bearing capacity needs to be greater than 1.38 kg.</li> </ul>
Installation location recommendation	<ul style="list-style-type: none"> <li>Installation position: It is recommended to use the Yealink deployment tool.</li> <li>Installation height: Refer to the <a href="#">Yealink Microphone Coverage Area</a> to determine the installation height.</li> </ul>
Security operation recommendations	<p>The installation of CM20 requires a certain level of professional expertise, so it is recommended to entrust the operation to professional installation workers as much as possible.</p> <p>If you choose to install it yourself, make sure that you have someone assist you.</p>
Preparation before installation	<ul style="list-style-type: none"> <li>Professional ceiling installation tools, including but not limited to ladders, power screwdrivers, etc. (to be provided by user).</li> <li>CM20 (Φ223.6 × H83.0 mm /Φ8.803 × H3.267 in, 0.615 kg).</li> <li>Assembly Fixing Bracket (Standard): Used to balance the pressure of the equipment on the ceiling panel.</li> <li>Deployment Instruction Template (Standard).</li> <li>Allocate a network port in the ceiling for connecting the CM20; ensure that the network cable is Cat5e or higher.</li> <li>Magnetic suction net cover (default white, black optional).</li> <li>Installation instructions.</li> </ul>



## Installation Steps

### 1. Drill holes in the ceiling.

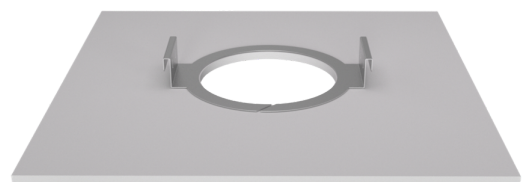
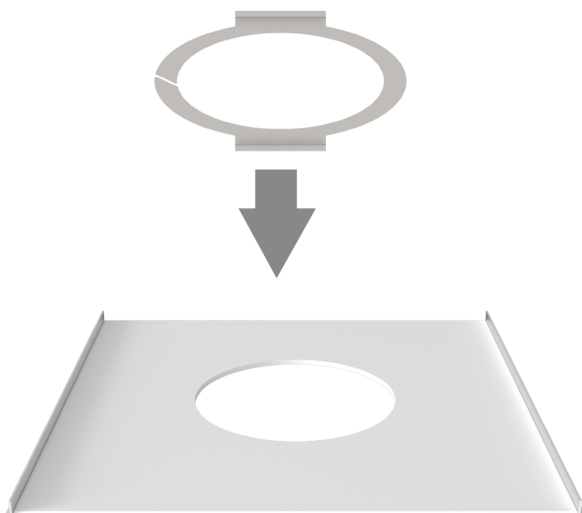
- ① Find the cardboard for auxiliary punching in the product packaging.
- ② Use a marker to draw guide lines on the back of the ceiling panel (taking gypsum board as an example, the operation steps will not change for other materials). The guide lines should be drawn from the midpoint of the length and width of the gypsum board, connecting to form a cross.
- ③ Align the guidelines on the cardboard with the guidelines on the plasterboard.
- ④ Drill holes in the ceiling.



#### NOTE

1. When drilling holes, please make sure that you do a good job of safety protection, or have a professional operate.
2. Please note that the method shown below is a recommended installation method. You can perform the installation actions according to your actual situation, ensuring that the final installation is stable and secure. The specific process does not have strict sequential restrictions.

### 2. Put the assembly fixing bracket on the back of the ceiling panel.



### 3. Put the ceiling panel with the holes back in place.

#### TIP

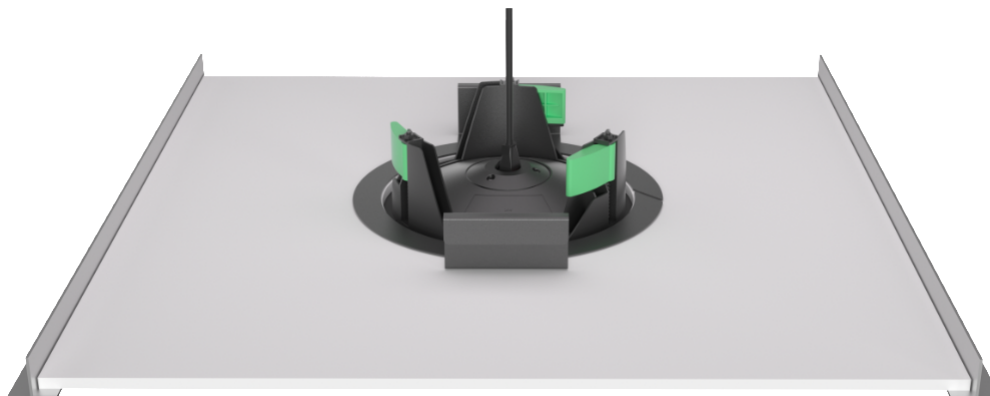
The assembly fixing bracket needs to be placed on the back of the ceiling panel to serve as a pressure distribution. Therefore, you need to put the ceiling panel and assembly fixing bracket back in place at the same time.

4. Extend the network cable from the pre-drilled hole in the suspended ceiling panel, connect the cable to the CM20 network port, and install the dust cover (CM20 has not been pushed into the ceiling yet).

**TIP**

The device needs to be powered by PoE+.

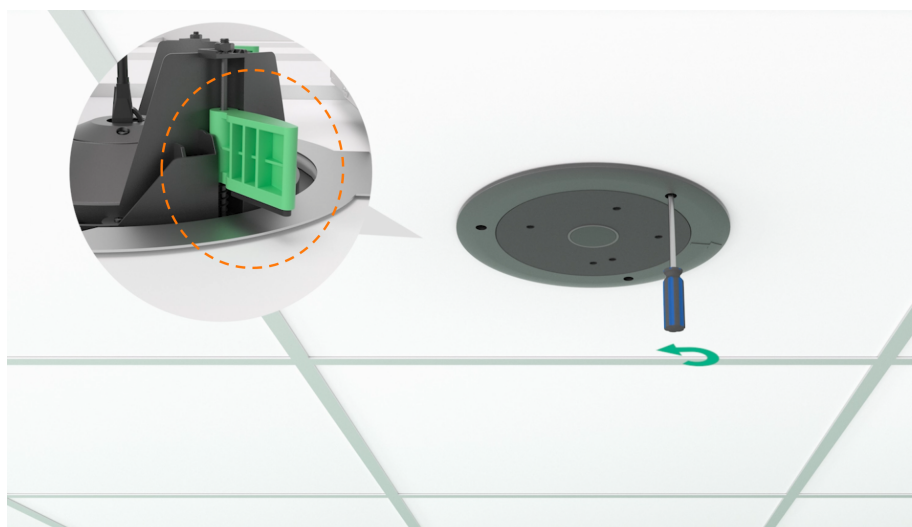
5. Push CM20 into the hole.

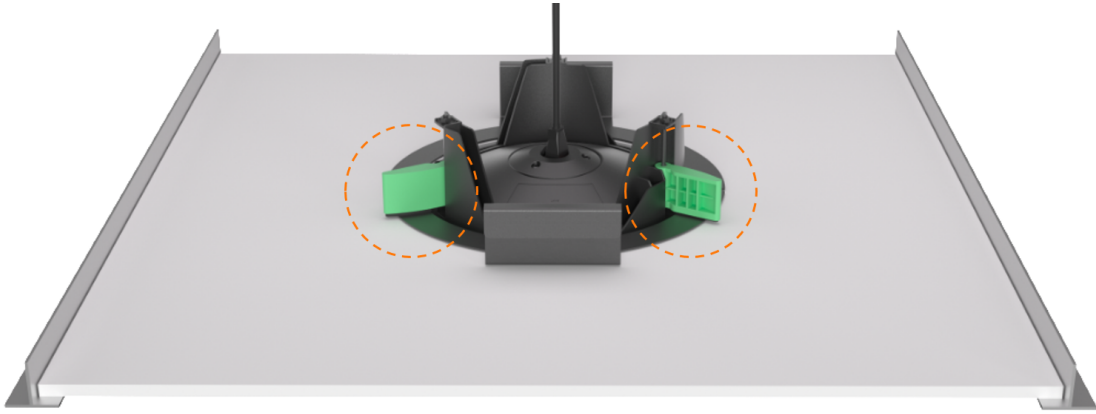


**CAUTION**

Please ensure there is someone nearby to assist during installation as pushing the device in will not automatically lock it in place. Please keep it lifted to prevent the device from falling.

6. Use a screwdriver to rotate the front screw, causing the support arm to open and lower until the support arm is flush with the ring on the support frame.





**NOTE**

Do not overtighten the screws. Make sure the support foot fits snugly with the ring.

- 7. Attach the white magnetic mesh cover (optional black mesh cover available).



## Method 2: In-Ceiling Deployment with Bracing Bridge

### Introduction

This installation method is suitable for removable ceiling structures. Generally, such ceilings consist of a framework and ceiling panels. In this situation, it requires the use of bracing bridge to assist in securing the equipment.

### Precautions before Installation

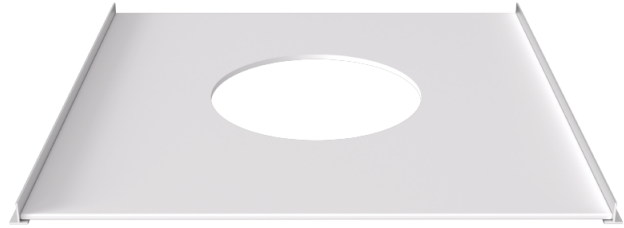
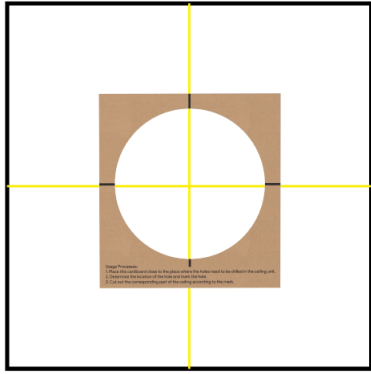
Before installation, there are some important points you need to know about the installation process, so that you can better adapt to your ceiling.

Item	Description
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Item	Description
Ceiling Installation Guidelines	<p>If your ceiling meets the following requirements, you can use the bracing bridge to deploy devices:</p> <ul style="list-style-type: none"> <li>• <a href="#">Removable ceiling panel</a>.</li> <li>• The ceiling thickness should not exceed 3.5 cm.</li> <li>• The ceiling load capacity is less than or equal to 1.38 kg, and the ceiling frame load capacity is greater than 2.8 kg.</li> <li>• The bracing bridges default to supporting two specifications: 400-438 mm and 600-638 mm. Make sure that the width of the ceiling frame is compatible.</li> <li>• The T-shaped ceiling framework can accommodate slot heights of 22mm, 24mm, 32mm, and 38mm.</li> <li>• The triangular keel models are 90-sided, 100-sided, and 120-sided; with upper edge dimensions of 25mm, 30mm, and 35mm.</li> </ul>
Installation location recommendation	<ul style="list-style-type: none"> <li>• Installation position: It is recommended to use the Yealink deployment tool.</li> <li>• Installation height: Refer to the <a href="#">Yealink Microphone Coverage Area</a> to determine the installation height.</li> </ul>
Security operation recommendations	<p>The installation of CM20 requires a certain level of professional expertise, so it is recommended to entrust the operation to professional installation workers as much as possible.</p> <p>If you choose to install it yourself, make sure that you have someone assist you.</p>
Preparation before installation	<ul style="list-style-type: none"> <li>• Professional ceiling installation tools, including but not limited to ladders, power screwdrivers, etc. (to be provided by user).</li> <li>• CM20 (Φ223.6 × H83.0 mm /Φ8.803 × H3.267 in, 0.615 kg).</li> <li>• Scalable bracket (Optional) + C-ring.</li> <li>• Deployment Instruction Template (Standard).</li> <li>• Ceiling reserved network interface for connecting CM20, Cat5e or higher specification network cable.</li> <li>• Magnetic suction net cover (default white, black optional).</li> <li>• Installation instructions.</li> <li>• Safety rope (to be provided by user).</li> </ul>

## Installation Steps

1. Drill holes in the ceiling.
  - ① Find the cardboard for auxiliary punching in the product packaging.
  - ② Use a marker to draw guide lines on the back of the ceiling panel (taking gypsum board as an example, the operation steps will not change for other materials). The guide lines should be drawn at the key points of the length and width of the gypsum board and connected to form a cross.
  - ③ Align the guidelines on the cardboard with the guidelines on the plasterboard.
  - ④ Drill holes in the ceiling.

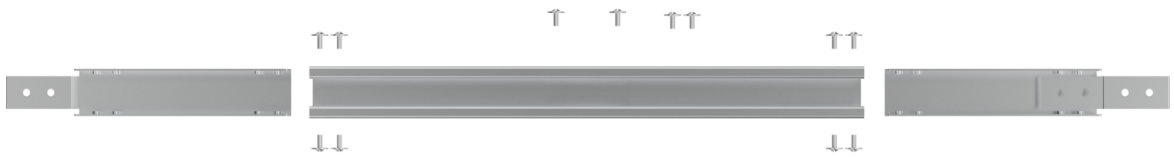


## NOTE

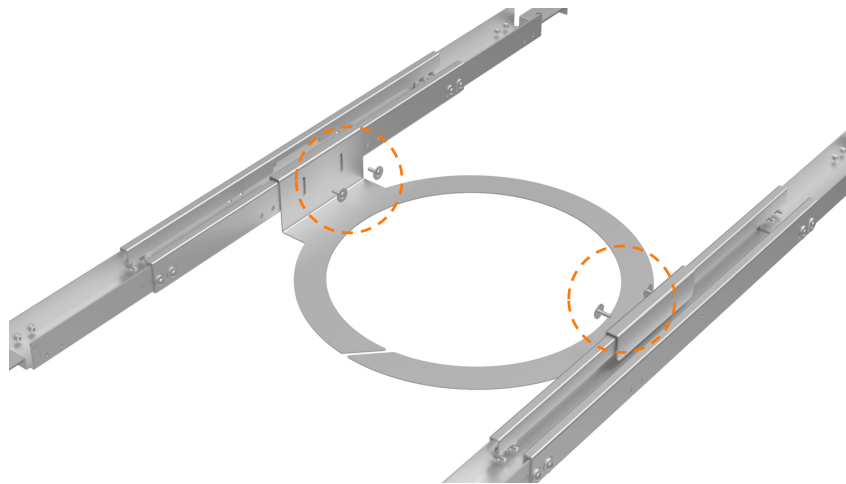
1. When drilling holes, please make sure that you do a good job of safety protection, or have a professional operate.
2. Please note that the method shown below is a recommended installation method. You can perform the installation actions according to your actual situation, ensuring that the final installation is stable and secure. The specific process does not have strict sequential restrictions.

### 2. Assemble the adjustable ceiling support bracket.

- You can assemble the bracket according to the specific size of your ceiling. The normal size of the ceiling is 400 x 400 mm or 600 x 600 mm. The following is a diagram of the composition of the bracing bridge:

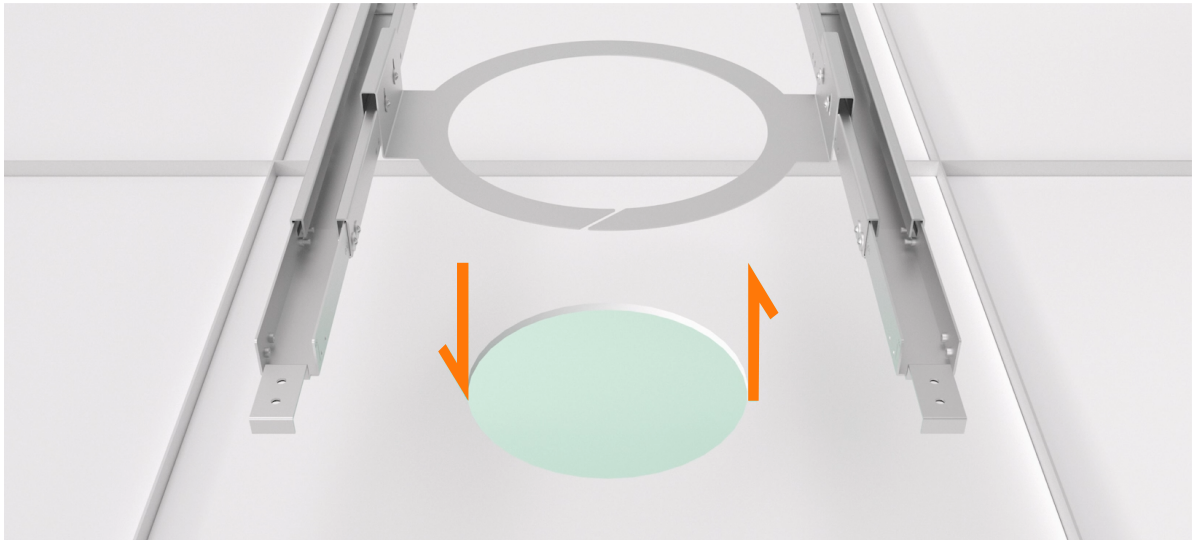


- Assemble the assembly fixing bracket and the bracing bridges as shown in the diagram below:



### 3. Push the bracing bridges and ceiling panel into the ceiling.

- If your ceiling panel is removable, you can directly remove the corresponding panel for drilling, and then install the assembly fixing bracket together with the ceiling panel into the ceiling, ensuring alignment with the hole.



- If your ceiling load capacity exceeds 1.38 kg and is removable, you can choose [Method 1](#Method 1: In-Ceiling Installation without Bracing Bridge)) for installation.
- If your ceiling panel cannot be removed (bearing capacity greater than 1.38kg), you need to drill holes in the ceiling and screw the assembly fixing bracket into the ceiling.

#### TIP

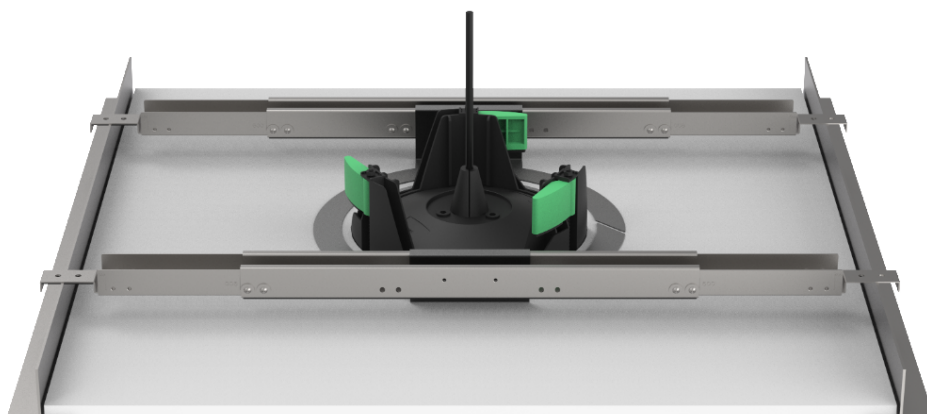
1. You can choose to reposition the ceiling panel diagonally since the bracing bridges are not fixed, allowing temporary lifting.
2. Ensure to align the assembly fixing bracket with the hole to avoid affecting the installation effect.
3. This bracing bridge is compatible with common T-bar and triangular ceiling grids. To distinguish your ceiling grid, refer to [Notice on ceiling related content](#).
4. If your ceiling uses triangular keel, please do not tighten the screws that connect the expandable bracket to the ceiling after putting it into the ceiling, so as to avoid being unable to install the ceiling panels and adjust the equipment later.

4. Plug the network cable into the CM20 network port (CM20 has not yet been pushed into the ceiling).

#### TIP

The device needs to be powered by PoE+.

5. Push CM20 into the hole.

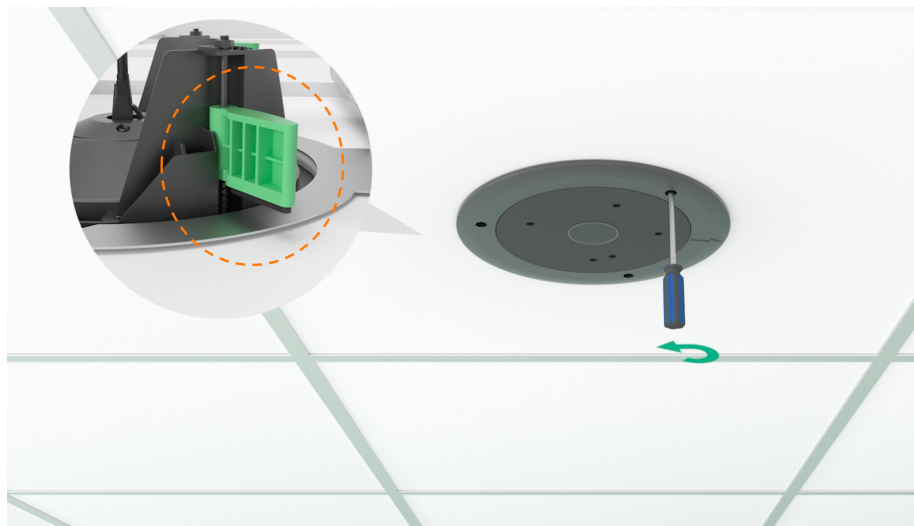




### CAUTION

Please ensure there is someone nearby to assist during installation as pushing the device in will not automatically lock it in place. Please keep it lifted to prevent the device from falling.

6. Use a screwdriver to rotate the front screw, causing the support arm to open and lower until the support arm is flush with the ring on the support frame.



### NOTE

Do not overtighten the screws. Make sure the support foot fits snugly with the ring.

7. Attach the white magnetic mesh cover (optional black mesh cover available).





## Method 3: Deployment with Suspension Rope

### Introduction

You can deploy CM20 with the suspension rope.

### Precautions before Installation

Before installation, there are some important points you need to know about the installation process, so that you can better adapt to your ceiling.

Item	Description
Ceiling Installation Guidelines	<p>This installation method is suitable for removable ceilings and integrated ceilings, and requires drilling into your ceiling.</p> <ul style="list-style-type: none"><li>• <a href="#">Integrated non-removable ceiling structures</a>.</li><li>• This installation method requires the use of expansion screws for additional fixation, which are included in the package.</li><li>• Your ceiling's load-bearing capacity should be less than 1 kg.</li></ul>
Installation location recommendation	<ul style="list-style-type: none"><li>• Installation position: It is recommended to use the Yealink deployment tool.</li><li>• Installation height: Refer to the <a href="#">Yealink Microphone Coverage Area</a> to determine the installation height.</li></ul>
Security operation recommendations	<p>The installation of CM20 requires a certain level of professional expertise, so it is recommended to entrust the operation to professional installation workers as much as possible.</p> <p>If you choose to install it yourself, make sure that you have someone assist you.</p>

Item	Description
Preparation before installation	<ul style="list-style-type: none"> <li>Professional ceiling installation tools, including but not limited to ladders, power screwdrivers, etc. (to be provided by user).</li> <li>CM20 (Φ223.6 × H83.0 mm / Φ8.803 × H3.267 in, 0.615 kg).</li> <li>Suspension Rope Assembly (Optional).</li> <li>Deployment Instruction Template (Standard).</li> <li>Dust cover (standard configuration).</li> <li>Ceiling reserved network interface for connecting CM20, Cat5e or higher specification network cable.</li> <li>Magnetic suction net cover (default white, black optional).</li> <li>Installation instructions.</li> <li>Expansion screws and nuts (Optional).</li> </ul>

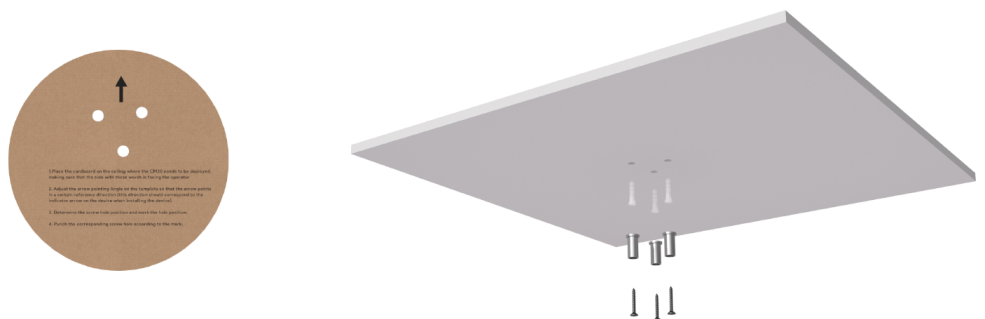
## Installation Steps

1. Use the deployment instruction template, drill holes at the appropriate locations and insert expansion nuts.

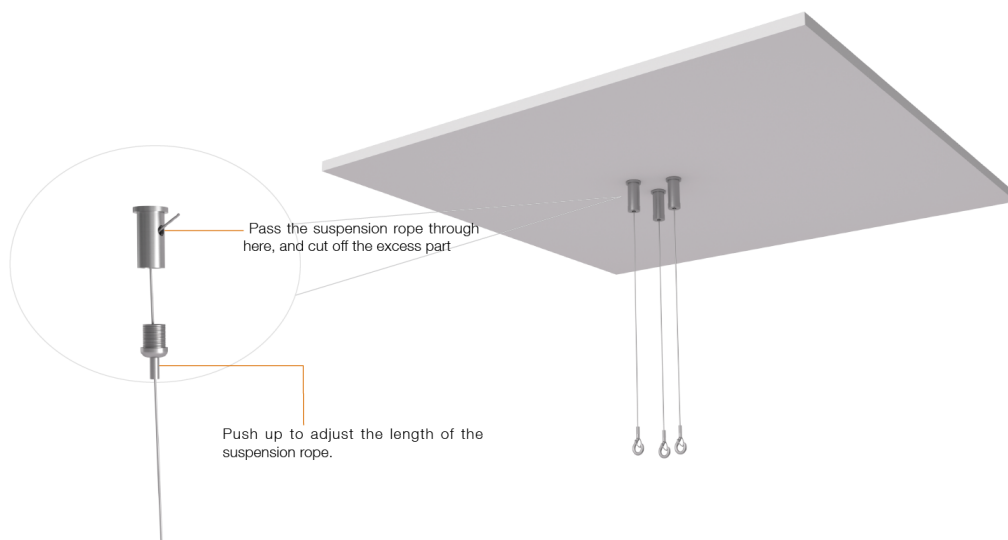
### TIP

Ensure that the arrows on the deployment instruction template are facing towards the front of the conference room.

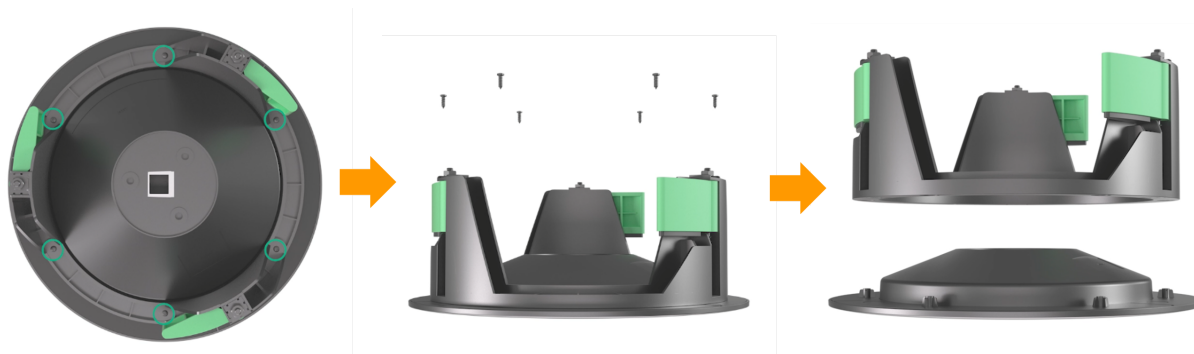
2. Use expansion screws to fix the wire lock to the expansion nut.



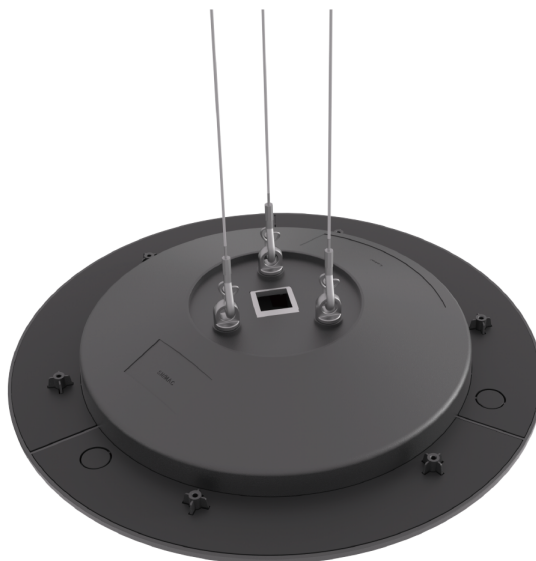
3. Thread the suspension rope through the wire lock and tighten the wire lock to the appropriate length.



4. Remove the bracket above the CM20.



5. Secure the copper pillar to the CM20 and hang the copper pillar on the hook of the suspension rope.



6. Plug the network cable into the CM20 network port.

7. Attach the white magnetic mesh cover (optional black mesh cover available).

## Method 4: Deployment with On-ceiling Accessories

### Introduction

You can deploy CM20 on the ceiling with on-ceiling accessories.

### Precautions before Installation

Before installation, there are some important points you need to know about the installation process, so that you can better adapt to your ceiling.

Item	Description
Ceiling Installation Guidelines	<p>This installation method is suitable for removable ceilings and integrated ceilings, and requires drilling into your ceiling.</p> <ul style="list-style-type: none"><li>• <a href="#">Integrated non-removable ceiling structures.</a></li><li>• This installation method requires the use of expansion screws for additional fixation, which are included in the package.</li><li>• Your ceiling's load-bearing capacity should be less than 1 kg.</li></ul>

Item	Description
Installation location recommendation	<ul style="list-style-type: none"> <li>• Installation position: It is recommended to use the Yealink deployment tool.</li> <li>• Installation height: Refer to the <a href="#">Yealink Microphone Coverage Area</a> to determine the installation height.</li> </ul>
Security operation recommendations	<p>The installation of CM20 requires a certain level of professional expertise, so it is recommended to entrust the operation to professional installation workers as much as possible.</p> <p>If you choose to install it yourself, make sure that you have someone assist you.</p>
Preparation before installation	<ul style="list-style-type: none"> <li>• Professional ceiling installation tools, including but not limited to ladders, power screwdrivers, etc. (to be provided by user).</li> <li>• CM20 (<math>\Phi 223.6 \times H 83.0</math> mm / <math>\Phi 8.803 \times H 3.267</math> in, 0.615 kg).</li> <li>• On-ceiling Accessories (Optional): white mounting ring and black mounting base.</li> <li>• Dust cover (standard configuration).</li> <li>• Ceiling reserved network interface for connecting CM20, Cat5e or higher specification network cable.</li> <li>• Magnetic suction net cover (default white, black optional).</li> <li>• Installation instructions.</li> </ul>

## Installation Steps

1. Use the black mounting base to draw holes, drill holes, and insert expansion nuts.

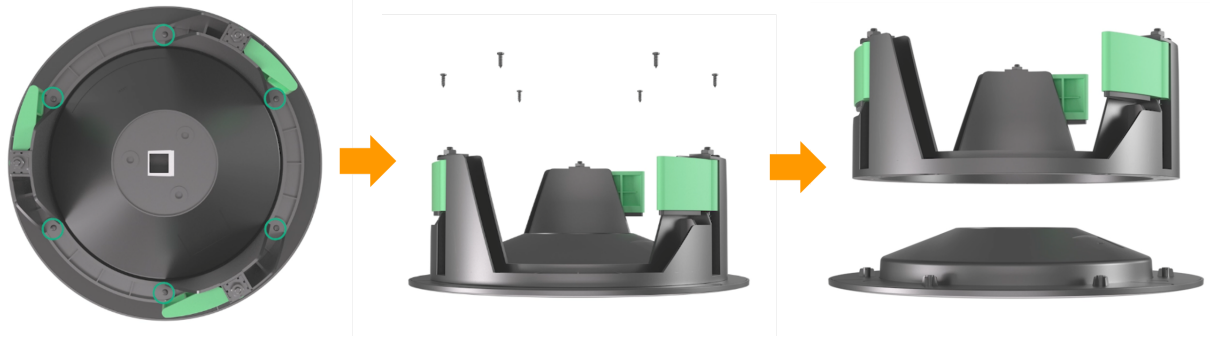
### TIP

If there is a pre-existing network cable on the ceiling, you still need to drill a hole for the network cable (the middle hole of the black mounting base).

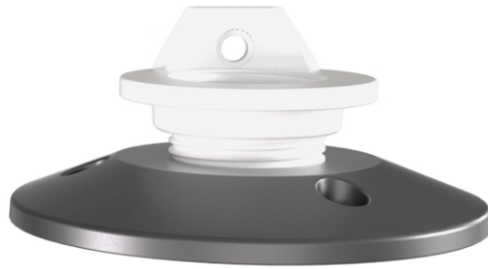
2. Thread the network cable through the middle hole of the black mounting base and install the mounting base on the ceiling using expansion screws.



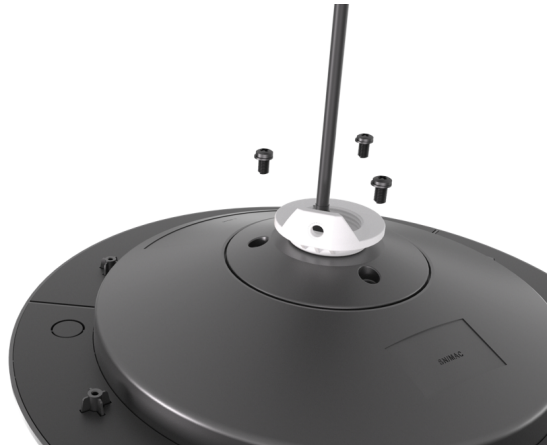
3. Remove the bracket above the CM20.



4. Rotate the white mounting ring to fasten it to the dust cover.



5. Plug the network cable into the CM20 network port and tighten dust cover to CM20 with screws.



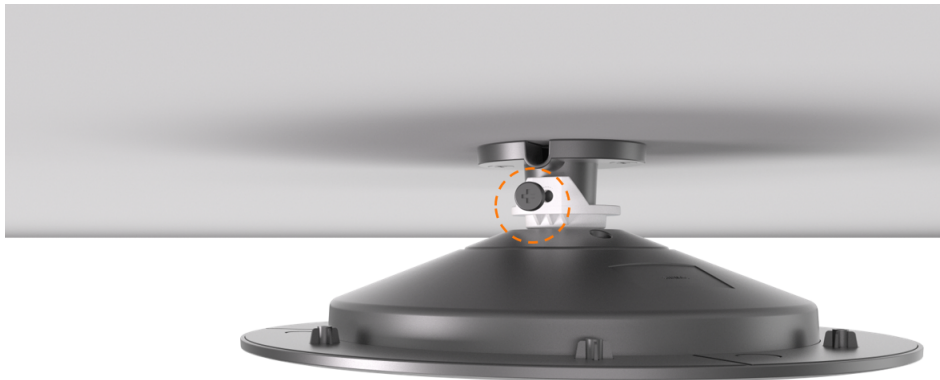
6. Tighten the white mounting ring onto the black mounting base.



7. You can adjust the direction of the CM20 to 0 degrees by twisting the middle adapter bracket.



8. After adjustment, use screws to secure the connection to ensure the CM20's optimal sound pickup performance.



9. Attach the white magnetic mesh cover (optional black mesh cover available).

## Method 5: Deployment with Length-Adjustable Pole

### Introduction

CM20 supports ceiling installation, you can choose the appropriate installation method according to your actual situation.

### Precautions before Installation

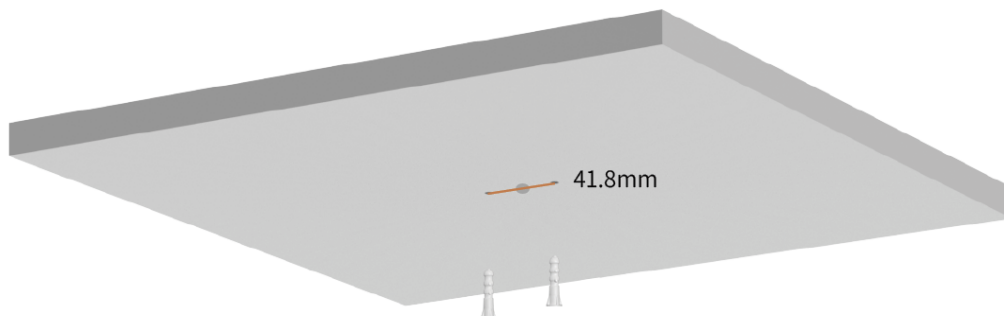
Before installation, there are some important points you need to know about the installation process, so that you can better adapt to your ceiling.

Item	Description
Ceiling Installation Guidelines	<p>This installation method is suitable to removable ceilings and integrated ceilings, and requires drilling into your ceiling.</p> <ul style="list-style-type: none"> <li>• <a href="#">Integrated non-removable ceiling structures.</a></li> <li>• This installation method requires the use of expansion screws for additional fixation, which are included in the package.</li> <li>• Your ceiling's load-bearing capacity should be less than 1 kg.</li> </ul>
Installation location recommendation	<ul style="list-style-type: none"> <li>• Installation position: It is recommended to use the Yealink deployment tool.</li> <li>• Installation height: Refer to the <a href="#">Yealink Microphone Coverage Area</a> to determine the installation height.</li> </ul>

Item	Description
Security operation recommendations	The installation of CM20 requires a certain level of professional expertise, so it is recommended to entrust the operation to professional installation workers as much as possible. If you choose to install it yourself, make sure that you have someone assist you.
Preparation before installation	<ul style="list-style-type: none"> <li>Professional ceiling installation tools, including but not limited to ladders, power screwdrivers, etc. (to be provided by user).</li> <li>CM20 (<math>\Phi 223.6 \times H 83.0</math> mm / <math>\Phi 8.803 \times H 3.267</math> in, 0.615 kg).</li> <li>Length-Adjustable Pole + Suspend Pole Adapter (Optional).</li> <li>Dust cover (standard configuration).</li> <li>Ceiling reserved network interface for connecting CM20, Cat5e or higher specification network cable.</li> <li>Magnetic suction net cover (default white, black optional).</li> <li>Installation instructions.</li> </ul>

## Installation Steps

- Drill holes in the ceiling.
  - Locate the suspension rod mounting bracket in the product packaging.
  - According to the position of the suspension rod bracket, make auxiliary marks on the ceiling. You need to mark two screw holes (diameter x length) and one network cable hole (no specific thickness requirement, as long as the cable can pass smoothly).
  - Drill holes in the ceiling.

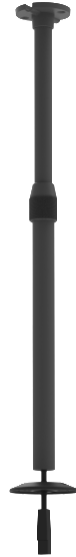


- Assemble the length-adjustable pole. Assemble the hanger bracket, inner hanger, outer hanger, and dust cover into a single unit according to the structure.

### NOTE

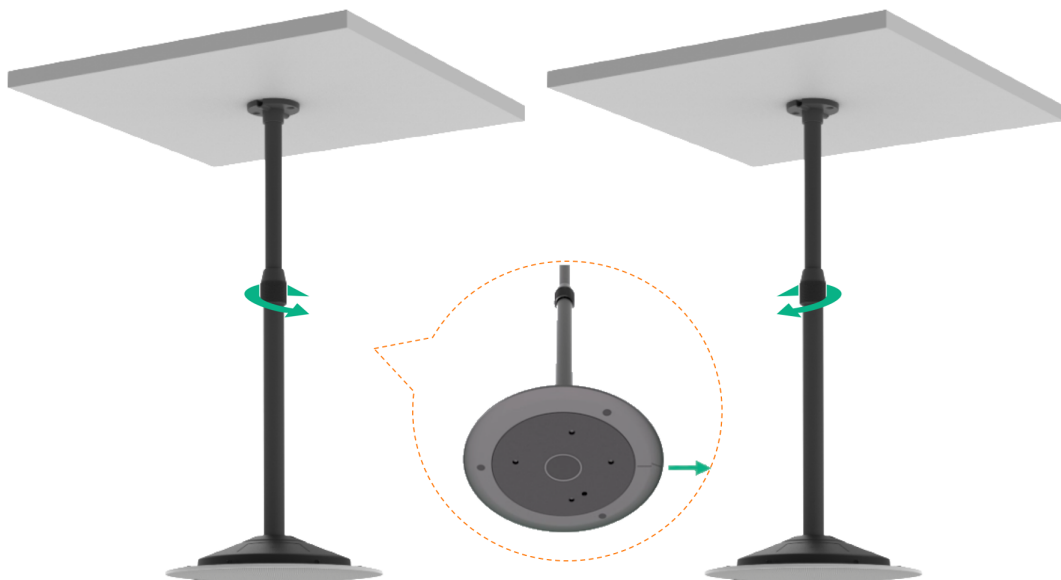
Assembling the suspension rod first can prevent the network cable from twisting when installing the CM20 main body. If you fix the dust cover and CM20 together first, then installing them on the suspension rod will cause the network cable to twist.





3. Thread the network cable through the middle of the length-adjustable pole, then use self-tapping screws to secure the assembled length-adjustable pole to the newly drilled holes in the ceiling.
4. Remove the bracket above the CM20.  

5. Plug the network cable into the CM20 network port.
6. Fasten the CM20 and length-adjustable pole together through the screw holes on the dust cover.
7. Attach the white magnetic mesh cover (optional black mesh cover available).
8. Loosen the tightening knob in the middle of length-adjustable pole counterclockwise and adjust the orientation of CM20 to 0 degrees, thus achieving optimal pickup status for CM20. Once the adjustment is done, tighten the tightening knob in the middle of length-adjustable pole clockwise.



# Deploy CS10

## Method 1: Use the Bracing Bridge

### Introduction

This installation method is suitable for removable ceiling structures. Generally, such ceilings consist of a framework and ceiling panels. This article mainly introduces the installation method using adjustable brackets.

### Precautions before Installation

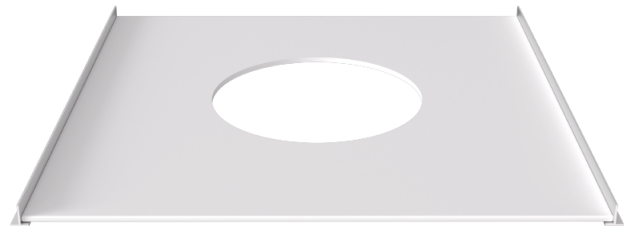
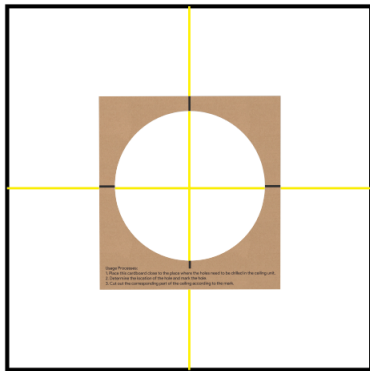
Before installation, there are some important points you need to know about the installation process, so that you can better adapt to your ceiling.

Item	Description
Ceiling Installation Guidelines	<p>If your ceiling meets the following requirements, you can use the bracing bridge to deploy devices:</p> <ul style="list-style-type: none"><li>• <a href="#">Removable ceiling panel</a>.</li><li>• The ceiling load capacity is less than or equal to 4.7 kg, and the ceiling frame load capacity is greater than 6.3 kg.</li><li>• The ceiling thickness should not exceed 3.5 cm.</li><li>• The bracing bridges default to supporting two specifications: 400-438 mm and 600-638 mm. Make sure that the width of the ceiling frame is compatible.</li><li>• The T-shaped ceiling framework can accommodate slot heights of 22mm, 24mm, 32mm, and 38mm.</li><li>• The triangular keel models are 90-sided, 100-sided, and 120-sided; with upper edge dimensions of 25mm, 30mm, and 35mm.</li></ul>
Installation location recommendation	<ul style="list-style-type: none"><li>• Installation position: It is recommended to use the Yealink deployment tool.</li><li>• Installation height: Refer to the <a href="#">Yealink Ceiling Speaker Coverage Area</a> to determine the installation height.</li></ul>
Security operation recommendations	<p>The installation of CS10 requires a certain level of professional expertise, so it is recommended to entrust the operation to professional installation workers as much as possible.</p> <p>If you choose to install it yourself, make sure that you have someone assist you.</p>
Preparation before installation	<ul style="list-style-type: none"><li>• Professional ceiling installation tools, including but not limited to ladders, power screwdrivers, etc. (to be provided by user).</li><li>• CS10 (Φ294 × H125.8 mm /Φ11.574 × H4.952 in, 2.808 kg)</li><li>• Scalable bracket (Optional) + C-ring.</li><li>• Deployment Instruction Template (Standard).</li><li>• Allocate a network port in the ceiling for connecting the CS10; ensure that the network cable is Cat5e or higher.</li><li>• Magnetic suction net cover (default white, black optional).</li><li>• Installation instructions.</li><li>• Safety rope (to be provided by user).</li></ul>

## Installation Steps

### 1. Drill holes in the ceiling.

- ① Find the cardboard for auxiliary punching in the product packaging.
- ② Use a marker to draw guide lines on the back of the ceiling panel (taking gypsum board as an example, the operation steps will not change for other materials). The guide lines should be drawn at the key points of the length and width of the gypsum board and connected to form a cross.
- ③ Align the guidelines on the cardboard with the guidelines on the plasterboard.
- ④ Drill holes in the ceiling.

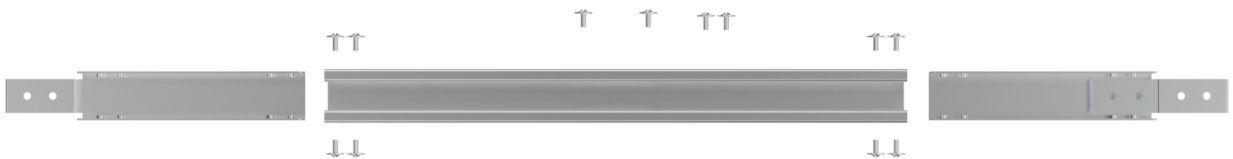


### NOTE

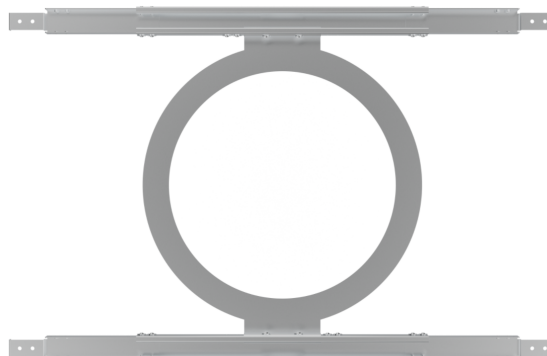
1. When drilling holes, please make sure that you do a good job of safety protection, or have a professional operate.
2. Please note that the method shown below is a recommended installation method. You can perform the installation actions according to your actual situation, ensuring that the final installation is stable and secure. The specific process does not have strict sequential restrictions.

### 2. Assemble the adjustable ceiling support bracket.

- ① You can assemble the bracket according to the specific size of your ceiling. The normal size of the ceiling is 400 x 400 mm or 600 x 600 mm. The following is a diagram of the composition of the bracing bridge.



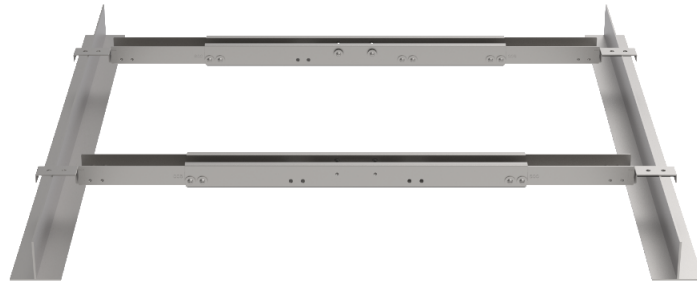
- ② Assemble the assembly fixing bracket and the bracing bridge as shown in the diagram below:



### 3. Mount the bracing bridge on the ceiling.

#### NOTE

1. This bracing bridge is compatible with common T-bar and triangular ceiling grids. To distinguish your ceiling grid, please refer to [Notice on ceiling related content](#).
2. If your ceiling uses triangular keel, please do not tighten the screws that connect the expandable bracket to the ceiling after putting it into the ceiling, so as to avoid being unable to install the ceiling panels and adjust the equipment later.



4. Put the ceiling panel back in place.

#### NOTE

- You can choose to reposition the ceiling panel diagonally since the bracing bridges are not fixed, allowing temporary lifting.
- Ensure to align the assembly fixing bracket with the hole to avoid affecting the installation effect.

5. Connect the network cable and cover it with the dust cover (CS10 has not been pushed into the ceiling yet).

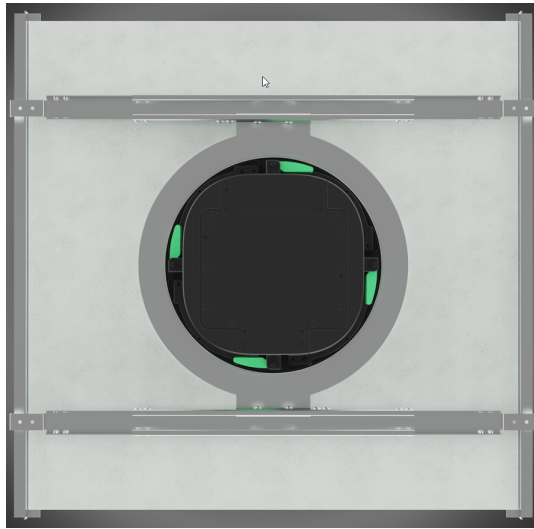
#### TIP

The device needs to be powered by PoE+.

6. Push CS10 into the slot.

#### CAUTION

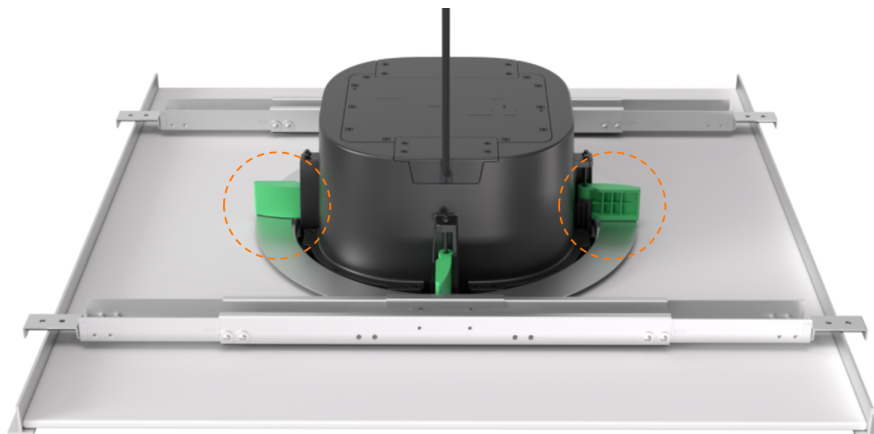
Please ensure there is someone nearby to assist during installation as pushing the device in will not automatically lock it in place. Please keep it lifted to prevent the device from falling.



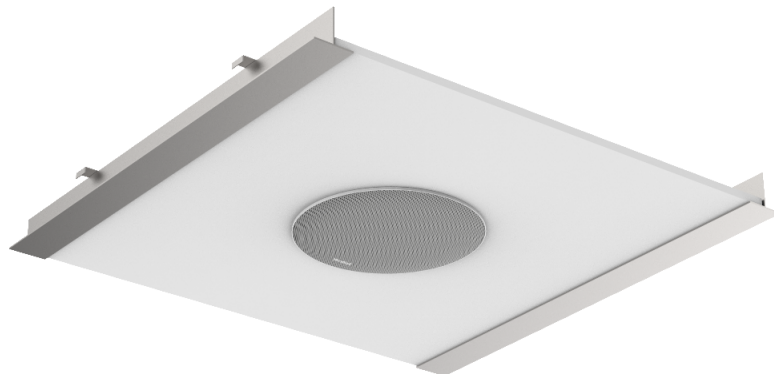
7. Use a screwdriver to rotate the screw on the front side, so that the support arm mechanism opens and lowers until the support arm's ring fits snugly with the support bracket.

**NOTE**

Do not overtighten the screws. Make sure the support foot fits snugly with the ring.



8. Attach the white mesh cover (optional black mesh cover available).



## Method 2: Deployment without Bracing Bridge

## Introduction

CS10 supports various types of ceiling installations. If your ceiling is an integrated and non-removable type, this document may be helpful to you.

## Precautions before Installation

Before installation, there are some important points you need to know about the installation process, so that CS10 can better adapt to your ceiling.

Item	Description
Ceiling Installation Guidelines	<p>If your ceiling meets the following requirements, you can use the assembly fixing bracket to deploy devices:</p> <ul style="list-style-type: none"><li>• <a href="#">Integrated and non-removable ceiling structures</a> or ceiling with a load capacity greater than 4.7kg per square meter.</li></ul> <p><b>Note:</b> Different materials have different load-bearing capacities for ceilings. Adjustments should be made according to the actual load-bearing capacity of the ceiling.</p> <ul style="list-style-type: none"><li>• The ceiling thickness should not exceed 3.5 cm.</li><li>• The distance between the top of your ceiling and the ceiling surface layer should be at least 25cm.</li><li>• If your ceiling is still under construction, you may consider reserving CS10 installation positions from the beginning.</li></ul>
Installation location recommendation	<ul style="list-style-type: none"><li>• Installation position: It is recommended to use the Yealink deployment tool.</li><li>• Installation height: Refer to the <a href="#">Yealink Ceiling Speaker Coverage Area</a> to determine the installation height.</li></ul>
Security operation recommendations	<p>The installation of CS10 requires a certain level of professional expertise, so it is recommended to entrust the operation to professional installation workers as much as possible.</p> <p>If you choose to install it yourself, make sure that you have someone assist you.</p>
Preparation before installation	<ul style="list-style-type: none"><li>• Professional ceiling installation tools, including but not limited to ladders, power screwdrivers, etc. (to be provided by user).</li><li>• CS10 (Φ294 × H125.8 mm /Φ11.574 × H4.952 in, 2.808 kg)</li><li>• C-ring (Standard configuration).</li><li>• Deployment Instruction Template (Standard).</li><li>• Ceiling reserved network cable interface for connecting CS10.</li><li>• Magnetic suction net cover (default white, black optional).</li><li>• Installation instructions.</li><li>• Safety rope (to be provided by user).</li></ul>

## Installation Steps

1. Drill holes in the ceiling.
  - ① Find the cardboard for auxiliary punching in the product packaging.
  - ② Use a marker to draw guide lines on the back of the ceiling panel (taking gypsum board as an example, the operation steps will not change for other materials). The guide lines should be drawn at the key points of the length and width of the gypsum board and connected to form a cross.

③ You can choose to mark the guidelines on your ceiling using the holes in the auxiliary punching cardboard, or you can choose to fix the cardboard to the ceiling for auxiliary punching.

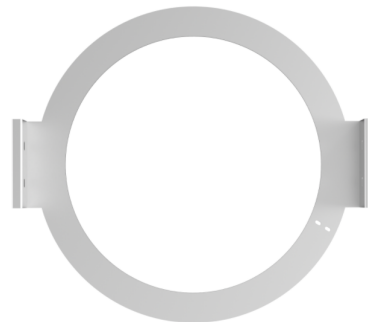


#### NOTE

1. When drilling holes, please make sure that you do a good job of safety protection, or have a professional operate.
2. Please note that the method shown below is a recommended installation method. You can perform the installation actions according to your actual situation, ensuring that the final installation is stable and secure. The specific process does not have strict sequential restrictions.

2. Install the assembly fixing bracket.

- If your ceiling panel is removable, you can directly remove the corresponding panel for drilling, and then install the assembly fixing bracket together with the ceiling panel into the ceiling, ensuring alignment with the hole.
- If your ceiling panel cannot be removed, you can locate the punched section of the C-ring, open the C-ring, so that you can screw the C-ring into the ceiling, or you can create a maintenance hole on the side of the installation hole to mount the C-ring to the ceiling.



3. Connect the network cable and cover it with the dust cover (CS10 has not been pushed into the ceiling yet).

#### TIP

The device needs to be powered by PoE+.

4. Push CS10 into the slot.

#### CAUTION

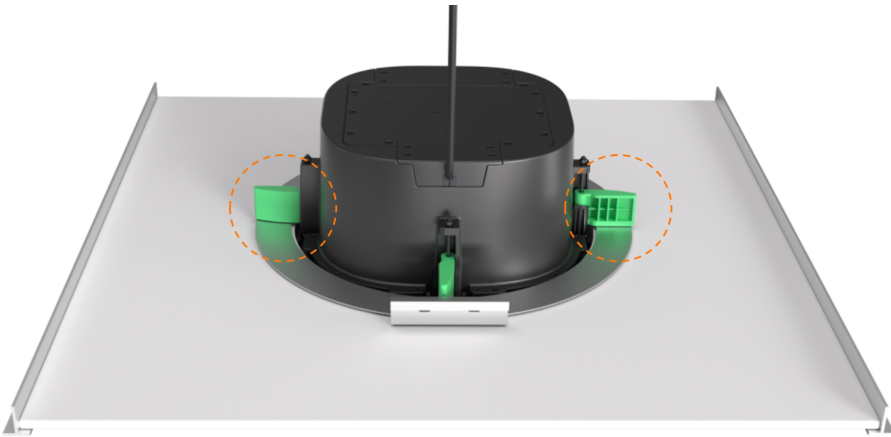
Please ensure there is someone nearby to assist during installation as pushing the device in will not automatically lock it in place. Please keep it lifted to prevent the device from falling.



5. Use a screwdriver to rotate the screw on the front side, so that the support arm mechanism opens and lowers until the support arm's ring fits snugly with the support bracket.

**NOTE**

Do not overtighten the screws. Make sure the support foot fits snugly with the ring.



6. Attach the white mesh cover (optional black mesh cover available).



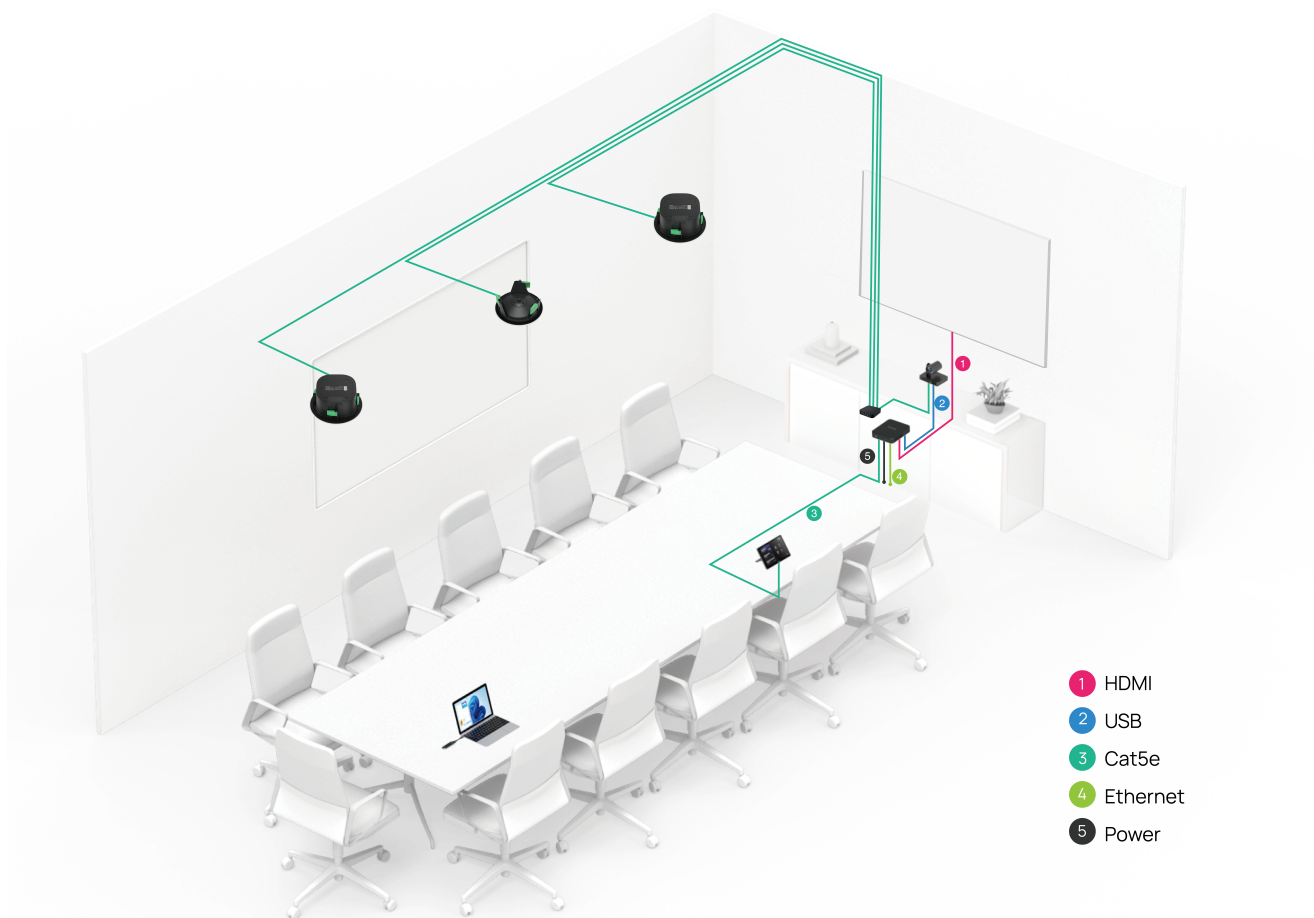
# Device Connection

You can connect the devices according to different conference room scenarios.

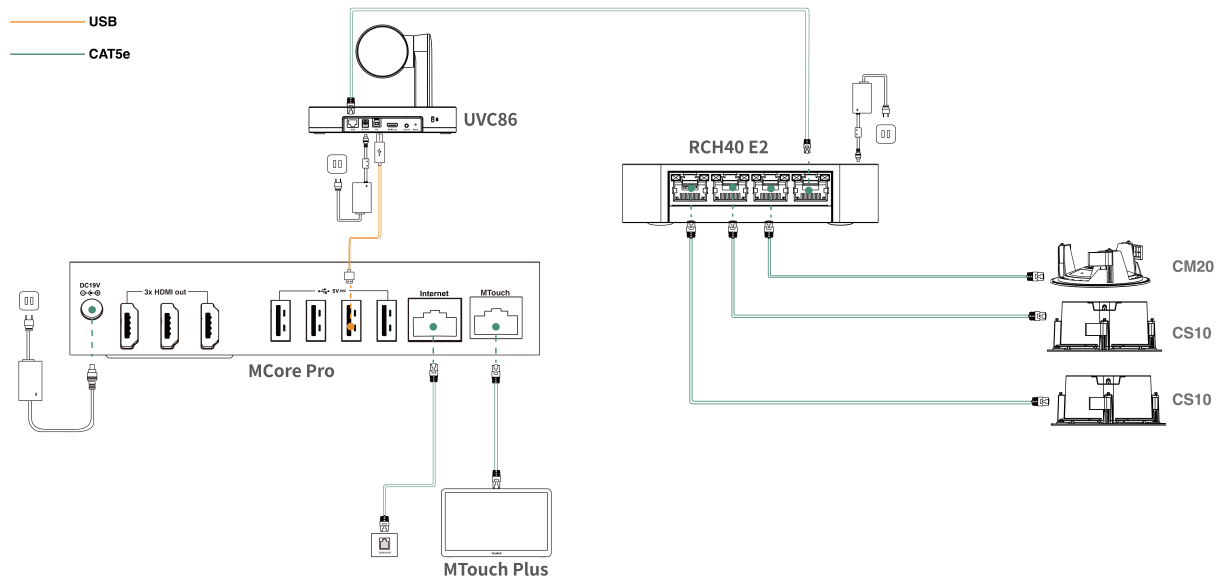
## Example of Medium-Large Meeting Room

### Meeting Room Scenario

- Room Dimensions: 5 × 8 m
- Ceiling Height: 2.7-3.3 m
- RT60 Value: 500-800 ms
- Noise Level: 42-48 dBA



### Device Connection



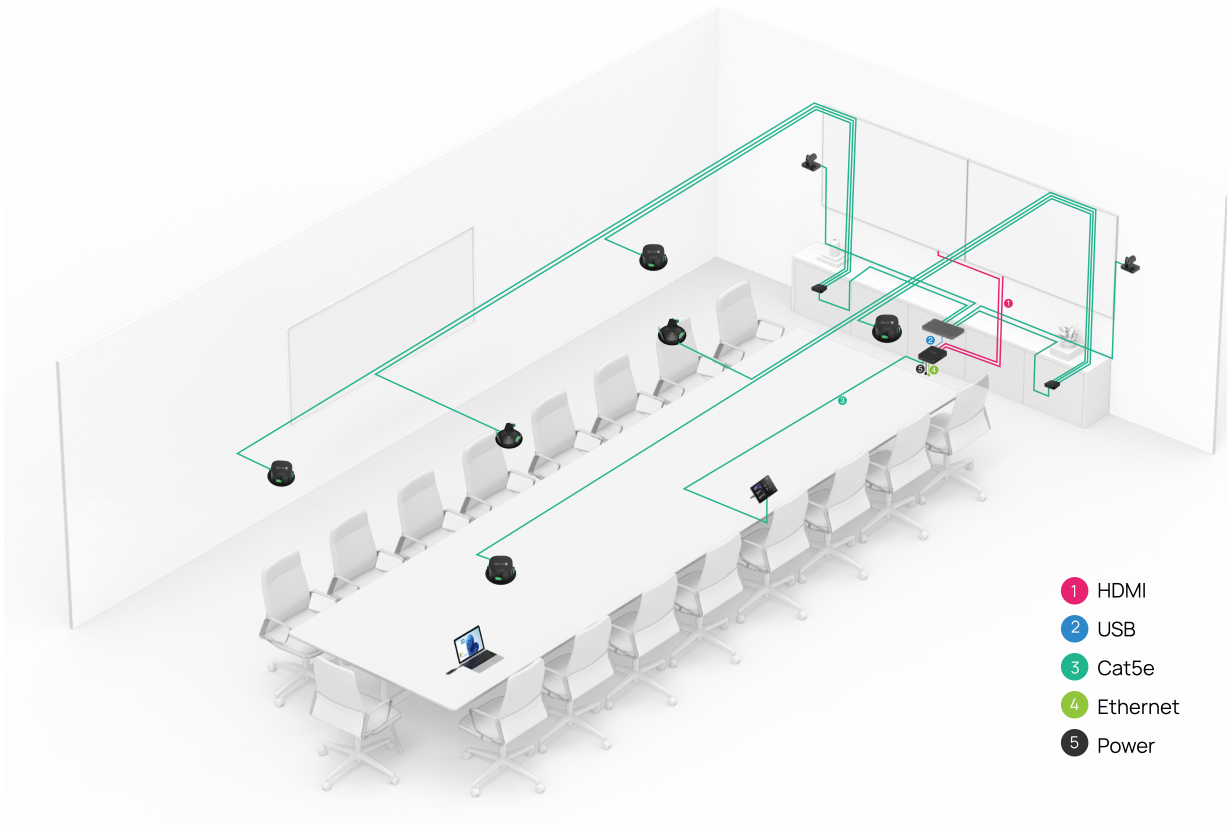
## Yealink Equipment List

Number	Product	Description
1	CM20	The Yealink CM20 is a premium ceiling microphone, expertly crafted to enhance audio performance in professional conference settings. Its 8 beams provide precise talker tracking .
2	CS10	The Yealink CS10, a low-profile 2-way coaxial network speaker, excels in video conferencing with its exceptional audio performance. CS10 blends high-quality audio with an elegant, minimalist design, making it a perfect match for contemporary meeting rooms.
1	RCH40 E2	RCH40 E2 is a compact and user-friendly meeting room switch introduced by Yealink. It features disabled EEE (Energy Efficient Ethernet) functionality and supports Dante and AES67 protocols for audio transmission.
1	MVC860	The Yealink MVC860 is purpose-built for medium to large-scale conference venues, providing comprehensive AI-powered video conferencing capabilities that enable flexible and automated speaker tracking, resulting in an enhanced conferencing experience. The system boasts a streamlined and expedited deployment process, showcasing its exceptional adaptability to diverse settings.

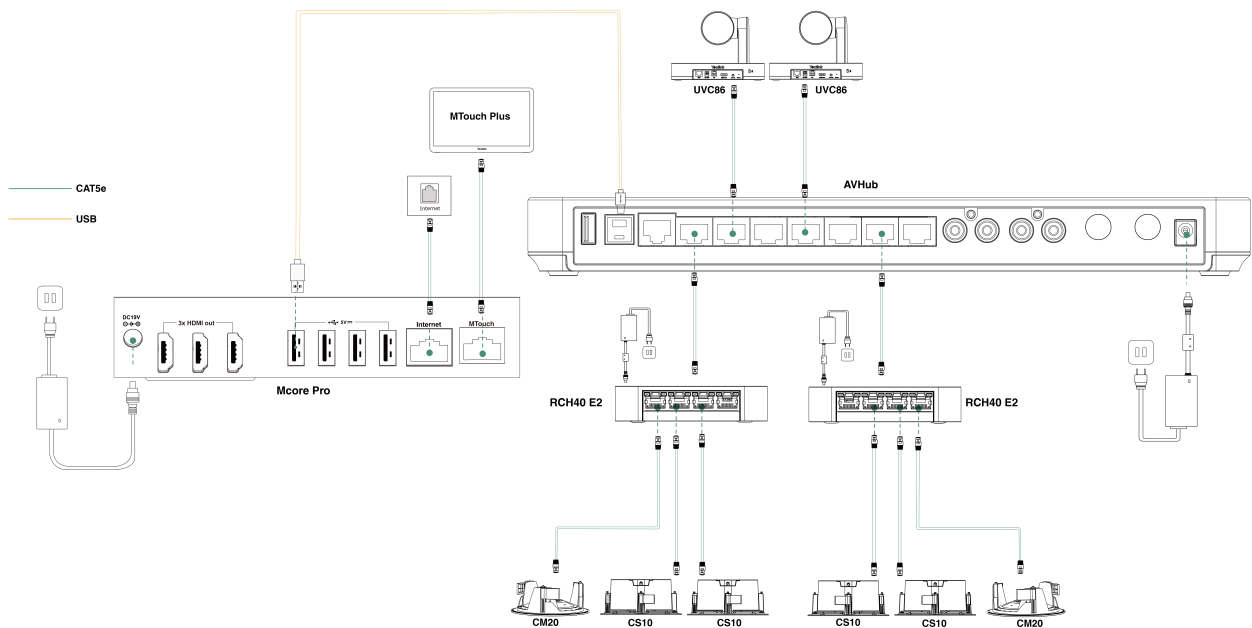
## Example of Extra-Large Meeting Room

### Meeting Room Scenario

- Room Dimensions: 6 × 10 m
- Ceiling Height: 2.7-3.3 m
- RT60 Value: 500-800 ms
- Noise Level: 42-48 dBA



## Device Connection



## Yealink Equipment List

Number	Product	Description
2	CM20	The Yealink CM20 is a premium ceiling microphone, expertly crafted to enhance audio performance in professional conference settings. Its 8 beams provide precise talker tracking.

Number	Product	Description
4	CS10	The Yealink CS10, a low-profile 2-way coaxial network speaker, excels in video conferencing with its exceptional audio performance. CS10 blends high-quality audio with an elegant, minimalist design, making it a perfect match for contemporary meeting rooms.
2	RCH40 E2	RCH40 E2 is a compact and user-friendly meeting room switch introduced by Yealink. It features disabled EEE (Energy Efficient Ethernet) functionality and supports Dante and AES67 protocols for audio transmission. When only connecting CM20/CS10 devices to an RCH40 E2, it supports 2 CS10 + 2 CM20. It is not recommended to connect more than 3 speakers simultaneously to avoid the risk of insufficient power.
1	MVCS90	Yealink offers a proprietary multi-camera solution specifically designed for ultra-large conference spaces. The MVC S90 combination boasts the capability to support a wide range of AI functionalities, facilitating flexible and automated speaker tracking. The S90 system excels in independently executing tasks such as portrait cropping and image stitching, thereby delivering a seamless integrated intelligent conferencing experience.

# Software Deployment (Yealink RoomConnect)

Once the devices are connected and powered on, you can use the Yealink RoomConnect software to adjust the audio and video parameters of the devices, thus providing a better meeting experience.

## TIP

Yealink RoomConnect app is preloaded. You don't need to install it.



## Software & Firmware Requirements

Model	Firmware Requirements
Update via Yealink RoomConnect	3.33.39.0 or later versions.
CM20	294.410.0.35 or later versions.
CS10	298.410.0.40 or later versions.
AVHub	153.433.0.15 or later versions.
UVC86	151.433.0.15 or later versions.
UVC84	262.433.0.10 or later versions.

## CM20 Deployment Adjustment

### Acoustic Echo Cancellation

## What is AEC?

The purpose of the AEC module is to prevent the remote party from hearing their own voice; the situation where the remote party can hear their own echo is called “echo leakage”.

### Direct echo and Indirect echo:

- Direct echo: Linear echo.
- Indirect echo: Non-linear echo, residual echo, directly related to the room's reverberation level.

**Double-talk detection:** Refers to the situation where direct and indirect echoes cause multiple echoes due to delayed reflections, etc. Direct echo cancellation is the most basic requirement for real-time communication..

**Reference signal:** The original audio signal from the remote party.

## Configuration Logic

In normal conference scenarios, mutual communication does not cause loss of sound; AEC only affects the sound effect in duplex scenarios.

NLP - Nonlinear Echo Cancellation	Room Reverberation Level	Recommended Environment
Low (Default)	Low (Default)	Room Reverberation < 700 ms (RT60)
Middle	Middle	Room Reverberation within 700-900ms
High	High	Room Reverberation > 900ms (RT60)

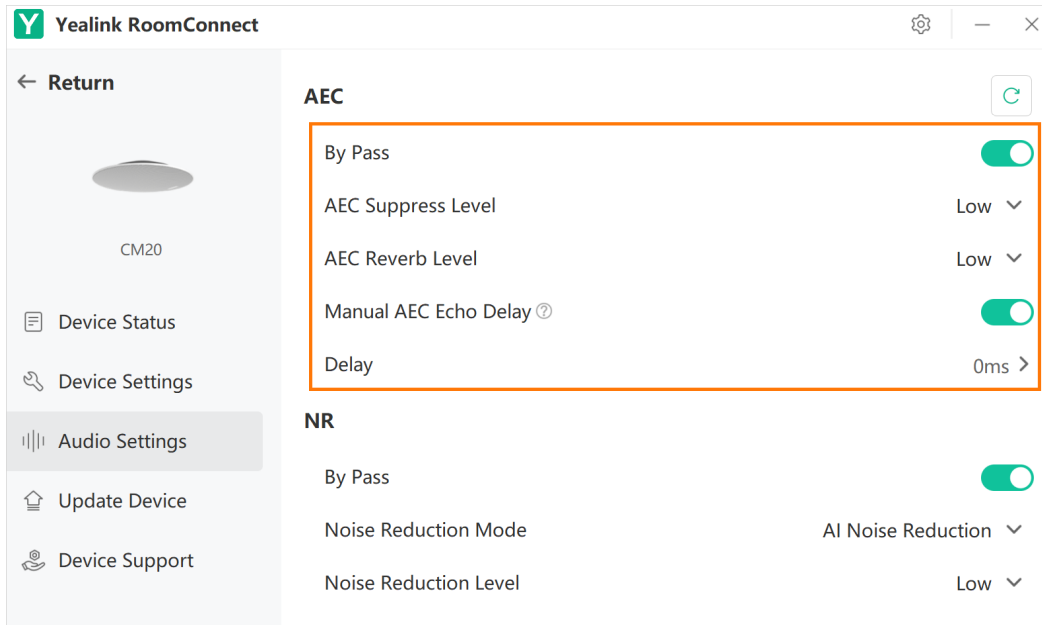
### Configuration Logic

- If echo leakage is observed at the far end, increase the NLP level by one notch.
- If the duplex effect is unacceptable, decrease the NLP level by one notch.
- Please keep the room reverberation level settings unchanged and only adjust the NLP tuning level.

## Procedure

1. Click **CM20 > Audio Settings**.
2. Adjust the related parameters in the **AEC** module
3. Enable **By Pass**.
4. Select the desired level for **AEC Suppress Level** and **AEC Reverb Level**.
5. Enable **Manual AEC Echo Delay**.
6. Adjust the value of **Delay**.





## Noise Reduction (NR)

### What is noise reduction?

NR (Noise Reduction) effectively eliminates the impact of environmental noise, delivering clearer and purer sound to the far end.

#### Steady-state noise & Transient noise:

- Steady-state noise: Continuous and stable noise, such as the sound of an air conditioner.
- Transient noise: Noise emitted momentarily, such as keyboard typing, pen clicking, mouse clicking, or chair movement.

#### Yealink Noise Reduction Algorithm:

- Traditional Noise Reduction Algorithm (Hi-Fi Mode): Available in low, medium, and high settings; primarily reduces steady-state noise, with less effective handling of transient noise.
- AI Noise Reduction Algorithm: Also available in low, medium, and high settings; provides effective handling of transient noise while simultaneously considering the reverberation processing during speech playback.

## Configuration Logic

The table below are the recommended noise reduction levels for AI Noise Reduction and Traditional Noise Reduction in different usage environments.

	AI Noise Reduction	Traditional Noise Reduction
Recommended Environment	AI Noise Reduction mode is suitable for environments with steady-state noise such as air conditioning hum and a significant amount of transient noises.	Traditional Noise Reduction (High Fidelity Mode) is ideal for environments with excellent acoustic conditions where high-fidelity audio is desired.

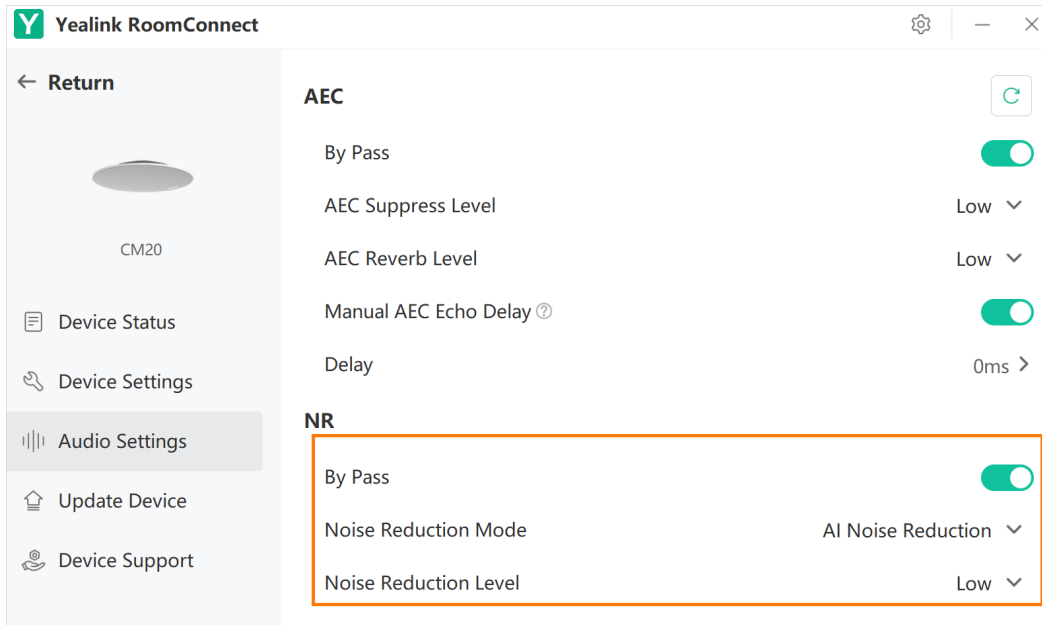
	<b>AI Noise Reduction</b>	<b>Traditional Noise Reduction</b>
Noise Reduction Level: Weak	In environments where wind noise is not strong and there is minimal movement or paper rustling, it is recommended to keep the default weak configuration.	In environments with almost no steady-state noise and minimal transient noises from user activities during meetings, adjust based on the actual perceived audio quality at the far end.
Noise Reduction Level: Normal	When there is noticeable wind noise and a considerable amount of noise and preserving speech intelligibility is preferred, choose the normal configuration.	If there is minimal background noise at the far end, opt for the weak configuration. If there is significant background noise at the far end, opt for the normal configuration.
Noise Reduction Level: Enhance	In environments with pronounced wind noise and a high level of noise where improved noise reduction is desired (may cause some voice degradation), select the strong configuration.	If there is some steady-state noise and noticeable background noise at the far end, opt for the strong configuration.

#### Configuration Logic

- If there is a significant amount of transient noise, choose AI Noise Reduction; if there is minimal transient noise, opt for Traditional Noise Reduction.
- If steady-state noise is heard at the far end, increase the noise reduction level until the steady-state noise is no longer audible.
- If the far end perceives poor sound fidelity, decrease the noise reduction level to an appropriate setting.

#### Procedure

1. Click **CM20 > Audio Settings**.
2. Adjust the related parameters in the **NR** module
3. Enable **By Pass**.
4. Select the desired mode from the drop-down menu of **Noise Reduction Mode**.
  - **AI Noise Reduction:** If you select this parameter, Yealink AI Noise Reduction technology will be used to automatically adjust the noise reduction effect based on the ambient noise changes.
  - **Traditional Noise Reduction:** If you select this parameter, Yealink AI Noise Reduction technology will not be used.
5. Select the desired value from the drop-down menu of **Noise Reduction Level**.

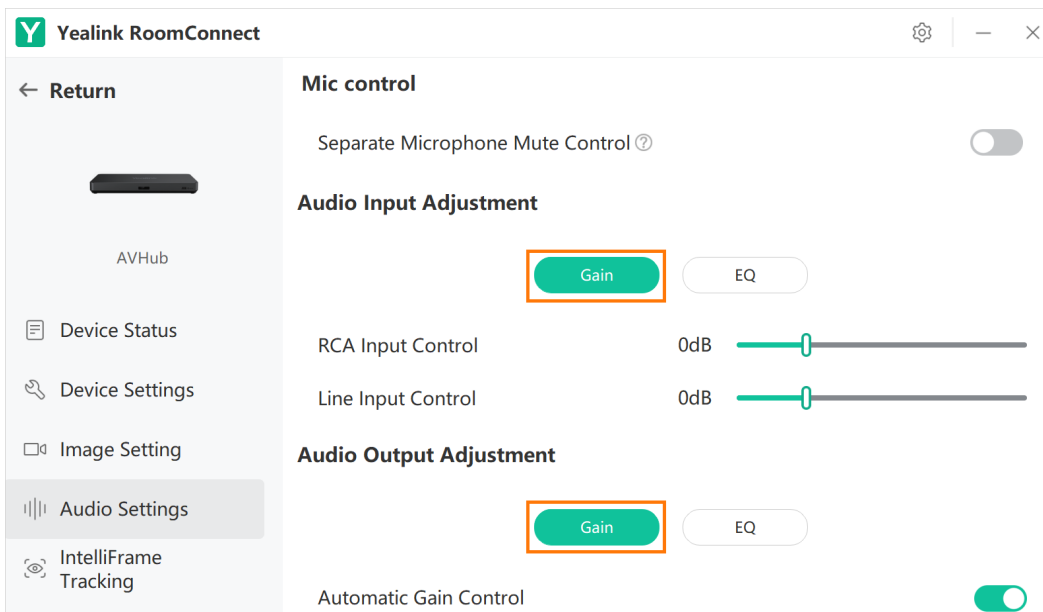


## Yealink Device Deployment Adjustment

### Gain

#### Procedure

1. Click **AVHub** > **Audio Settings**.
2. Click **Gain** in the **Audio Input Adjustment** module.
3. Adjust the value for **RCA Input Control** and **Line Input Control**.
4. Click **Gain** in the **Audio Output Adjustment** module.
5. Adjust the input level and output level for the **Automatic Gain Control**.
6. Adjust the **Gain** value.

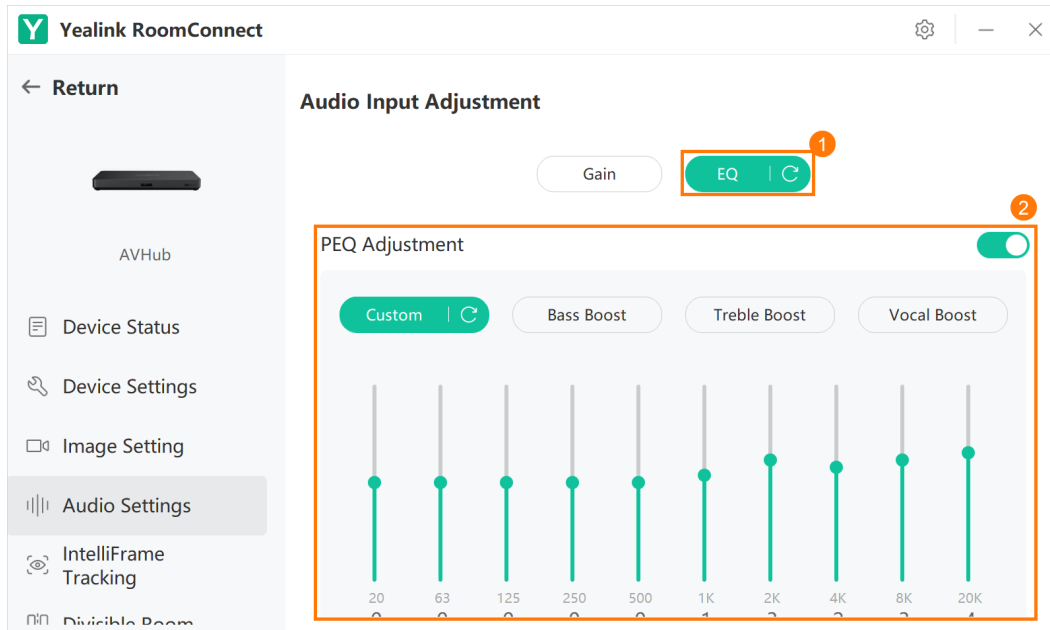


# EQ

The equalizer, also known as EQ, is a fundamental tool used to adjust the tone of audio by increasing or decreasing the gain of one or multiple frequency bands. Its basic function is to alter the sonic characteristics, typically utilized to adjust the perceptual listening experience. It is the most commonly used audio processing module.

## Procedure

1. Click **AVHub > Audio Settings**.
2. Click **EQ** in the **Audio Input Adjustment/Audio Output Adjustment** module.
3. Enable **PEQ Adjustment**.



### TIP

You can select **Custom**, **Bass Boost**, **Treble Boost**, or **Vocal Boost** to adjust the desired value.

# FAQ

## For Microsoft Teams meeting rooms, what are the recommended deployment solutions with Yealink Pro Audio devices?

Please refer to [Device Connection](#).

## How to connect multiple Yealink ProAudio devices to the switch?

Please refrain from daisy-chaining the devices. Currently, the CM20 and CS10 only support a star topology connection.

## What is the compatible PoE for Yealink ProAudio devices?

Model	Compatible PoE Port
CM20	PoE (IEEE 802.3af, class 3)
CS10	PoE + (IEEE 802.3at, class 4)

## What types of switches are recommended for Yealink CM20/CS10?

You can use the following types of switches:

Recommended switch	Description
Yealink RCH40 E2	RCH40 E2 is a compact and user-friendly meeting room switch introduced by Yealink. It features disabled EEE (Energy Efficient Ethernet) functionality and supports Dante and AES67 protocols for audio transmission.
Netgear Pro AV switch	The Yealink CM20/CS10 audio network requires a switch without EEE (Energy Efficient Ethernet) capability but with QoS (Quality of Service) support. Yealink's recommended and preferred choice of switch for this purpose is the Netgear Pro AV switch.

## Can I use switches with EEE (Energy Efficient Ethernet) with my Yealink ProAudio devices?

No. EEE (Energy Efficient Ethernet) is designed to decrease switch power consumption during low network traffic.

However, some switches do not perform the power negotiation properly or automatically. This may lead to unintended EEE activation in Yealink networks, resulting in synchronization issues and occasional dropouts. Therefore we strongly recommend that:

- For unmanaged switches, use switches without EEE feature as you cannot disable EEE feature in these switches.

- For managed switches, use switches that allow EEE to be disabled and ensure that EEE is disabled on all ports used for real-time traffic.

#### NOTE

Currently, the Yealink RCH40 switch is explicitly prohibited for use, as it does not allow EEE to be disabled.

## Is there a number limitation when directly connecting the Yealink ProAudio equipment to a host device?

The table below lists the power consumption of CM20 and CS10.

Model	PoE Port	Power Consumption	Peak Power Consumption
CM20	PoE (IEEEaf, class 3, 15 W)	5-7 W	9W
CS10	PoE + (IEEEat, class 4, 30 W)	5-7 W	20W

Here is the consumption of AVHub:

Average power consumption	Standby power consumption	Peak power consumption	Max power consumption
3W	1W	14W	96W

If you want to directly connect Yealink ProAudio devices to the host device using an Ethernet cable, you can use either RCH40 E2 or AVHub to connect to the host device.

- For a single RCH40 E2, it supports 2 speakers + 2 microphones, and it is not recommended to connect more than 3 speakers simultaneously to avoid the risk of insufficient power.
- For a single AVHub, it supports 2 CS10 + 2 CM20, and it is not recommended to connect more than 3 speakers simultaneously to avoid the risk of insufficient power.

## What audio devices are supported by Yealink host devices?

Model	Supported microphone	Supported speaker
AVHub	CM20	CS10, MSpeaker II
	VCM35/VCM38	CS10, MSpeaker II
	VCM36, CPW65	CS10, MSpeaker II
UVC84/UVC86	CM20	CS10, MSpeaker II
	VCM35, VCM36, VCM38, CPW65	MSpeaker II

## What is the maximum number of CM20 and CS10 supported by Yealink host devices?

The above table is only applicable to CM20 and CS10. The CS10-Dante version is not compatible with the above hosts.

<b>Host</b>	<b>Firmware Version</b>	<b>Max. Number of CM20+CS10 (via a switch expansion)</b>
AVHub	153.433.0.5 and later	4+4
UVC86	151.433.0.5 and later	4+4
UVC84	262.433.0.5 and later	4+4



## **About Yealink**

Yealink (Stock Code: 300628) is a global-leading provider of Unified Communication & Collaboration Solutions specialized in video conferencing, voice communications, and collaboration, dedicated to helping every person and organization embrace the power of "Easy Collaboration, High Productivity".

With best-in-class quality, innovative technology, and user-friendly experiences, Yealink is one of the best providers in more than 140 countries and regions, ranks No.1 in the global market share of IP Phone, and is the Top 5 leader in the video conferencing market (Frost & Sullivan, 2023).

For more information about Yealink, [click here](#).

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