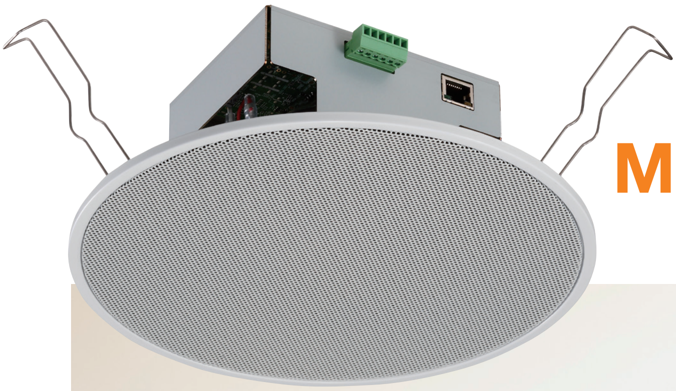
Sophisticated IP Audio Endpoints

IP-A1 Series

**Beyond
Audio
Communications**



More than meets the eye

All of these features are on board...

IP-A1 series is a group of sophisticated IP audio endpoint devices which are designed in different forms. Although it looks like a simple speaker or an I/F box, it is capable of much more features than its appearance and performs as a minimal PA system even with a single device while multiple devices can also be managed as one controlled PA system.

01 What is IP-A1?

IP-A1 series consists of a variety of commercial-grade IP audio endpoints, which can be used as an independent audio system or a fully integrated audio communication system to be configured and operated in conjunction with external systems and platforms such as security video monitoring, access control, digital signage or fire alarm systems.

Common Key Features

Audio File Storage	Standard Protocols	Audio Management	Easy Configuration	Integration Friendly
MP3/WAV 80MB	SIP, Onvif Multicast	Priority & Volume	Browser UI & Software	HTTP API & Contact In/Out

*Onvif is a registered trademark of ONVIF Inc.

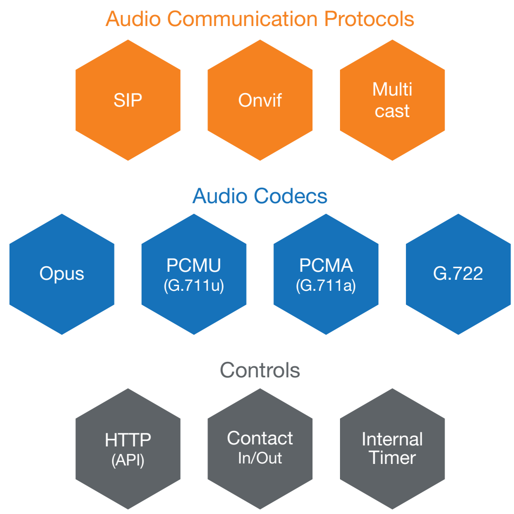
Audio communication system design can be much simpler and more flexible with IP-A1 series

02 Why IP-A1?

Integration-friendly

IP-A1 series IP endpoints adopt common industrial standard protocols for its audio communications and controls, which helps to establish fully integrated systems by communicating not only between IP-A1 series devices but also with external devices and platforms such as SIP phone, security VMS (Video Management Software), Access Control or Sensing systems.

Adding an endpoint or group of endpoints into a commercial communication system brings it to the next level for being capable of flexible audio communications over the network.



IP-A1 can be the easiest “**piece**” to be added for fulfilling **Audio System** requirements in your integration project designs.

Key Elements of Audio Communications

When	What	Where	How
Triggers	**Contents**	**Zone/Area**	**Secure Delivery**
Sensor/Alarm Scheduled Timer Manual Activation	Live Voice (PA mic) Live Voice (SIP Phone) Live Voice (VMS) Recorded message/tone	All Call Specific Zone/Area Individual Spot/Speaker	Priority Management Volume Control

IP-A1 series is designed to handle these elements flexibly for meeting evey single project requirements.

Server-less & Scalable

IP-A1 series does not require a dedicated server for its operation in standalone mode, so that the system budget can be minimized. The simplest PA system can be established by a single endpoint device such as IP Horn Speaker, while a building wide or even community wide audio communication system can also be configured with a large number of endpoints designed in different forms.

Server

Spot Announcement

Large-scale Broadcast

03 Lineup

Transmitter

IP Remote Microphone

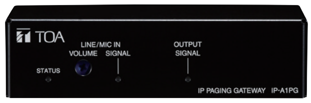
IP-A1RM

The IP-A1RM is an IP remote microphone, which can be used as a PA operation console to manage live voice announcements, playback recorded messages, quick recording and preview and other function activations.

Transmitter

IP Paging Gateway

IP-A1PG

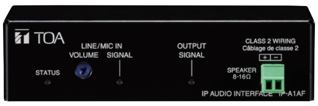


The IP-A1PG is an IP paging gateway unit to convert SIP/ONVIF audio streaming signal, internal audio files or local input audio sources into Multicast streaming for organizing group/zone broadcasts. It also manages entire IP-A1 PA system with a variety of control functions.

Receiver

IP Audio Interface

IP-A1AF



The IP-A1AF is an IP audio interface that decodes IP audio streams into analog audio signals to be connected with an analog mixer or amplifier. It is also equipped with a built-in 15W amplifier to drive low-impedance speaker(s).

Receiver

IP Power Amplifier

IP-A1PA12

The IP-A1PA12 is an IP power amplifier that receives audio signals through network and drive high impedance (25/70/100V) speaker(s) with a built-in 12W amplifier which can be powered by PoE+ power source.

Receiver

IP Ceiling Speaker

IP-A1PC238

The IP-A1PC238 is an IP ceiling speaker with a built-in 8W amplifier which is designed to deliver clear voice announcements and music. It receives audio signals through network and an 80MB internal file storage is also available for 20 MP3/WAV format audio files.

Receiver

IP Horn Speaker

IP-A1SC15

The IP-A1SC15 is an IP66 rated IP paging horn speaker which is designed to deliver clear voice announcements in outdoor applications. It receives audio signals through network and an 80MB internal file storage is also available for 20 MP3/WAV format audio files.

Accessory

Microphone Panel

IP-A1MP

The IP-A1MP is an analog microphone panel that is equipped with an electret condenser microphone, a push button and a status indicator. It can be used in conjunction with IP-A1AF to initiate a call and establish two-way conversation.

04 Key Broadcast Functions

Internal Audio File

ALL

- Up to 20 audio files (Total 80MB)
- MP3, WAV
- Volume level, Number of times to repeat and Interval can be specified.

Audio File Formats

WAV: 8/16/44.1/48 kHz sampling frequency, 8/16bit, mono/stereo
MP3: 32/44.1/48 kHz sampling frequency, 64-320 kbps, CBR/VBR, mono/stereo

SIP Broadcast

RM | AF | PA12 | PC238 | SC15

- Broadcasts can be made using SIP protocol via SIP server.

Compatible Audio Codecs

Opus, G.722, PCMU (G.711u), PCMA (G.711a)

VMS Broadcast

AF | PA12 | PC238 | SC15

- Broadcasts can be made using Onvif protocol from VMS (Video Management System) software.

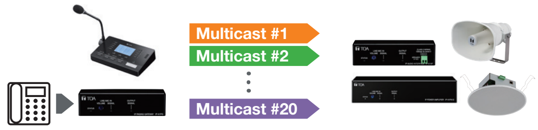
Compatible Audio Codecs

PCMU (G.711u)

Multicast Streaming

ALL

- Up to 20 multicast addresses and ports can be managed and streamed between transmitter and receiver devices.
- Each receiving device is capable of 20 multicast ports.



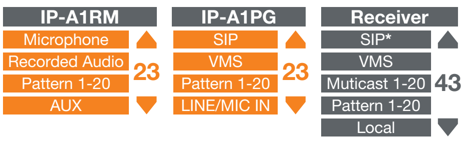
Compatible Audio Codecs

Opus, G.722, PCMU (G.711u), PCMA (G.711a) – Auto codec recognition

Priority Management

ALL

- Broadcast priorities can be changed between broadcast types and patterns on each device.



*When connecting via SIP to an IP audio device, receivers can prioritize one transmitting device.

Default Priorities (High to Low)

Default priorities are set as the above diagram shows.
“Local” priority setting is available only on IP-A1AF and IP-A1PA12.

2-way Communication

AF | PA12 | MP

- Audio back stream can be made for audio monitoring and/or conversation applications.

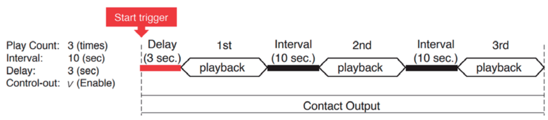
Audio Input (AF, PA12)

Audio Input: LINE/MIC (LINE: 0dB, MIC: -60dB), PAD, Phantom Power On/Off

Broadcast Patterns

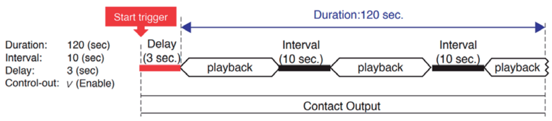
ALL

- Up to 20 Broadcast Patterns can be registered by using internal audio files.
- Play mode can be selected from two options (see right figure).



Play Count

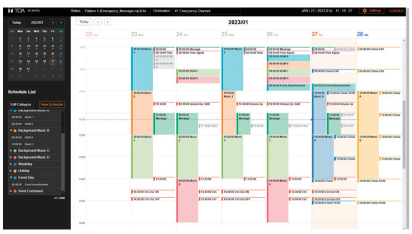
-Specify the number of times to repeat.
-Specify Interval and Delay time.
-Enable/disable control-out.



Duration

-Specify the total duration time to repeat.
-Specify Interval and Delay time.
-Enable/disable control-out.

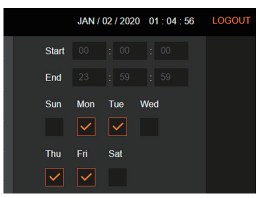
- Timer setting feature is available.



RM | AF

Calendar Scheduler

-User-friendly GUI allows intuitive operations to manage up to 2,000 schedules.
-Availlable on IP-A1RM and IP-A1PG.



AF | PA12 | PC238 | SC15

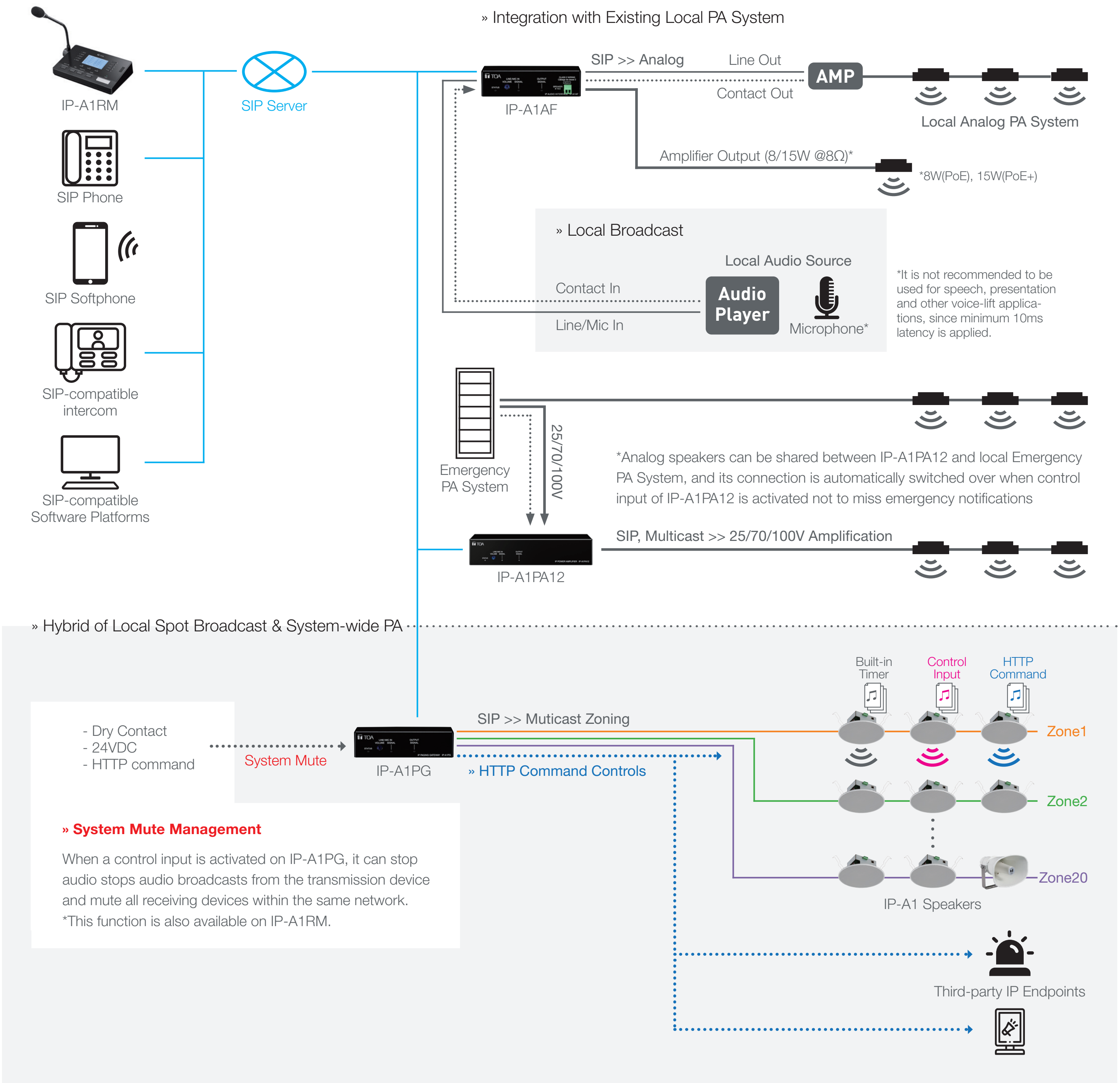
Weekly Timer

-Specify Start and End time to repeat.
-Select applicable days.
-Available on IP-A1AF, IP-A1PA12, IP-A1PC238.

05 Applications

Minimal Standalone Operation

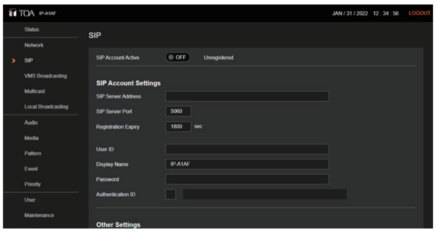
Sophisticated PA System Integrations



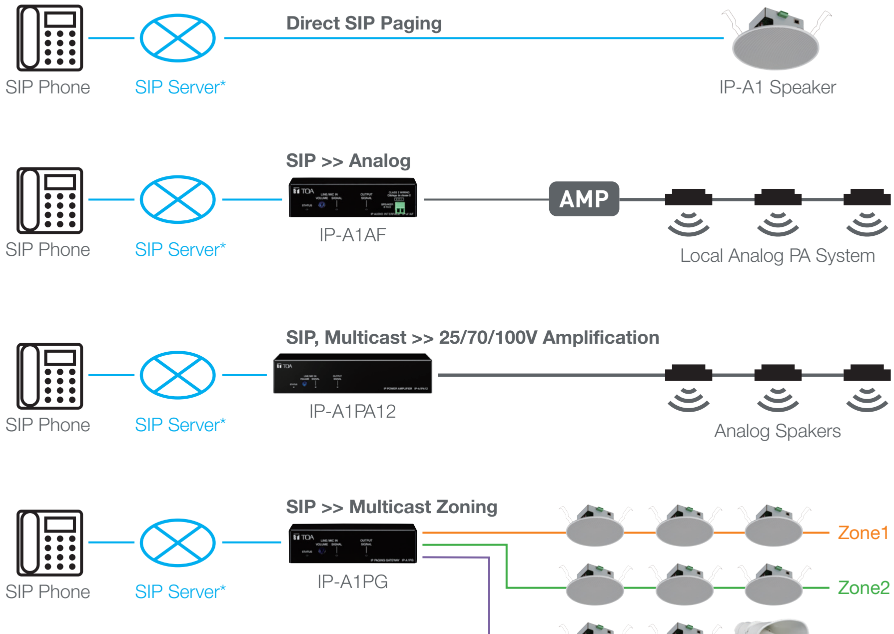
SIP Phone System Integrations

» As simple as adding a “**Phone**”

01 Dial 2-digit numbers (DTMF) to select Multicast channel/zone



IP-A1 Browser Interface
(SIP Account Setting Menu)



*Peer-to-peer (P2P) network communication is also supported to establish the system without a SIP server.

Security VMS Integrations

» As simple as adding a “**Camera**”

Device Discovery

Scan to discover IP-A1 device within the same network by VMS as a generic Onvif device.

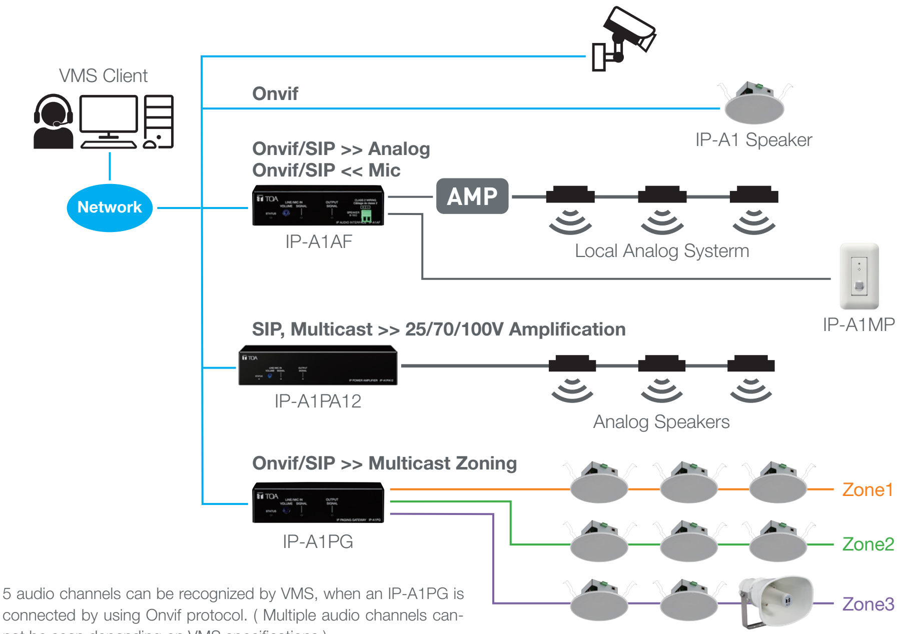
Registry & Configuration

Register it in VMS as an IP camera or an audio device.

Operation

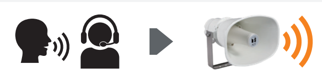
- Live announcements
- Monitor onsite sound*

*Available only on IP-A1AF



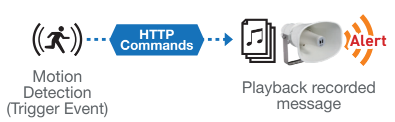
5 audio channels can be recognized by VMS, when an IP-A1PG is connected by using Onvif protocol. (Multiple audio channels cannot be seen depending on VMS specifications.)

Live Voice Announcement



Audio Monitoring

Alert Automation



IP-A1RM
the Operation Console of IP-A1 Series

IP-A1RM is designed to be used by PA system operators as the main console of IP-A1 series. It manages live voice announcements, playback recorded messages, quick recording and preview and other function activations.

Wall Mount Installation

*Optional wall mounting bracket WB-RM500 is required.

The below functions are also available as common features with IP-A1PG.

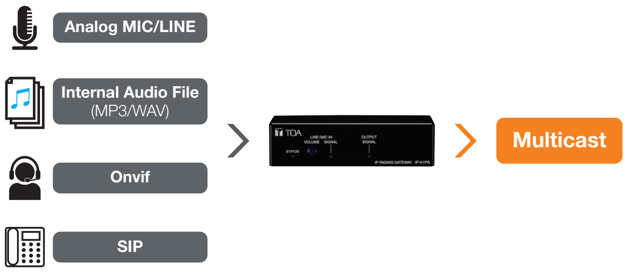
Multicast Zoning	System Mute
HTTP Command Distribution	Calendar Scheduler

IP-A1PG
the Intelligence of IP-A1 Series

IP-A1PG is designed to manage a variety of functions to make IP-A1 series a powerful communication system, while being integrated with external systems and platforms for receiving and sending signals to each other.

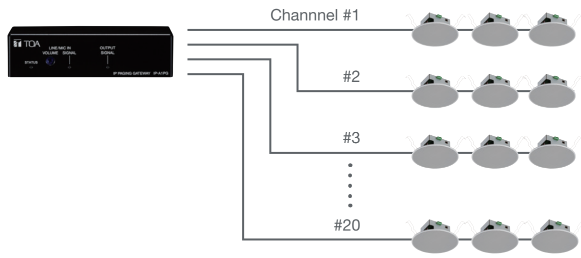
Audio Protocol Conversion

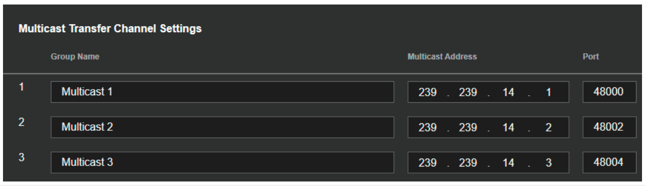
A variety of audio sources sent via different protocols can be converted into multicast format.



Multicast Zoning

Up to 20 multicast addresses and ports can be managed by one IP-A1PG for zoning broadcast applications.



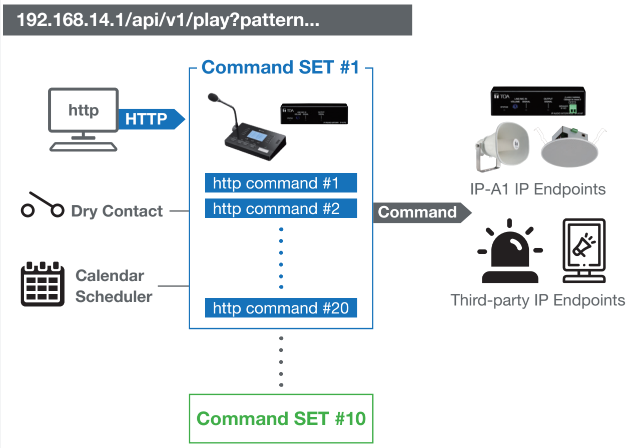


Multicast Transfer Channel Settings

	Group Name	Multicast Address	Port
1	Multicast 1	239 . 239 . 14 . 1	48000
2	Multicast 2	239 . 239 . 14 . 2	48002
3	Multicast 3	239 . 239 . 14 . 3	48004

HTTP Command Distribution

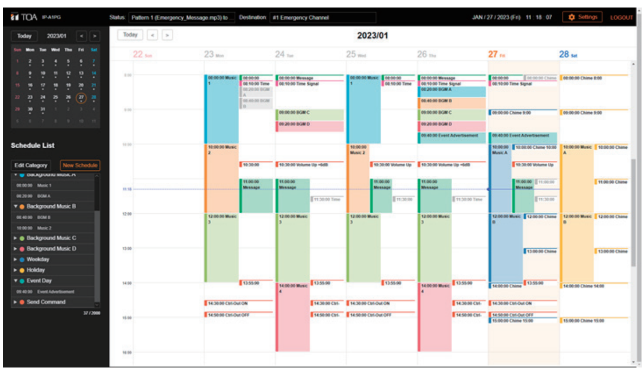
General HTTP commands can be registered and sent out as a set to any HTTP command-compatible devices.



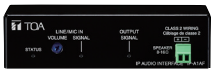
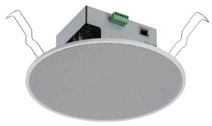
System Mute

All broadcasts made by IP-A1 series endpoints within the same network can be muted at once by triggering the control input.

Calendar Scheduler

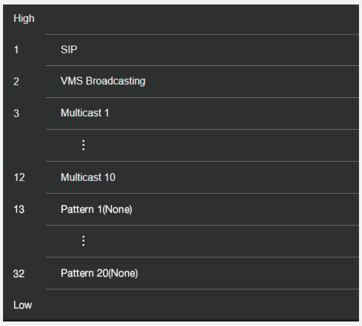


- Up to 2,000 schedules can be made to trigger pre-programmed broadcast patterns or controls using contact output or HTTP commands.
- The sophisticated graphical interface allows intuitive operations to create, edit and check schedules quickly.
- It supports not only a spot event creation but also regular repeating schedules such as weekly or monthly while specific dates are excluded as holidays.

	IP-A1PA12	IP-A1AF	IP-A1PC238	IP-A1SC15
				
Power sorce	PoE+	PoE+ / PoE	PoE	PoE+ / PoE
Audio Protocols SIP Onvif Multi cast	✓	✓	✓	✓
Audio Protocols Opus PCMU G.711u PCMA G.711a G.722	✓	✓	✓	✓
Two-way Communication (MIC Input)	✓	✓	-	-
Audio Output	✓	✓	-	-
Audio Storage Up to 20 80MB MP3 WAV	✓	✓	✓	✓
Weekly Timer Triggering Broadcast Patterns	✓	✓	✓	✓
Controls HTTP (API) Contact In/out	✓	✓	✓	✓
Environmental Ratings	- (-30 to +55°C / -22 to 131°F)	- (-30 to +55°C / -22 to 131°F)	- (0 to +50°C / 32 to 122°F)	IP66 (-30 to +55°C / -22 to 131°F)

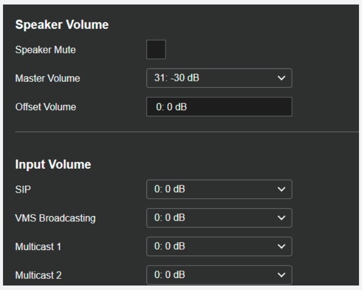
» Priority Management

Broadcast priority can be flexibly configured on each endpoint device independently.



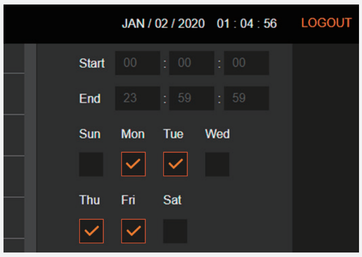
» Individual Volume Adjustment

Individual (Master and each Input) volume level can be flexibly adjusted to uniform the output level or set specific broadcasts at higher level intentionally.



» Weekly Timer

Weekly Timer function is available to play broadcast patterns by specifying “Start” time, “End” time and effective Day of Week.

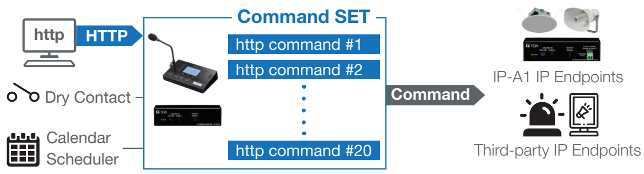


07 What can be achieved by HTTP commands?

“Command Set” Distribution

RM | PG

> Up to 10 pre-registered HTTP Command Set can be distributed from IP-A1RM/PG. And each Command Set consists of up to 20 commands.



Volume Setting

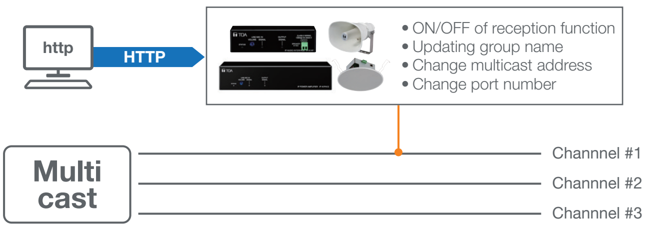
ALL

> Master volume, Master offset volume and Internal audio source volume can be adjusted and configured.

Multicast Reception Channel Control

PA12 | AF | PC238 | SC15

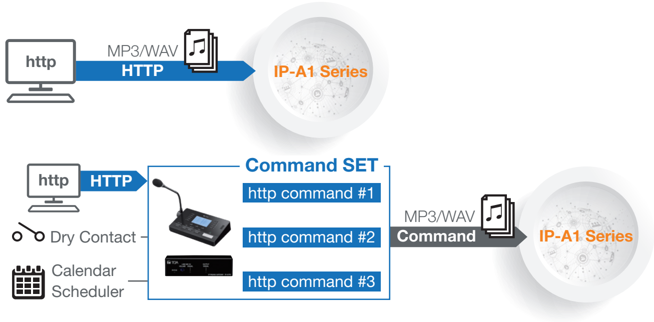
> The receiving devices can change the multicast channels they receive.



Sound Source File Upload

ALL

> Audio files or recorded sources registered on the transmitter can be uploaded to the IP-A1 device.



Play and Stop Internal Audio Files

ALL

> Internal audio files can be played back and stopped.

Number of times to repeat / Interval time / Volume Level and others

Initiating a SIP Call

PA12 | AF | PC238 | SC15

> A SIP call can be initiated and cancelled from an IP-A1 device to a pre-registered SIP phone.

Get Device Status and Setting Values

ALL

> Device status and setting values can be obtained.

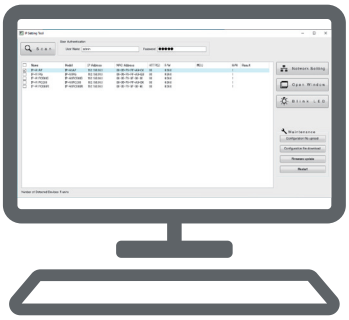
Device Maintenance

ALL

> Key device maintenance operations can be performed.

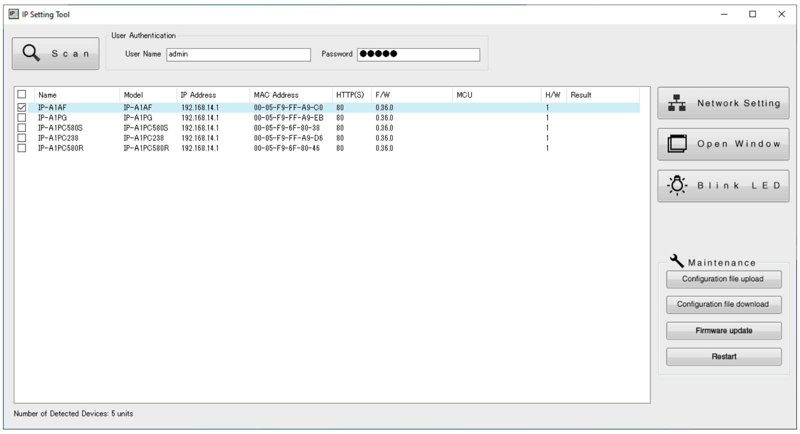
Please contact us to get the full command list.

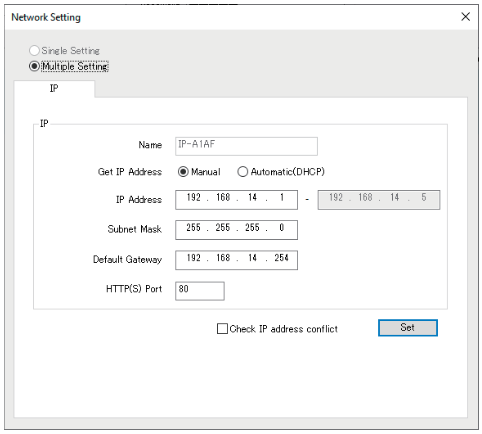
08 IP Setting Tool Software



(Free to download)

- All IP-A1 series endpoint devices within the same network can be discovered and displayed as a list.
- Configuration file can be downloaded/uploaded.
- Firmware can be updated.
- Basic network settings can be configured on single device or multiple devices.
- Test audio can be played back on receiving devices.





PC Requirements

OS	Windows 10 Pro (64bit) / 10 Home (64bit) / 11 Pro / 11 Home
Display	Resolution: 1366 x 768 or more

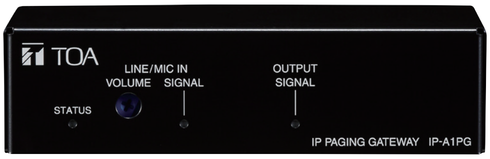
IP-A1RM IP Remote Microphone

- Angle adjustable gooseneck microphone with compressor effect
- 10 function-assignable keys to initiate broadcasts or controls
- GUI calendar scheduler function (up to 2,000 settings)
- System mute function to mute all broadcasts made by every single IP-A1 series devices within the same network
- 1 AUX audio input (LINE/MIC selectable, phantom power On/Off)
- 2 control inputs, 1 control output and 1 mute contron input
- Independant volume control for microphone and AUX input
- HTTP commands (send/receive)
- Audio file storage (20 files, total 80MB, WAV/MP3)
- PoE powered

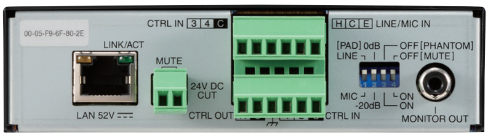
Specifications	IP-A1RM
Power Source	PoE(IEEE802.3af Class 3)
Power Consumption	3.5 W
Audio Transmition Method	SIP broadcasting: Unicast Audio Streaming, Group broadcasting: Multicast Audio Streaming
Audio Codec	Opus, PCMU (G.711u), PCMA (G.711a), G.722
Network I/F	100BASE-TX, Auto MDI/MDI-X, RJ45
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTCP, ARP, ICMP, NTP, SIP (RFC3261)
Microphone	Unidirectional electret condenser microphone (With microphone indicator and microphone volume control)
AUX Input	1 channel, unbalanced, 10 kΩ, LINE/MIC selectable (Rated input: LINE: 0 dB (*1), MIC: -60 dB (*1)) PAD function (-20 dB (*1)), AUX volume adjustable, φ3.5 mm mini jack
Monitor Speaker	Cone-type speaker, Speaker volume adjustable, Rated Output: 1 W
Control Input	2 channel, no-voltage make contact inputs, open voltage: 5V DC, short-circuit current: 2 mA or less, push-in terminal block
Mute Control Input	1 channel, 24 V DC cut signal, control current 5 mA or less, push-in terminal block
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 150 mA or less, push-in terminal block
Operation	Operation key: TALK, HOME, REC, MONITOR, SHIFT /KEY LOCK, Function key: VOLUME, RIGHT, LEFT, Selection key: 0 - 9
Indicator	LCD display: 3 (255 x 160 dots) with backlight, Indicator: Status indicator (green/ blue/ yellow/ red), Microphone indicator (blue), LINK/ACT indicator (green)
Manual broadcast/control	Manual broadcasting: Microphone broadcast, Recorded audio broadcasting, AUX input broadcast Manual control: control output, command set transmission, Control trigger: key operation
Sound Source Files	Max. 20 files (File storage capacity: 80 MB total) Supported file format: WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo, Repeat playback: Playcount (1-10 times) or Duration (5-3600 sec) Interval time: 0-99 sec, Delay time: 0-99 sec, Control trigger: key operation, scheduler, control input, remote API (HTTP)
Recorded audio broadcast	Audio recording and playback broadcast with the built-in microphone, Max. 2 minutes, 1 messaae
Chime	Pre and post chime tones (applied for manual broadcast and internal audio file broadcast), Preset chime tone x5, editable tone x2
Scheduler	Scheduled broadcasting and control by WEB-UI (Max. schedule settings:2000) Configurable actions: Internal message broadcast, audio input broadcast, control output, command set transmission
Event	Execute event triggered by control input Configurable actions: Internal message broadcast, audio input broadcast, command set transmission, broadcast disable, system mute
Command Set	20 commands can be registered in each of 10 command sets
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104 °F))
Language	English / Japanese
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	ABS resin, black, paint
Dimensions	224 (W) X 47.2 (H) X 136 (D) mm (8.82" x 1.86" x 5.35") (excluding microphone)
Weight	630 g (1.39 lb)
Accessory	Zip tie ...2
Option	Wall mountinq bracket: WB-RM500

(*1) When using Monitor output, assume an audio delay time.
(*2) 0 dB = 1 V

IP-A1PG IP Paging Gateway



IP-A1PG front



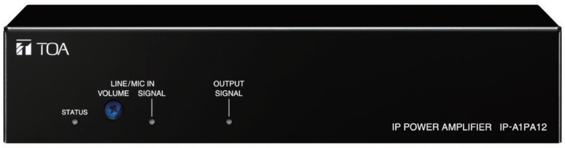
IP-A1PG rear

- Convert SIP audio, ONVIF Audio, internal audio files or local audio source into Multicast streaming
- GUI calendar scheduler function (up to 2,000 settings)
- System mute function to mute all broadcasts made by every single IP-A1 series devices within the same network
- 1 local audio input (LINE/MIC selectable, phantom power On/Off)
- 4 control inputs and 1 control output
- HTTP commands (send/receive)
- Audio file storage (20 files, total 80MB, WAV/MP3)
- PoE powered

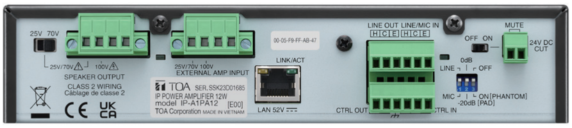
Specifications	IP-A1PG
Power Source	PoE(IEEE802.3af Class 3)
Power Consumption	2.5 W
Audio Transmition Method	Multicast Audio Streaming
Audio Codec	Opus, PCMU (G.711u), PCMA (G.711a), G.722
Audio Delay Time	Min. 100 ms(*1)
Network I/F	100BASE-TX, Auto MDI/MDI-X, RJ45 connector
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTSP, RTCP, ARP, ICMP, IGMPv3, NTP, SIP(RFC3261)
Audio Input	1 channel, electronically-balanced, 10 kΩ LINE/MIC selectable (Rated input: LINE: 0 dB (*2), MIC: -60 dB (*2)) PAD function (-20 dB (*2)), Phantom power ON/OFF (12 V DC), volume adjustable removable terminal block (6 pins)
Monitor Output	1 channel, electronically-balanced, 600 Ω or less, Rated output: 0 dB (*2), RCA pin jack
Control Input	4 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (6 pins)
Mute Control Input	1 channel, 24 V DC cut signal, control current 5 mA or less, removable terminal block (2 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 150 mA or less, removable terminal block (6 pins)
Indicator	STATUS (green/blue/orange/red), LINE/MIC IN (green/red), OUTPUT (green),LINK/ACT (green)
Broadcasting	Audio transmission: Transmit internal messages by multicast audio streaming, Transmit audio from audio input connected devices by multicast audio streaming Audio conversion: Convert audio from video management syetems using ONVIF or SIP phone systems into multicast audio stream and transmit
Scheduler	Scheduled broadcasting and control by WEB-UI (Max. schedule settings:2000) Configurable actions: Internal message broadcast, audio input broadcast, control output, command set transmission
Event	Execute event triggered by control input Configurable actions: Internal message broadcast, audio input broadcast, command set transmission, broadcast disable, system mute
Sound Source Files	Max. 20 files (File storage capacity: 80 MB total) Supported fie format: WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat playback: Playcount (1 - 10 times) or Duration (5 - 3600 sec) Interval time: 0 - 99 sec, Delay time: 0 - 99 sec
Command Set	20 commands can be registered in each of 10 command sets
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104 °F))
Operating Temperature	-30 °C to +55 °C (-22 °F to 131 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Front case: Surface-treated steel plate, black, paint Rear chassis: Surface-treated steel plate
Dimensions	126 (W) x 33 (H) x 80 (D) mm (4.96" x 1.3" x 3.15") (excluding projection)
Weight	390 g (0.86 lb)
Accessory	Removable terminal plug (6 pins, preinstalled on the unit) ...2, Removable terminal plug (2 pins, preinstalled on the unit), Rubber feet ...4, Mounting screw (M3 x 6) ...4

(*1) When using Monitor output, assume an audio delay time.
(*2) 0 dB = 1 V

IP-A1PA12 IP Power Amplifier 12W



IP-A1PA12 front



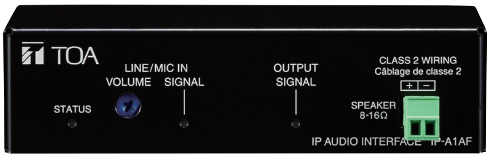
IP-A1PA12 rear

- 12W amplifier to drive 100/70/25V line speakers
- Receive SIP audio, ONVIF and Multicast
- Local broadcast using internal audio files or local audio source
- External amplifier input (100/70/25V) to share speakers between the built-in amplifer and external PA amplifier to be switched over
- 1 audio input (LINE/MIC selectable, phantom power On/Off)
- 2 control inputs, 1 control output and 1 mute control input
- HTTP commands (receive)
- Audio file storage (20 files, total 80MB, WAV/MP3)
- Playback programs (Repeat, Weekly Timer)
- PoE+ powered

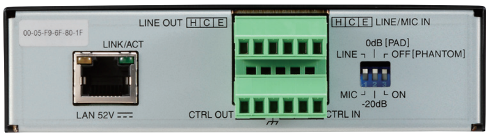
Specifications	IP-A1PA12
Power Source	PoE+ (IEEE802.3at Class 4)
Power Consumption	25 W (rated output), 6 W (IEC62368-1)
Amplifier Rated Output	12 W
Frequency Response	100 Hz - 20 kHz
Audio Codec	Opus, PCMU (G.711u), PCMA (G.711a), G.722
Audio Delay Time	Min. 100 ms (*1)
Broadcasting Mode	SIP Broadcasting/SIP calling Mode: Opus/PCMU/PCMA/G.722, P2P/SIP Server Connection Multicast Broadcasting Mode: Opus/PCMU/PCMA/G.722 Auto codec recognition, 20 ports VMS Broadcasting Mode: PCMU Internal Message Broadcasting Mode Local Broadcasting Mode: Output from LINE/MIC IN to SPEAKER OUT Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function.
Sound Source Files	Max. 20 files (File storage capacity: 80 MB total) Supported file formats: WAV file: 8/16/ 44.1 / 48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/ 44.1 / 48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat playback: Playcount (1 - 10 times), Duration (5 - 3600 sec) or Timer (from Start time to End time) Interval time: 0 - 99 sec, Delay time: 0 - 99 sec , Trigger: Control Input or Remote API (HTTP)
Network I/F	100BASE-TX, Auto MDI/MDI-X, RJ45
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTSP, RTCP, ARP, ICMP, IGMPv3, NTP, SIP (RFC3261)
Speaker Output	High impedance 100 V line (830 Ω), 70 V line (420 Ω), 25 V line (52 Ω) N (100 V), N (70 V/25 V switchable), R, C removable terminal block (4pins)
External Amplifier Input	High impedance 100 V line, 70 V line, 25 V line , N (100 V), N (70 V/25 V switchable), R, C removable terminal block (4pins)
Amplifier Switching Control	Relay switching Swithced to external amplifier when the following functions and operations are activated: mute control input, control input, system mute, remote API control and the unit power off.
Audio Input	1 channel, electronically-balanced, 10 kΩ , LINE/MIC selectable (Rated input: LINE: 0 dB (*2), MIC: -60 dB (*2)) PAD function (-20 dB (*2)), Phantom power ON/OFF (12 V DC), volume adjustable removable terminal block (6 pins)
Audio Output	1 channel, electronically-balanced, 600 Ω or less Rated input: 0 dB (*2), removable terminal block (6 pins)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (6 pins)
Mute Control Input	1 channel, 24 V DC cut signal, control current: 5 mA or less, removable terminal block (2 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 150 mA or less, removable terminal block (6 pins)
Indicator	STATUS (green/blue/yellow/red), LINE/MIC IN (green/red), OUTPUT (green),LINK/ACT (green)
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104 °F))
Language	English / Japanese
Operating Temperature	-30 °C to +55 °C (-22 °F to 131 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Front case: Surface-treated steel plate, black, paint Rear chassis: Surface-treated steel plate
Dimensions	210 (W) x 44 (H) x 81.5 (D) mm (8.27" x 1.73" x 3.21") (excluding projection)
Weight	940 g (2.07 lb)
Accessory	Removable terminal plug (6 pins, preinstalled on the unit) ...2, Removable terminal plug (4 pins, preinstalled on the unit) ...2, Removable terminal plug (2 pins, preinstalled on the unit) ...1, Rubber feet ...4, Mounting screw (B tight 3 x 6) ...4

(*1) When the mode of local broadcasting is set to Normal, assume audio delay time. Audio input can be output with no delay when the mode of local broadcasting is set to No Delay.
(*2) 0 dB = 1 V

IP-A1AF IP Audio Interface



IP-A1AF front



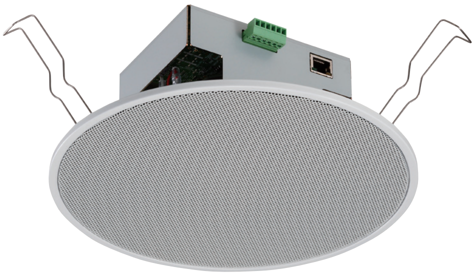
IP-A1AF rear

- Receive SIP audio, ONVIF and Multicast
- Local broadcast using internal audio files or local audio source
- 1 audio input (LINE/MIC selectable, phantom power On/Off)
- 8W (PoE)/15W(PoE+) built-in amplifier, 1 LINE audio output
- 2 control inputs and 1 control output
- HTTP commands (receive)
- Audio file storage (20 files, total 80MB, WAV/MP3)
- Playback programs (Repeat, Weekly Timer)
- PoE/PoE+ powered

Specifications	IP-A1AF
Power Source	PoE+ (IEEE802.3at Class 4), PoE (IEEE802.3af Class 3)
Power Consumption	22 W (at PoE+ powered, rated output) 12.95 W (at PoE powered, rated output) 5 W (IEC62368-1)
Amplifier Rated Output	15 W (at PoE+, powered, 8 Ω) 8 W (at PoE, powered, 8 Ω) Applicable impedance: 8 - 16 Ω
Frequency Response	50 Hz - 20 kHz
Audio Codec	Opus, PCMU (G.711u), PCMA (G.711a), G.722
Audio Delay Time	Min. 100 ms (*1)
Broadcasting Mode	SIP Broadcasting/SIP calling Mode: Opus/PCMU/PCMA/G.722, P2P/SIP Server Connection Multicast Broadcasting Mode: Opus/PCMU/PCMA/G.722 Auto codec recognition, 20 ports VMS Broadcasting Mode: PCMU Internal Message Broadcasting Mode Local Broadcasting Mode: Output from LINE/MIC IN to SPEAKER OUT Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function.
Sound Source Files	Max. 20 files (File storage capacity: 80 MB total) Supported file formats WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat playback: Playcount (1 - 10 times), Duration (5 - 3600 sec) or Timer (from Start time to End time) Interval time: 0 - 99 sec, Delay time: 0 - 99 sec Trigger: Control Input or Remote API (HTTP)
Network I/F	100BASE-TX, Auto MDI/MDI-X, RJ45 connector
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTSP, RTCP, ARP, ICMP, IGMPv3, NTP, SIP (RFC3261)
Audio Input	1 channel, electronically-balanced, 10 kΩ LINE/MIC selectable (Rated input: LINE: 0 dB (*2), MIC: -60 dB (*2)) PAD function (-20 dB (*2)), Phantom power ON/OFF (12 V DC), volume adjustable removable terminal block (6 pins)
Audio Output	1 channel, electronically-balanced, 600 Ω or less Rated input: 0 dB (*2), removable terminal block (6 pins)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (6 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 150 mA or less, removable terminal block (6 pins)
Indicator	STATUS (green/blue/orange/red), LINE/MIC IN (green/red), OUTPUT (green),LINK/ACT (green)
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104 °F))
Operating Temperature	-30 °C to +55 °C (-22 °F to 131 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Front case: Surface-treated steel plate, black, paint Rear chassis: Surface-treated steel plate
Dimensions	126 (W) x 33 (H) x 80 (D) mm (4.96" x 1.3" x 3.15") (excluding projection)
Weight	390 g (0.86 lb)
Accessory	Removable terminal plug (6 pins, preinstalled on the unit) ...2, Removable terminal plug (2 pins, preinstalled on the unit) ...1, Rubber feet ...4, Mounting screw (M3 x 6) ...4

(*1) When the mode of local broadcasting is set to Normal, assume audio delay time. Audio input can be output with no delay when the mode of local broadcasting is set to No Delay.
(*2) 0 dB = 1 V

IP-A1PC238 IP Ceiling Speaker



- 16cm (6”) cone-type speaker for in-ceiling installations
- Receive SIP audio, ONVIF and Multicast
- Local broadcast using internal audio files
- 8W built-in amplifier
- 2 control inputs and 1 control output
- HTTP commands (receive)
- Audio file storage (20 files, total 80MB, WAV/MP3)
- Playback programs (Repeat, Weekly Timer)
- PoE powered

Specifications	IP-A1PC238
Power Source	PoE (IEEE802.3af Class 3)
Power Consumption	12.95 W (rated output) 5 W (IEC62368-1)
Amplifier Rated Output	8 W
Sensitivity	94 dB (1 W, 1 m) (500 Hz - 5 kHz, pink noise)
Maximum Sound Pressure Level	103 dB (8 W, 1 m)
Frequency Response	60 Hz - 20 kHz (peak - 20 dB)
Speaker Component	16 cm (6") cone-type
Audio Codec	Opus, PCMU (G.711u), PCMA (G.711a), G.722
Broadcasting Mode	SIP Broadcasting/SIP calling Mode: Opus/PCMU/PCMA/G.722, P2P/SIP Server Connection Multicast Broadcasting Mode: Opus/PCMU/PCMA/G.722 Auto codec recognition, 20 ports VMS Broadcasting Mode: PCMU Internal Message Broadcasting Mode Local Broadcasting Mode: Output from LINE/MIC IN to SPEAKER OUT Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function.
Sound Source Files	Max. 20 files (File storage capacity: 80 MB total) Supported file formats WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat playback: Playcount (1-10 times), Duration (5-3600 sec) or Timer (from Start time to End time) Interval time: 0 - 99 sec, Delay time: 0 - 99 sec Trigger: Control Input or Remote API (HTTP)
Network I/F	100BASE-TX, Auto MDI/MDI-X, RJ45 connector
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTSP, RTCP, ARP, ICMP, IGMPv3, NTP, SIP (RFC3261)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (6 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 150 mA or less, removable terminal block (6 pins)
Indicator	STATUS (orange), LINK/ACT (green)
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104 °F))
Dimensions for Fixing Hole	Mounting hole: φ200 ±2 mm (7.87" ±0.08") Ceiling thickness: 5 - 25 mm (0.2" - 0.98")
Speaker Mounting Method	Spring clamp
Operating Temperature	0 °C to +50 °C (32 °F to 122 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Frame: Steel plate, white (RAL 9016 equivalent), paint Grill: Steel net, white (RAL 9016 equivalent), paint
Dimensions	Φ230 x 89 (D) mm (9.06" x 3.5")
Weight	880 g (1.94 lb)
Accessory	Pattern paper ...1, Removable terminal plug (6 pins, preinstalled on the unit) ...1

NOTE: Please do not install the product near heat insulation material, or cover the product with heat insulation or acoustic absorbing materials to prevent fire risk. Please do not install the product in damp or wet locations or areas with high humidity (condensing) as it may cause damage to the product.

IP-A1SC15 IP Horn Speaker

- 124dB (PoE+ powered) with IP66 rating for outdoor installations
- Receive SIP audio, ONVIF and Multicast
- Local broadcast using internal audio files
- 8W (PoE)/15W(PoE+) built-in amplifier
- 2 control inputs and 1 control output
- HTTP commands (receive)
- Audio file storage (20 files, total 80MB, WAV/MP3)
- Playback programs (Repeat, Weekly Timer)
- PoE/PoE+ powered

Specifications	IP-A1SC15
Power Source	PoE+ (IEEE802.3at Class 4), PoE (IEEE802.3af Class 3)
Power Consumption	22 W (at PoE+ powered, rated output), 12.95 W (at PoE powered, rated output), 5 W (IEC62368-1)
Amplifier Rated Output	15 W (at PoE+ powered), 8 W (at PoE powered)
Sensitivity	112 dB (1 W, 1 m) (500 Hz - 2.5 kHz, peak level)
Maximum Sound Pressure Level	124 dB (at PoE+ powered, 15 W, 1 m) (500 Hz - 2.5 kHz, peak level) 121 dB (at PoE powered, 8 W, 1 m) (500 Hz - 2.5 kHz, peak level)
Frequency Response	280 Hz - 12.5 kHz
Audio Codec	Opus, PCMU (G.711u), PCMA (G.711a), G.722
Broadcasting Mode	SIP Broadcasting Mode: Opus/PCMU/PCMA/G.722 Multicast Broadcasting Mode: Opus/PCMU/PCMA/G.722 Auto codec recognition, 20 ports VMS Broadcasting Mode: PCMU Internal Message Broadcasting Mode Note: Each broadcast mode can be assigned an order of priority using the Priority Setting function.
Sound Source Files	Max. 20 files (File storage capacity: 80 MB total) Supported file formats WAV file: 8/16/44.1/48 kHz sampling frequency, 8/16 bit, monaural/stereo MP3 file: 32/44.1/48 kHz sampling frequency, 64 - 320 kbps, CBR/VBR, monaural/stereo Repeat playback: Playcount(1-10 times), Duration (5-3600 sec) or Timer (from Start time to End time) Interval time: 0 - 99 sec, Delay time: 0 - 99 sec Trigger: Control Input or Remote API (HTTP)
Network I/F	100BASE-TX, MDI/MDI-X, RJ-45
Network Protocol	TCP/IP, UDP, HTTP, RTP, RTSP, ARP, ICMP, IGMPv3, NTP, SIP (RFC3261)
Control Input	2 channels, no-voltage make contact inputs, open voltage: 5 V DC, short-circuit current: 2 mA or less, removable terminal block (3 pins)
Control Output	1 channel, open collector output, withstand voltage: 30 V DC, control current: 50 mA or less, removable terminal block (3 pins)
Indicator	LAN LINK/ACT (green), STATUS (orange)
Clock Accuracy	±13 seconds per month
Time Adjustment	Manual time setting, Time adjustment by NTP server
Power Outage Protection Period	24 hours (RTC time retention, at 40 °C (104 °F))
Dust/Water Protection	IP66
Operating Temperature	-30 °C to +55 °C (-22 °F to +131 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Horn flare and body: Aluminum, off-white (RAL 9010 equivalent), paint Reflector horn: ABS resin, off-white (RAL 9010 equivalent) Rear cover: PC resin, off-white (RAL 9010 equivalent), paint Bracket, screws and bolts: Stainless steel
Dimensions	222 (W) x 211 (H) x 276 (D) mm (8.74" x 8.31" x 10.87")
Weight	1.4 kg (3.09 lb)
Accessory	Rear cover…1, Removable terminal plug (3 pins)…2
Option	Speaker mount bracket: SP-131, SP-201, SP-301 Pole band: YS-60B

Note: Take special care to avoid mounting this speaker directly to structures (such as ski lift towers) that generate large amounts of vibration. Also, do not use this speaker in environments where it may be exposed to oil or other chemicals, as mounting parts could rapidly deteriorate, possibly resulting in personal in jury or other accidents due to the speaker falling.
There specifications only apply to the firmware version 2. 1. 0.

IP-A1MP Microphone Panel

(with accessory cover plate)

- Audio accessory unit to be used in conjunction with IP-A1 series devices for having two-way conversations or audio monitoring
- Omni-directional electret condensor microphone
- Momentary type push switch to initiate a call
- Indicator lights during control input is being triggered
- 1 control input and 1 control output
- 1 electronically-balanced audio output (0dB, 200Ω)
- Surface or flush mounting with a standard electrical box

Specifications	IP-A1MP
Phantom Power	9 V DC - 26 V DC
Current Consumption	8 mA or less (at 12 V DC)
Microphone Type	Omni-directional electret condenser microphone
Frequency Response	100 Hz - 10 kHz
Microphone Output	0 dB (*1) , 200 Ω, (Volume adjustable), electronically-balanced, push-in terminal block
Push Switch	Momentary type (Control output circuit is closed while pressed)
Control Output	No-Voltage make contact output, withstand Voltage: 30 V DC, control current: 100 mA, push-in terminal block
Indicator	Green (Lit during control input) (*2)
Control Input	No-Voltage make contact input, open Voltage: 5 V DC, short-circuit current: 0.2 mA or less, push-in terminal block
Cable Requirement	Microphone output: Two-core shielded cable or Shielded twisted pair cable, Control input/output: Twisted pair cable
Operating Temperature	-20 °C to +55 °C (-4 °F to 131 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Front case: Surface-treated steel l plate, white (RAL 9016 equivalent), semi-gloss, paint Rear case, bracket: Surface-treated steel plate, black zinc plating Plate: ABS resin, white (RAL 9016 equivalent), gloss
Dimensions	44.6 (W) x 107 (H) x 29 (D) mm (1.76" x 4.21" x 1.14") (excluding projection)
Weight	170 g (0.37 lb)
Accessory	Plate ...1, Plate mounting screw (M3.5 x 5.5, preinstalled on the plate) ...2, Box mounting screw (M4 x 35) ...2
Applicable Box	Flush-Mount Box: YC-801, Wall-Mount Box: YC-802

(*1) 0 dB = 1 V
(*2) Lights only when phantom power is supplied.

Smiles for the Public