

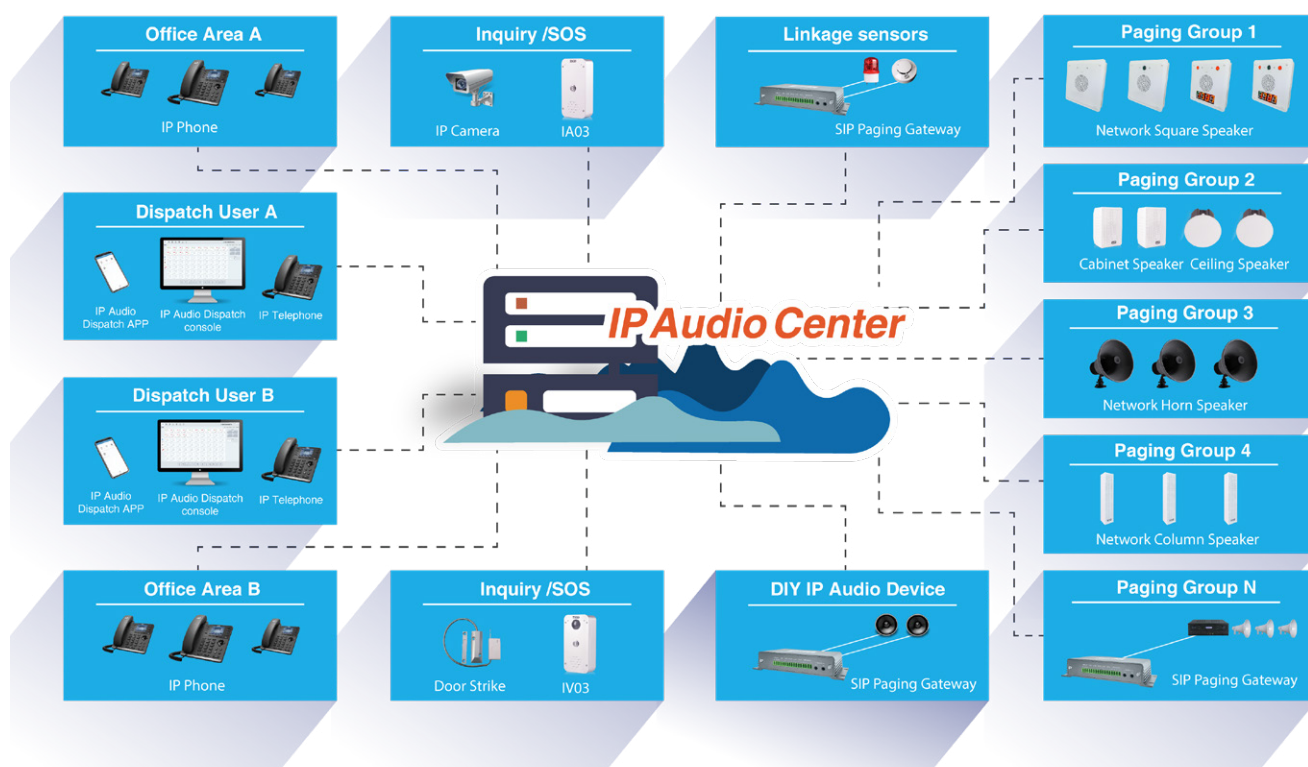
# UNIFIED IP AUDIO SOLUTION

FOR EVERYTHING YOU NEED ABOUT IP VOICE

# Overview

ZYCOO IP Audio Solution is an all-in-one IP audio communication system primarily based on SIP, streaming media and MQTT IoT technologies. Our solution provides public address, intercom, IP telephony plus IP audio communication features. SIP is the protocol used for IP audio endpoint registration, SIP paging, intercom calls, IP phone calls etc., while streaming media is used for background music broadcasting, scheduled broadcasting, emergency alarm broadcasting, automatic broadcasting etc. Finally, MQTT technology is used for centralized management of all IP audio endpoints.

The entire solution architecture is based on a combination of software and hardware components. Software components include the IP Audio Center, IP Audio Dispatch Console, IP Audio Dispatch App. While network speakers, SIP safety intercom, SIP paging gateways and IP phones are all hardware based. Below is a diagram detailing the basic architecture of the IP Audio Solution.



As detailed in the above architecture, the IP Audio Solution can be deployed across both intranet and internet. The IP Audio Center is a software solution which can be deployed on hardware-based servers or virtual private servers in the cloud. The IP Audio Dispatch Console is a software application to be installed on personal computers. The IP Audio Dispatch App supports both Android and iPhone versions. The network speakers, intercom devices and IP phones can all be installed on your existing IP network. Therefore, the whole infrastructure is mainly designed to work on a standard IP Network without the need to add specialist equipment or wiring.



# Features



## Background Music

IP Audio Dispatch Console has built-in music player supporting 320Kbps superior quality of MP3 music files and up to 128 music playlists. Users can create music playlists with any desired music file combination, then play background music by choosing a specific music playlist for a particular device or group. The stop, volume control, previous/next track features are all supported.



## IP PBX Features Integrated

Besides the full-featured public address system, the IP Audio Solution also has IP PBX features enabled, such as digital receptionist, inbound control, outbound control, click to page, call monitor, call whisper, call split, and so on. Furthermore, users can integrate standard SIP trunking into the system to achieve the outbound features, with no upper limit on the number of SIP trunks.



## Intercom with Video Support

The safety intercom supports both voice and video calls. SIP video intercom IV03 has a built-in HD camera that provides direct video calls. For both IA03 and IV03, external IP cameras with RTSP supported can be integrated with the IP Audio Center. Simply inputting the camera's RTSP address, and the system fetches the real-time streaming when an intercom call is initiated.



## Unlimited Paging Groups

Expansion of paging zone when using the analog system can be difficult and costly. ZYCOO IP Audio Solution supports an unlimited number of paging zones. According to the locations and network speakers, users can create any number of paging zones to achieve zone-based paging, emergency alarms, background music, etc. Each network speaker can include in more than one paging zones.



## Dispatch User Privilege

ZYCOO IP Audio Solution supports an unlimited number of dispatch users, and more than one dispatch user can access the same paging group. With the flexibility of group permission and access level control, the administrator can easily assign different levels of authority to dispatch users. Each dispatch user can operate separately without interfering with other dispatch users, including paging, music broadcasting, conferencing, etc.



## Multiple Tasks Type

The IP Audio Dispatch Console supports three (3) different types of tasks, includes immediate, timetable, and dial-number. As the name suggested, the immediate task would be toggled immediately after the task is set. Timetable tasks can be repeatedly played within the specified time range. While the dial-number task is a pre-set task, user may set the task as play background music, emergency alarms, etc., and use a phone to toggle the task.



## No Server Needed

All ZYCOO IP Audio Solution's devices support Multicast and Peer-to-peer (P2P) to share data between devices without a central server two-way communications. While the devices are used in the same local network, multicast can distribute a single copy of data to an entire group of devices to achieve the broadcasting and paging features. In contrast, P2P provides the ability to call from a single device to another, achieving the feature.



## X10 External Audio Collection

ZYCOO X10 SIP Paging Gateway supports the external audio collection feature by using a 3.5mm audio input jack. It can collect external audio sources from mobile phones, computers, mp3, etc., and playback through the corresponding devices. It could also be connected to a Blue-tooth adapter with a 3.5mm jack, and then it can work as a receiver/sender, connecting with a mobile phone or Blue-tooth earphone.

# Scenarios



## Security

Industrial facilities, national parks, office buildings, schools, and some other public places, emergency help point, is always required. Voice intercom or video intercom can immediately connect the helpers with the security persons to get help in the first time first place. Simply by clicking the button on the intercom, and it will directly dial the preset destination, video linkage is also available with IP cameras.

## Ambiance Background Music

To create a comfortable and pleasant environment for the customers and visitors, background music would always be the best choice for the shopping centers, retail stores, hotels, restaurants and other commercial premises. ZYCOO IP Audio Solution provides the most desirable solution of high-definition sound quality speakers and more than one hundred music playlists to bring a superior auditory experience to the public.



## Tone and Notification

Daily announcements are required in many places, such as school needs to play school bells at a specific time of the day, a museum needs to play the entrance notices and regulations throughout the day, and a shopping mall that needs to play closing time announcements, etc. ZYCOO IP Audio Solution satisfies all needs for announcements tasks, with an unlimited number of repeated timetable tasks, and it can store an unlimited number of audio files upon the server's capacity.

## Intelligent Platform

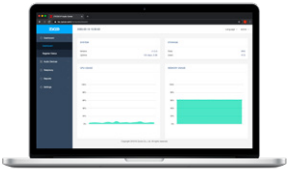
ZYCOO combines its years of experience in developing communication products, constantly innovates and breaks communication barriers, and integrates different communication products such as telephone, broadcasting, and intercom into the IP Audio Solution. Based on standard SIP protocol, ZYCOO IP Audio Solution is compatible with third-party endpoints or system products. At the same time, all API interfaces are available and can be directly used or implemented with other systems.



# Software

## ○ IP Audio Center

- ZYCOO IP Audio Center is the engine of ZYCOO IP Audio Solution. It is a software solution which can be installed on dedicated hardware or cloud- based servers.
- The IP Audio Center manages all IP audio endpoints, including network speakers, intercoms, IP phones, SIP paging gateways, etc. Paging groups (zones), paging schedules, intercom calls, meetings, music/audio files are also managed by the IP Audio Center.
- For simplified control and distributed management, the IP Audio Center provides integration with ZYCOO IP Audio Dispatch Console and the IP Audio Dispatch App for users to manage different paging groups (zones) with different IP audio applications.



Key Features and Specifications	
SIP Accounts	4000 (Max)
Simultaneous Calls	500 (Max)
Simultaneous Conference Attendees	500 (Max)
SIP Paging	500 (Max)
MP3 Files	Unlimited
Playlists	128(Max)
Triggered Paging Tasks	Unlimited
Paging Groups (zones)	Unlimited
Recording Time	Unlimited (Wav format, 1MB/min)

## ○ IP Audio Dispatch Console

- ZYCOO IP Audio Dispatch Console is a multi-platform (Windows, MacOS and Linux) application dedicated for ZYCOO IP Audio Solution dispatch users.
- With the IP Audio Dispatch Console, dispatch users can broadcast background music, make live SIP paging, create scheduled paging tasks, start and manage audio conference calls, initiate emergency broadcast, monitor IP audio endpoints status and more.
- Multiple dispatch user login is supported and they can work separately without interfering with each other's paging zones. This feature makes the distributed multi-site IP audio system possible.



Key Features and Specifications	
Device Status	Idle, Busy, Error, Offline
Device Display Number per Group	Unlimited
Group Display Number	Unlimited
Playlists	128(Max)
Music Playing Tasks	200 (Default)
Number of Triggered Paging Tasks	Unlimited
Video Intercom Window	16(Max)
TTS Engine	Google/iFLYTEK

## ○ IP Audio Dispatch APP

- IP Audio Dispatch App is a simple and easy to use mobile application developed for ZYCOO IP Audio dispatch users. The APP allows users of iPhone or Android based devices a mobile alternative to the PC based dispatch console.
- With the IP Audio Dispatch App, background music, pre-recorded message paging, emergency broadcasting and IP audio endpoint status monitoring can be configured and maintained.
- IP Audio Dispatch App is a useful application which is perfect for when the dispatch users have to leave their dispatch PC or full dispatch functionality is not critical.



Key Features and Specifications	
Music Player	Supported
Click/tap to Page	Supported
Click/tap to Alarm	Supported
Volume Control	Supported
Text-to-Speech (TTS) Paging	Supported
Prerecorded Message Paging	Supported
EndpointsStatus Monitoring	Supported
Alarm List	Supported
Fault Report List	Supported

## SQ10 Series



Network Square  
Speaker SQ10-B/BF



Network Square  
Speaker SQ10-V/VF

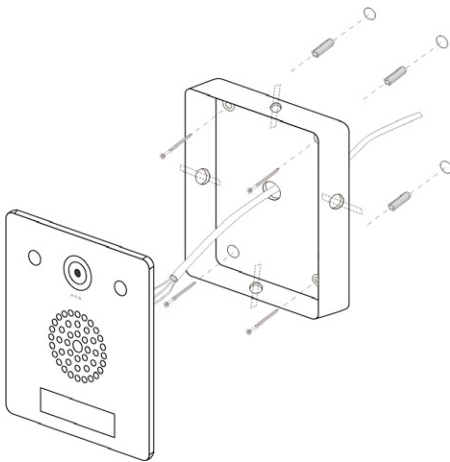


Network Square  
Speaker SQ10-T/TF



Network Square  
Speaker SQ10-C/CF

ZYCOO SQ10 Network Square Speaker has a total of eight models which can be selected according to different application scenarios. The LED flashers located on the top surface of the speaker can be used to alert room occupants of an incoming audio message or emergency notices. With the built-in HD camera and built-in microphone, the operators can detect the indoor environment and delivery two-way communication at any time, anywhere. The LED displays time and eliminates the need for a separate clock system, perfect to use in scenarios like classrooms, libraries, offices. Plus, it provides both surface-mounted and flush-mounted enclosures to choose from regarding different application scenarios.



SIP Protocol



PoE (802.3at)



HD voice



Flasher



Camera



Clock



Peripheral  
Integration

	SQ10 Network Square Speaker
Speaker Size	4.5 inch
Amplifier	Single-Channel Class D Topology
Rated Power	8Ω 10W
Average Sensitivity	91dB/1m/W
Max SPL at 1m(Passive)	101dB
THD	<0.1%
Frequency Range	70Hz~20KHz
Coverage Pattern	90°H 50°V 30 m <sup>2</sup>



# Network Speakers



SW15 Network  
Cabinet Speaker



SC15 Network  
Celling Speaker



SH30 Network  
Horn Speaker



SL50 Network  
Column Speaker

ZYCOO SC15 Network Ceiling Speaker and SW15 Network Cabinet Speaker are high efficient, full-range drive units SIP-enabled speakers. Specially designed for indoor purposes, to provide premium sound quality, enhances the audience experience.

SH30 Network Horn Speaker is equipped with a midrange drive unit powered by a 30W class-D amplifier, extending audio communication in large areas and high noise outdoor environments, where voice coverage is of primary concern.

SL50 Network Column Speaker is 4G wireless compatible, and it comprises one high-frequency tweeter and four low-frequency woofer drivers units, covering a wide frequency band to provide high sensitivity, beautiful sound, and a unique listening experience for listeners. The IP65-Enclosure makes it perfect to work in any outdoor environment.



• **BM11 is a Push-to-Talk Button with Mic. Users need to connect the BM11 to the SW15 or SC15, and then configure the corresponding functions on the web interface of the terminal system.**



SIP Protocol



HD voice



PoE (802.3at)



Built-in Amplifier



Auto Provisioning

	SC15 Network Celling Speaker	SW15 Network Cabinet Speaker	SL50 Network Column Speaker	SH30 Network Horn Speaker
Speaker Components	5.25" woofer unit + 1" tweeter unit		Four 3.25" woofer units + one 25ø tweeter unit	2" midrange driver unit
Amplifier	Built-in Class D Amplifier			
Rated Power	8Ω 15W		8Ω 50W	8Ω 30W
Sensitivity	85dB/1m/1W			105dB/1m/1W
Max Sound Pressure Level	100dB		105dB	117dB
Frequency Range	70Hz - 20KHz		100Hz - 20KHz	400Hz - 8KHz
Coverage Pattern	90°H 90°V 30m²	90°H 50°V 30m²	135° 50m, maximum effective distance 70m	50°H, 50°V:70m effective distance
Music Streaming	MP3 sampling rate 8-48KHz, bit rate 64-320kbps, mono or stereo			

# SIP Safety Intercom



IV03 SIP Safety  
Video Intercom

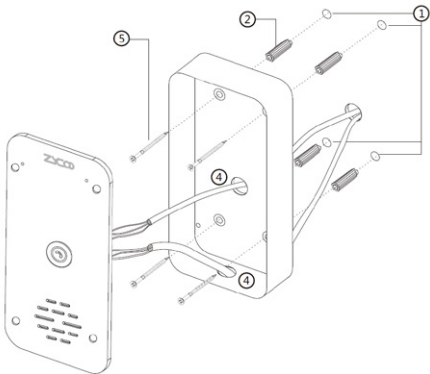


IA03 SIP Safety  
Audio Intercom

ZYCOO SIP safety intercom IA03 and IV03 are SIP-enabled intercom devices for consulting and SOS applications.

IA03 primarily aims for voice intercom, and IV03 is designed for video intercom with the built-in HD camera.

In addition, both IV03 and IA03 can be associated with external IP cameras that are RTSP protocol supported to achieve visual intercom and video linkages. IP camera brands support Dahua, Hikvision, and other manufacturers as long as they are RTSP supported.



SIP Protocol



HD voice



PoE (802.3at)



Video



Access  
Control



Auto  
Provisioning

	IA03 SIP Safety Audio Intercom	IV03 SIP Safety Video Intercom
Sensitivity	90±3dB	
Memory	128MB RAM, 256MB Flash	
Rated Power	3W	
Frequency Range	630Hz – 4.5KHz	
Video Codec	N/A	H.264
Acoustics	Mono	
Microphone	-36±2dB RL=2.2K Vs=2.0V	
Door Control	Max voltage AC 125V-1A/DC 60V-1A	



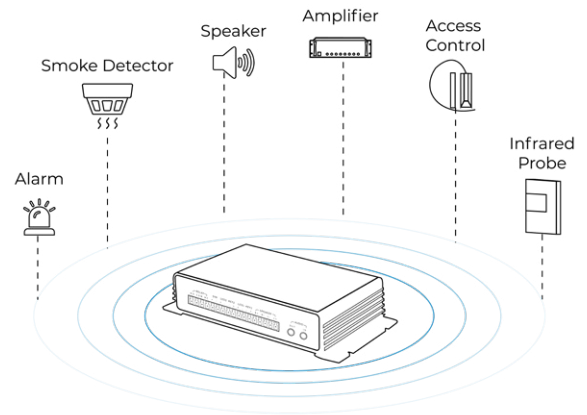
# SIP Paging Gateway



X10  
SIP Paging Gateway

ZYCOO X10 SIP Paging Gateway is a SIP enabled multifunctional intelligent IP voice communication terminal device. It can convert IP voice signal to analog audio signal and playout through the user's optional speaker output to achieve broadcast or two-way intercom and other IP voice communication functions.

X10 supports access to sensors, sound and light alarms, door magnets, and other peripheral devices to achieve a level of automatic control, security, and other functions. With which can be widely used for smart and safe city applications, to increase the efficiency of communication and information sharing, as a result to improve public safety and citizen welfare.



PoE (802.3at)



Built-in Amplifier



Two-way Voice



Peripheral  
Integration



Stereo Audio

	X10 SIP Paging Gateway
Headset Output	3.5mm Jack
Microphone	3.5mm Jack
Volume Control	VOL+ and VOL-, press both to announce IP address
Power Input	DC 12V-3A Jack
Ethernet	ETH0+ETH1, 10/100Mbps, ETH0 with PoE IEEE 802.3at enabled
Dry Contact	NO/NC contacts, max AC 125V-1A, DC 60V-1A
Audio Codecs	G.722, G.711 A-law, G.711 U-law, Opus
Music Streaming	MP3 sampling rate 8 – 48KHz, bit rate 64 – 320kbps, mono or Stereo

# IP Audio Server



IP Audio Server  
IAS-L100

IAS-L100 is a hardware server that installed the ZYCOO IP Audio Center system, providing the user the out-of-the-box feature to be ready to use. It can be used with ZYCOO speakers, intercoms, paging gateways, and other equipment to realize IP audio endpoints auto-provisioning and centralized management, mass notifications, background music, audio & video intercom, emergency broadcasting, audio conferencing, IP phone calling more features. In addition, with the support of SIP protocol, it supports third-party SIP-enabled endpoints and SIP system integrations.



## HD Music

320Kbps superior quality MP3 music files and streamed media music supported, click to play music or schedule music playing can be achieved. And different music for different zones is also supported.



## SIP Paging

Support multiple ways for live paging by dialing a single device or a group number from an IP phone or a SIP microphone to initiate a live SIP paging and/or using the ZYCOO IP Audio Dispatch Console click and trigger paging.



## Auto Provisioning

Using the MQTT IoT protocol, the IP Audio Center can auto-provision, manage, and control local or remote ZYCOO IP audio endpoints within one single system.



## SIP Trunk

The IP Audio Center supports SIP trunks for integration and as a result, inbound and outbound phone calls are supported.



## Video Linkage

IP cameras with RTSP supported can be integrated with the IP Audio Center. Simply inputting the camera's RTSP address, and the system fetches the real-time streaming when an intercom call is initiated.



## Audio Conferencing

ZYCOO IP Audio Center supports audio conferencing, and it can manage the conference using the IP Audio Dispatch Console. Invite, mute/unmute, kick out participants options are supported.

	IP Audio Server IAS-L100
CPU	2.41GHz Intel Processor
RAM	4GB DDR3L
Storage	16GB EMMC + 240GB SSD
Ethernet Interface	1 x USB3.0 + 1 x USB2.0
USB Interface	2 x 10/100/1000Mbps
Dimension	N440*232*44mm,Standard 1U Rack
Weight	3.00KG
Color	Black
Rate power	100~240V/50Hz
SIP Endpoints	100 (Max)