macsys

Advanced IP PA System

Revolutionizing Public Address Systems

Designed to meet the demands of schools, hotels, factories, large-scale venues and Smart City the Macsys Advanced IP PA System offers crystal-clear, Reliable audio communication with unmatched efficiency and ease.



Versatile Audio Source Support

Flexible PA System Design

Comprehensive Audio Management



Macsys was founded with a clear mission to transform the way people connect and communicate through intelligent AV and PA solutions. Backed by over **25 years of industry expertise**, the company blends deep technical insight with a forward-thinking mindset to deliver systems that are **innovative, reliable**, and **built for the future**.

Though Macsys operates with the agility and creativity of a young company, it stands on a solid foundation of decades-long experience in the **Audio-Visual** (AV) and **Public Address** (PA) sectors. Today, Macsys proudly offers one of the most **diverse and advanced product portfolios** in the ELV industry, serving a wide range of sectors including corporate, education, healthcare, government, and specialized industrial applications.

Our AV product range includes **wireless presentation systems, video and audio conferencing** solutions, **AV controllers, interactive displays, video wall processors**, and customized setups for high-demand environments such as **operation theatres and command control centers**. In the PA domain, we provide both **Analog and IP-based systems**, including custom-designed series to meet unique project requirements.

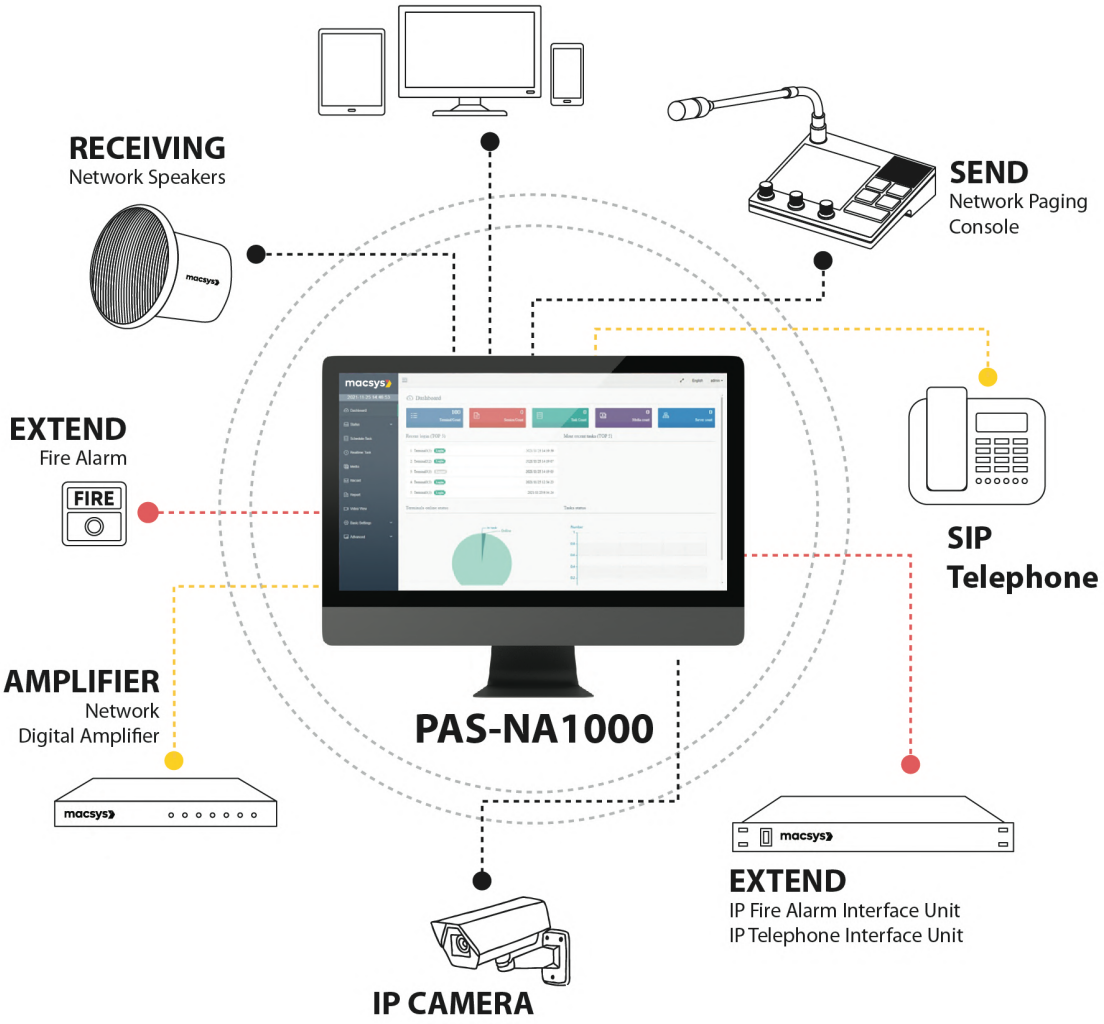
At its core, Macsys is more than a technology provider Macsys is a solution partner. Every product and system we offer is **built to create smarter** and more **connected environments** that empower people to collaborate seamlessly, communicate effectively, and share effortlessly.

Driven by innovation. Committed to quality. Focused on the future.

SYSTEM DEPLOYMENT

STRATEGY AND DESIGN

OVERVIEW



The **PAS-NA1000** system is a fully digital network PA system that operates on the TCP/IP protocol. By utilizing TCP/IP, it ensures the accurate and efficient transmission of all data packets. This system can seamlessly transmit broadcast signals over existing computer networks, such as LANs or the Internet, or be deployed on a dedicated broadcasting network.

Equipped with a highly powerful server, the PAS-NA1000 can efficiently manage a large number of terminals without any performance issues. A single server can **support up to 3,000 terminals**, with the option for server cascading to expand capacity. With no limitations on concurrent broadcast channels, the system delivers true full-digital broadcasting.



Versatile PA System Design

The PA system features a straightforward architecture comprising service management software, network microphones, network amplifiers, network speakers, and other essential components.
All devices communicate using the TCP/IP intranet protocol, enabling a highly flexible setup and seamless system management. This allows full control over broadcast content, networked devices, and designated zones, ensuring efficient and adaptable operation.



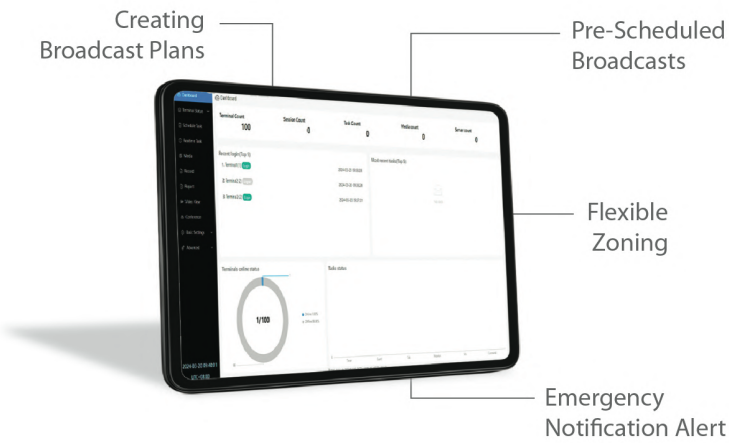
Remote Fault Detection and Monitoring

The system features automatic fault detection, allowing real-time monitoring of device status and displaying the online and fault status of all network terminals within the management software.
For example, in a café franchise with multiple locations, managers can remotely check if speakers in each store are properly receiving scheduled announcements or background music. The system also provides instant updates on whether devices are online, offline, or malfunctioning. To maintain uninterrupted operation, scheduled detection can be set up to regularly assess system performance.



Advanced Audio Scheduling and Management

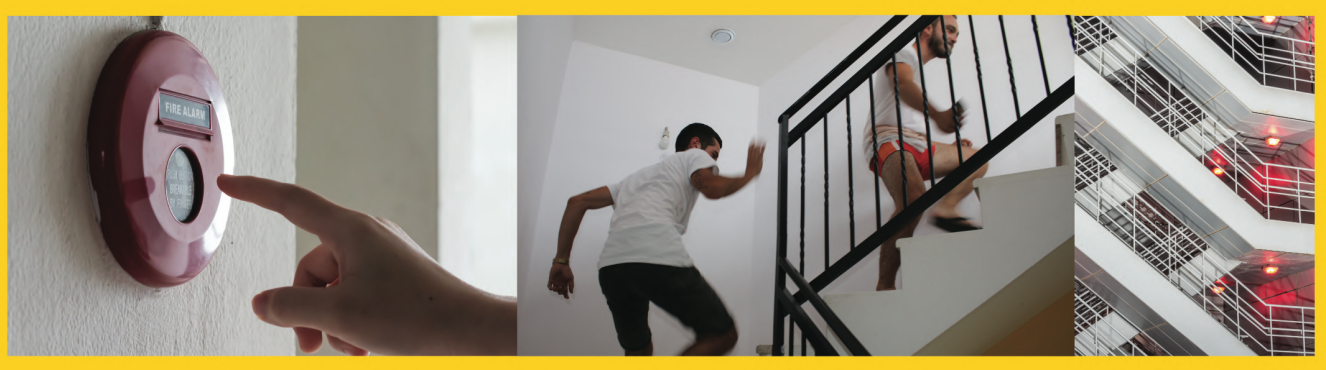
The integrated audio management software offers advanced features, including broadcast scheduling, flexible zoning, and automated pre-scheduled announcements. With 24-hour programming capabilities, settings can be adjusted at any time to accommodate changing requirements throughout the day.



Mobile App Control for System Management

The system supports mobile app access, allowing users to log in and manage operations remotely. Through the server software, authorized users can initiate broadcasts and control designated terminals, ensuring a seamless and user-friendly experience.

SYSTEM FEATURES



The system includes a built-in fire alarm function and can seamlessly integrate with a fire alarm system. When an alarm control unit detects an emergency, signals are transmitted through cables to connected devices, triggering the PAS-NA1000 to send alerts to speakers.

Users can preconfigure settings to activate alarms across the entire system or specific zones during emergencies. Alarm notifications are customizable in multiple formats, allowing users to modify language settings and upload tailored audio alerts based on specific scenarios, such as intrusion warnings, fire emergencies, or air raid alerts.

Versatile Audio Source Support



Live Speech | CD/DVD Players | Music App | Microphone | Text to Speech

The system supports diverse audio inputs for notifications, including live announcements and background music playback. Compatible sources include digital music applications, CD/DVD players, microphones, Text to Speech (TTS) ,and more.

Additionally, the system provides extensive broadcasting capabilities, such as scheduled announcements, zone-based broadcasting, and emergency notifications.

Seamless SIP Integration



The system allows SIP phones to log in and connects effortlessly with third-party SIP servers or IPPBX systems, ensuring a fully integrated and interoperable communication framework.

Open SDK for Customization



For large-scale projects like smart campuses requiring unified management, the system offers open SDK interfaces. These interfaces allow seamless configuration and integration with the PAS-NA1000 management platform.

APPLICATIONS



Transportation Hubs

Deliver timely, crystal-clear announcements on Transportation Hubs like Airports, Train & Bus Stations to manage passenger flow, boarding instructions, and safety updates. The PAS-NA1000 integrates seamlessly into transit operations, providing automated scheduling and multi-zone control for high-traffic, high-stakes environments.



Stadiums and Event Venues

Ensure crowd control, entertainment audio, and emergency alerts are distributed with precision and power. The system's scalable architecture and robust output deliver clear sound coverage across seating zones, concourses, and backstage areas critical for both experience and safety.



Schools and Universities

Enhance campus communication with zone-based announcements, class change alerts, and emergency broadcasts. The PAS-NA1000 ensures consistent, real-time messaging across classrooms, corridors, dormitories, and outdoor areas supporting both daily operations and crisis response.



Public Spaces, Parks, Shopping Malls

Create immersive and informative environments with scheduled messages, ambient music, and real-time public service announcements. From open-air parks to multi-level retail spaces, the system's flexible zoning and remote management capabilities enable effortless content control.



Corporate Building & Hub

Streamline internal communication with scheduled messages, meeting reminders, and emergency alerts. Whether in a single building or across multiple branches, this system empowers facility managers to control announcements remotely, ensuring a cohesive and professional sound environment.



Healthcare Facilities

Support medical Environment with discreet, reliable announcements, code alerts, and background music in waiting areas. Designed for 24/7 uptime and zone-specific control, the PAS-NA1000 adapts to sensitive environments where clarity and control are essential.

CORE FUNCTIONS

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Live Broadcasting

The system enables real-time capture and transmission of radio programs or external audio sources (such as CD/DVD players, microphones, or music applications), Text to Speech (TTS) ensuring synchronized playback across all connected devices.



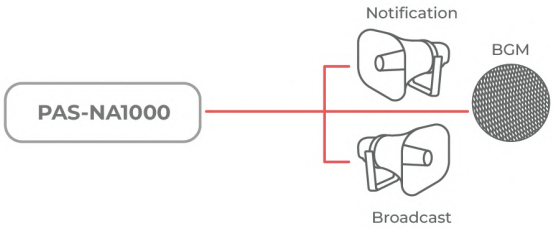
Fire Alarm System Integration

The system integrates with fire alarm control units. When an alarm is triggered, the emergency broadcast function activates automatically, with the option to alert adjacent floors. Additionally, users can manually trigger emergency broadcasts with a single click.



Zoned Broadcasting

Users can create custom zones by grouping networked devices and broadcasting specific audio programs or announcements to designated areas. Each device's volume can be adjusted remotely.



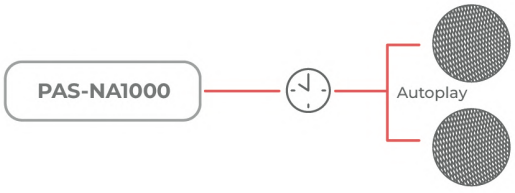
SIP Phone Compatibility

The system connects with SIP servers, enabling live voice broadcasting through SIP phones for real-time announcements from any location.



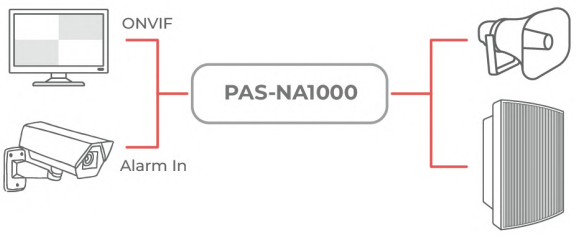
Scheduled Playback

Automated broadcasting is supported through scheduled tasks. Users can upload audio files for different time slots and set up a playback schedule via the server.



CCTV Integration

Digital devices, including IP POE speakers, support the ONVIF protocol, allowing them to broadcast audio via VMS platforms. These terminals can also sync with CCTV systems for integrated audio-visual communication.









SYSTEM INFRASTRUCTURE

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SOFTWARE

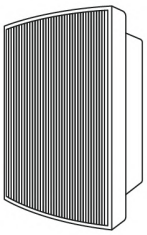


PAS-NA1000

INDOOR

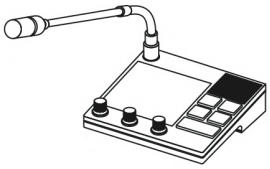


Network Ceilling Speaker



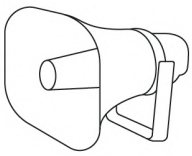
Network Box Speaker

SEND

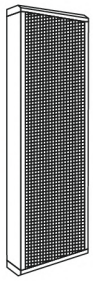


IP Paging Console

OUTDOOR



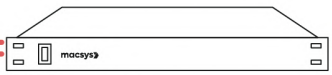
Network Horn Loudspeaker



Network Column Speaker



EXTEND

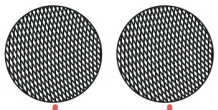


IP Fire Alarm Interface Unit

MULTI ZONE



Network Multi-zone Mixer Amplifier



Zone 1 Zone 4

PSTN

EXTEND

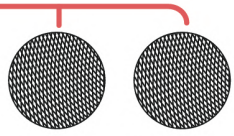


IP Telephone Interface Unit

SINGLE ZONE



Network Amplifier

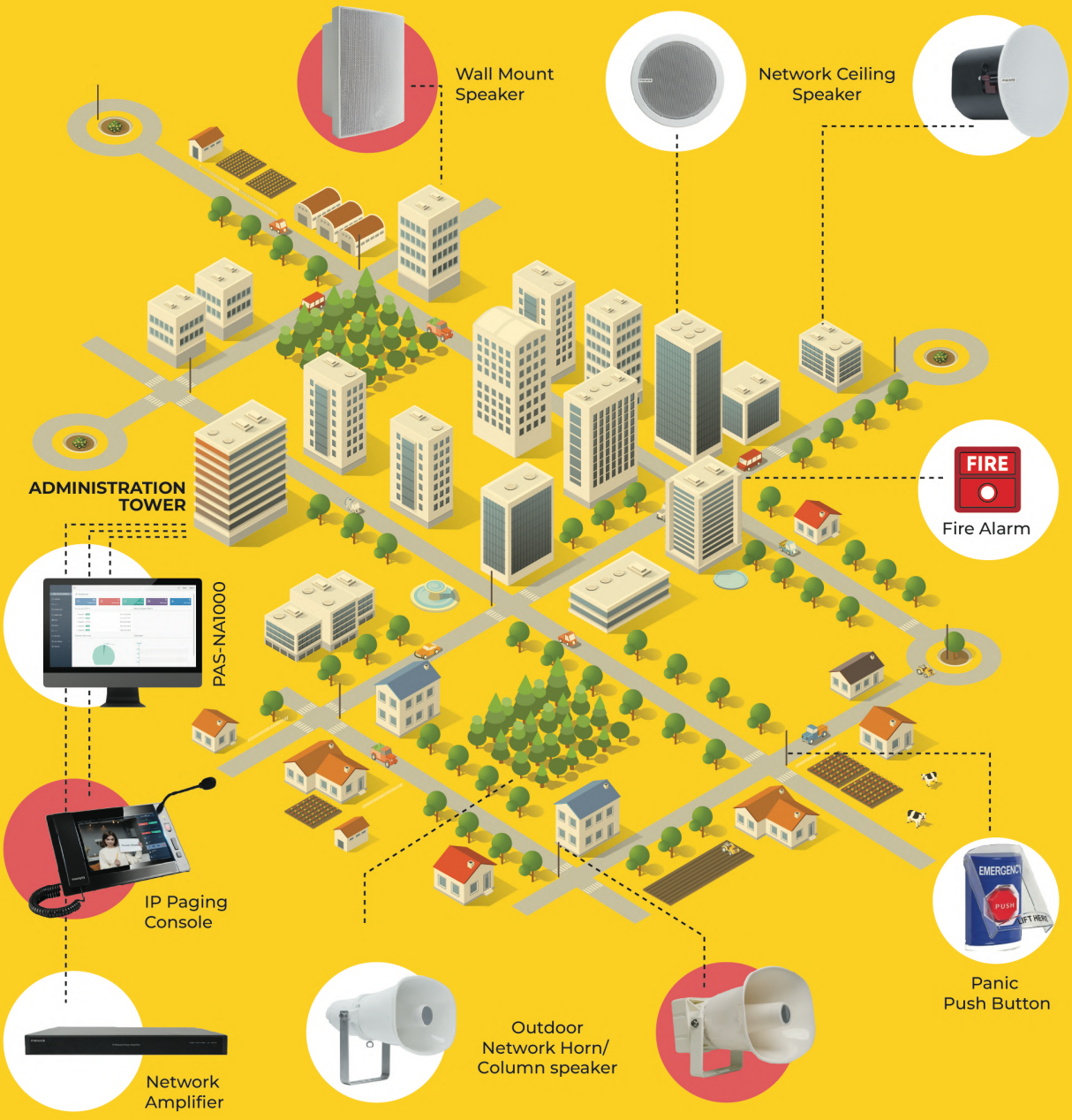


Room 1 Room 8

LAN

SYSTEM INFRASTRUCTURE

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Flexible Zoning Broadcast
Fully networked terminals allow dynamic zoning options, enabling targeted broadcasts to specific zones or individual devices.

Emergency Broadcasting
Supports one-click emergency broadcasting across the entire campus, ensuring quick communication in critical situations.

Fully Networked Devices
Deploying network-based devices simplifies system management, reducing the need for on-site checks in hazardous locations and enhancing safety for human and property.

Alarm Integration
Terminals are equipped with multiple interfaces, allowing seamless connection with CCTV cameras, Fire System, Panic Switch etc. for alarm triggering.

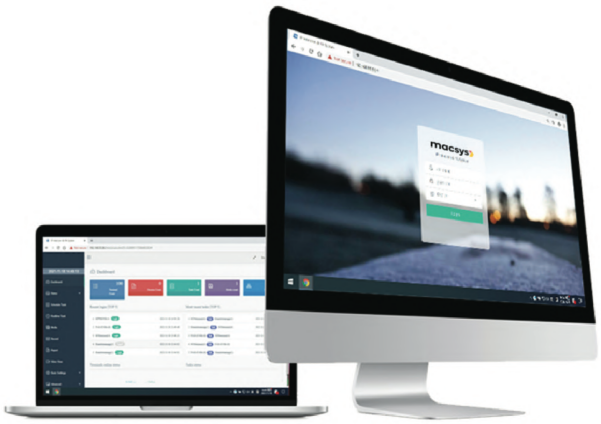
Scheduled Announcements
Pre-programmed announcements can be scheduled to meet various operational needs.

SIP Phone Integration
The system integrates with SIP phones, enabling remote announcement broadcasting. Two-way audio talkback between SIP phones and IP POE speakers allows real-time monitoring and communication from offices or other locations.

PRIMARY PRODUCT

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PAS - NA1000
Network Audio Central Server Software



PAS-NA1001 – MAP Module

01



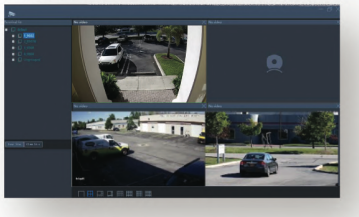
PAS-NA1002 – Scene Module

02



PAS-NA1003 – Video Module

03



Web-Based Architecture Supporting Multiple Platforms
Employs a browser-server framework that allows users to operate the system from any device or operating system without installing specialized client applications.
Ensures smooth functionality across diverse environments such as Windows, macOS, Linux, Android, and iOS.

Centralized Control and Monitoring of Devices
Enables unified oversight and management of all connected endpoints within the network.
Provides live monitoring of device status to quickly identify and address issue.
Facilitates bulk operations like adjusting volume levels on numerous devices simultaneously, simplifying administrative tasks.

Development Kits for Customization and Integration
Offers robust SDKs that empower developers to create custom features or adapt the system to unique business requirements.
Supports integration with other software platforms and third-party systems to enhance overall functionality and interoperability.

Features Covering Traditional Broadcast Operations
Delivers all core functionalities of classic broadcast setups, including content distribution and scheduling capabilities.
Allows system segmentation by zones or groups, enabling targeted management and control of different areas.

Scalable Multi-Tier Server Deployment
Provides the ability to build layered server infrastructures to improve system scalability and operational efficiency.
Supports regional deployment models, enabling servers to be placed strategically based on geographical user distribution.
Enhances system resilience through load distribution and failover mechanisms for consistent performance.

NETWORK AUDIO PAGING STATION

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PAS-NPS101A
Network Audio Paging Station Mini



Power Supply	DC 12V, 1.5A
Screen	4-inch capacitive touchscreen, 480×480 pixels
Network Protocols	SIP (RFC 3261), HTTP, TCP/IP, UDP, ARP, ICMP, IGMP, FTP
Signal-to-Noise Ratio	≥80 dB
Audio Frequency Range	100 Hz to 16 kHz
Dimensions & Weight	144mm × 144mm × 34mm, 0.55KG
Working Temperature	0°C~+45°C

PAS-NPS102A
Network Audio Paging Station with 7" Touch Screen



Power Supply	DC 12V/1.5A
Screen	7-inch touchscreen, resolution 1280×800
Network Protocols	SIP (RFC 3261), HTTP, TCP/IP, UDP, ARP, ICMP, IGMP
Signal-to-Noise Ratio	≥82 dB
Frequency Response	40 Hz to 18 kHz
Dimensions & Weight	184*169.3*58.9mm, 0.75KG
Working Temperature	0°C~+45°C

PAS-NPS103V
Network Audio-Video Paging Station



Power Supply	DC 12V/1.5A
Screen & Camera	7-inch touchscreen & 2MP camera
Network Protocols	SIP (RFC 3261), HTTP, TCP/IP, UDP, ARP, ICMP, IGMP
Signal-to-Noise Ratio	≥82 dB
Frequency Response	40 Hz to 18 kHz
Dimensions & Weight	184*169.3*58.9mm, 0.75KG
Working Temperature	0°C~+45°C

PAS-NPC104V
Network Video Paging Console



Power Supply	DC 12V/3.3A or PoE IEEE802.3af
Screen & Camera	10.2" TFT LCD touch screen & HD 13MP camera
Network Protocols	SIP (RFC 3261), HTTP, TCP/IP, UDP, ARP, ICMP, IGMP, RTP
Signal-to-Noise Ratio	≥85 dB
Frequency Response	25 Hz – 20 kHz
Dimensions & Weight	337×211×32.7mm, 1.5KG
Working Temperature	-10°C~+50°C

NETWORK AUDIO SPEAKER

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PAS-NHS10
High-Performance Network PoE Horn Speaker 10watt



Power Supply	DC 24V/1A, PoE (IEEE802.3af), PoE+ (IEEE802.3at)
Signal-to-Noise Ratio	≥85 dB
Frequency Response	280 Hz ~ 12.5 kHz
Intercom	Supported, Built-in Microphone
Network Protocols	SIP, ONVIF, HTTP, UDP, ARP, ICMP, IGMP
Dimensions & Weight	233X173X281mm, 1.6 KG
Working Temperature	-40˚C~+70˚C

PAS-NHS30
Network PoE Horn Speaker 15/22/30 Watt



Power Supply	DC 24V/2.7A, PoE (IEEE802.3af), PoE+ (IEEE802.3at)
Signal-to-Noise Ratio	≥80 dB
Frequency Response	100 Hz - 18 kHz
Intercom	Supported, Built-in Microphone
Network Protocols	SIP 2.0 (RFC 3261), FTP, HTTP, TCP/IP, UDP, ARP, ICMP, IGMP
Dimensions & Weight	283.1×269×224.3mm, 2 KG
Working Temperature	-20˚C~+50˚C

PAS-NCS20
Network PoE Ceiling Speaker 20 Watt



Power Supply	DC 24V/1A, PoE (IEEE802.3af), PoE+ (IEEE802.3at)
Signal-to-Noise Ratio	≥80 dB
Frequency Response	100 Hz ~ 18 kHz
Intercom	NA
Network Protocols	SIP (RFC 3261), FTP, HTTP, TCP/IP, UDP, ARP, ICMP, IGMP
Dimensions & Weight	260×250×240mm, 2.4KG
Working Temperature	-20˚C~+50˚C

PAS-NCS10
High-Performance Two Way Network PoE Ceiling Speaker 20 Watt



Power Supply	DC24V/1A, PoE IEEE802.3af)
Signal-to-Noise Ratio	≥89 dB
Frequency Response	100 Hz – 18 kHz
Intercom	Supported, Built-in Microphone
Network Protocols	TCP/IP, UDP, HTTP, RTP, RTSP ARP, ICMP, NTP, SIP, ONVIF
Dimensions & Weight	204×167mm, 1.9KG
Working Temperature	-30˚C to 60˚C

NETWORK AUDIO SPEAKER

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PAS-NBS20
High-Performance Network PoE Box Speaker 15/20 Watt



Power Supply	DC 24V/1A, PoE (IEEE802.3af)
Signal-to-Noise Ratio	>88 dB
Frequency Response	100 Hz - 18 kHz
Intercom	Supported, Built-in Microphone
Network Protocols	SIP (RFC3261), FTP, HTTP, TCP/ IP, UDP, ARP, ICMP, IGMP
Dimensions & Weight	292 X 193 X 151.5mm, 2.4KG
Working Temperature	-20°C~+50°C

PAS-NODS50
High-Performance Network Outdoor Directional Speaker 120 Watt



Power Supply	AC 220V, 50/60Hz
Signal-to-Noise Ratio	≥85 dB
Frequency Response	20 Hz – 16 kHz
Intercom	NA
Network Protocols	TCP, UDP, ARP, ICMP, IGMP, SIP, HTTP, FTP
Dimensions & Weight	1047 X 177 X 170mm, 11 KG
Working Temperature	-20°C~+55°C

PAS-NOCS 30/60/120
High-Performance Network Outdoor Column Speaker 30/60/120 Watt



Power Supply	AC 220V 50Hz, DC 24V/2.7A
Signal-to-Noise Ratio	≥80 dB
Frequency Response	200 Hz - 18 kHz
Intercom	NA
Network Protocols	TCP/IP, UDP, ARP, ICMP, IGMP
Dimensions & Weight	227×125×440/710/1110mm 5.1kg, 8.4kg, 13.6kg
Working Temperature	-20°C~+55°C

NETWORK AUDIO SPEAKER (Economic Series)

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PAS-NCSE15
Network PoE Ceiling Speaker 15 Watt



Power Supply	DC 12V or POE
Signal-to-Noise Ratio	≥96 dB
Frequency Response	100 Hz - 18 kHz
Intercom	NA
Network Protocols	SIP TCP/IP
Dimensions & Weight	200 × 90mm,

PAS-NHSE15
Network PoE Horn Speaker 15 Watt



Power Supply	DC 12V or POE
Signal-to-Noise Ratio	≥101 dB
Frequency Response	100 Hz - 18 kHz
Intercom	NA
Network Protocols	SIP TCP/IP
Dimensions & Weight	225 × 165 × 240 mm, 3.5 Kg

PAS-NHSE30
Network PoE Horn Speaker 30 Watt



Power Supply	DC 12V or POE
Signal-to-Noise Ratio	≥105 dB
Frequency Response	200 Hz - 18 kHz
Intercom	NA
Network Protocols	SIP TCP/IP
Dimensions & Weight	225 × 165 × 240 mm, 4 Kg

Note:

Some features are excluded in the Economic Series (ie. voice control and alarm input etc.)

It is advisable to confirm feature availability before initiating system design or project planning.

NETWORK AUDIO AMPLIFIER

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PAS-NA130/ 260/ 360/ 500
Network Amplifier



Power Supply	AC 100V~240V, 50/60Hz
Power Output	130W, 260W, 360W, 500W
Network Protocols	SIP, FTP, HTTP, RTP, TCP/IP, UDP, ARP, ICMP, IGMP
Signal-to-Noise Ratio	>84 dB
Frequency Response	60 Hz ~ 18 kHz
Dimensions & Weight	440 × 300 × 44 mm, 4.2kg,
Working Temperaturet	-10°C~+50°C

PAS-NWA60/ 120
Network Wall Mount Amplifier



Power Supply	AC 100V~240V, 50/60Hz
Power Output	60W / 120W
Network Protocols	HTTP, RTP, TCP/IP, UDP, ARP, ICMP, IGMP
Signal-to-Noise Ratio	≥75 dB
Frequency Response	60 Hz ~ 10 kHz
Dimensions & Weight	337 × 283.5 × 50.5 mm, 4.3 & 5.1 Kg
Working Temperaturet	-10°C~+50°C

PAS-NWOHA20/ 60
Network Wall Mount Amplifier 8 Ohms 2×10 Watt - 2×30 Watt



Power Supply	DC 24V/1A, DC 24V/2.7A
Power Output	20W, 60W
Network Protocols	HTTP, TCP/IP, UDP, ARP, ICMP, IGMP
Signal-to-Noise Ratio	≥80 dB
Frequency Response	60 Hz-20 kHz (8Ω Low-Impedance)
Dimensions & Weight	156.5 × 132 × 36 mm, 0.5kg, 0.6kg
Working Temperaturet	-10°C~+50°C

PAS-NMA130/260/360/550/700-4Z
Network Multi-zone Mixer Amplifier - 130W/260W/360W/550W/700W



Power Supply	AC 100V-220V, 50/60Hz
Power Output	130W, 260W, 360W, 550W, 700W
Network Protocols	HTTP, TCP/IP, UDP, ARP, ICMP, IGMP
Signal-to-Noise Ratio	Mic Input 01: ≥65 dB, 02/03: ≥80 dB, Aux Input 01/02: ≥82 dB
Frequency Response	Mic Input 01: 80 Hz ~ 14 kHz, Mic Input 02/03: 60 Hz ~ 16 kHz Aux Input 01/02: 60 Hz ~ 16 kHz
Dimensions & Weight	483 × 430 × 88mm, 7.5Kg
Working Temperaturet	-10°C~+50°C

PERIPHERAL EQUIPMENT

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PAS-NACP
Network Audio Control Panle



Power Supply	AC100~240V,50/60Hz
Screen	4-inch capacitive touch color screen
Network Protocols	TCP/IP, UDP, ARP, ICMP, IGMP
Interface	1× RJ45, 1× RS485,
Dimensions & Weight	86 × 86 × 37.5mm, 0.21kg
Working Temperature	0°C～+40°C

PAS-NPAA15
Network PoE Audio Adaptor



Power Supply	POE(802.3af/at)
Power Output	15W@8Ω
Network Protocols	TCP/IP, UDP, ARP, SIP, ICMP, IGMP
Signal-to-Noise Ratio	≥85dB
Frequency Response	50 Hz~20 kHz
Dimensions & Weight	126*66*27mm, 0.16KG
Working Temperaturet	-10°C～+55°C

PAS-NMPI3208
Network Multi-Zone Paging interface



Power Supply	AC100V～240V, 50/60Hz
Protocols	TCP/IP, UDP
Fire Alarm Linkage	Interfaces with fire alarm system
Connectivity	32 × Alarm Input Interfaces | 8 × Alarm Output Interfaces
Emergency Broadcast	Auto-trigger evacuation announcements
Dimensions & Weight	483 × 259 × 44 mm, 2.7 kg
Working Temperaturet	-10°C to 70°C, ≤90% RH (non-condensing)

PERIPHERAL EQUIPMENT

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PAS-NAPCU

Network Audio Processing Controller Unit



Power Supply	AC110~240V,50Hz/60Hz
Analog Channels	8 Inputs + 8 Outputs
Core Algorithms	AEC, AFC, ANS, AGC, ANC, Ducker, Gate Mixer USB sound card playback and recording, Hot backup, Central control function .etc
DSP Processing	ADI DSP SHARC 21489
RS485 / RS232/ RJ45	1 / 1 / 1
GPIO	8 logic outputs with 4 pairs of universal ground Pins
Input Gain	0/3/6/9/12/15/18/21/24/27/30/33/36...48 dBu
Quantization Bits	24-bit
Sampling Rate	48 kHz
THD + Noise	<-94dB @17dBu
Phantom Power	48V
Input Dynamic Range	110dB
Output Dynamic Range:	112dB
Channel Isolation@1kHz	108dB
Input Impedance	5.4KΩ (Balance Connection)
Output Impedance	600Ω (Balance Connection)
Dimensions (W × D × H)	482 X 260 X 45mm
Working Temperature	0–40°C



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