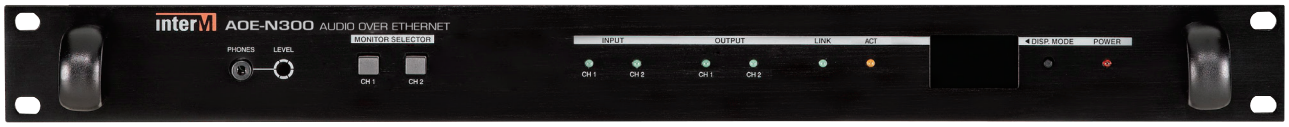
Network Audio Transmission Solutions

AOE-N300

AUDIO OVER ETHERNET



interM



Features And Usage Of AOE-N300

AOE-N300 is a network control device that transmits audio and control data through the network. While the existing AOE-212N can only transmit signals to the hardware or check the transmitted data, the newly released AOE-N300 can control not only signals and data transmission but also all other functions.

The AOE-N300 sets audio quality, changes network bandwidth, and remotely controls power through virtual contact closure with the web browser of PC, tablet, and mobile phone, without any additional programs.

When AOE-N300 and NCS-1000 (Network Connecting System main server) are synchronized, integrated control is enabled by connecting to the NCS system, Inter-M's Network Connecting System, according to the settings of MS-N300 (Network Connecting System software).

Remote Control Without Distance Limitation



RS-232C
Control distance : 10M



RS-422
Control distance : 1000M



AOE-N300



TCP/IP
Remote control without distance limitation(∞)

The transmission distance of RS-232C is 10M and RS-422 is 1000M. On the other hand, AOE-N300 can be remotely controlled without any distance limitation, it enables high-quality audio and data of 24bits and 48kHz.

Web Gui Support And Benefits



[Web browser for PC]



[Web browser for Mobile]

Benefits of web browser type

- Recommended web browser : Chrome
- Controls anywhere on the Internet
- Supports PCs, tablets, and mobile phones
- Intuitive GUI

What you can do in a web browser

- Audio quality settings
- Network bandwidth change
- Virtual contact closure control
- Location-free monitoring and operations management

Network Connecting System (NCS) Synchronization



AOE-N300



Network Connecting System



AOE-N300 can perform audio transmission and control by itself. In case when large-scale systems or regional control are required, effective integrated control for each IP address is available through integrated control program (MS-N300) in association with Inter-M's Network Connecting System.

High Quality Audio Data Transmission

- Single-cable transmission system of audio and control data
- Controls without limits on distance using LAN/WAN network (Multicast : 1 : 70/Unicast : 1 : 20)
- Uncompressed or compressed digital audio transmission (When constant bandwidth is maintained)
- High quality audio S/N 92dB or more, THD 0.1% or less
- 2-channel bidirectional transmission
- Data(RS-232C, RS-422, 8 channel contact closures) transmission
- Transmission speed of communication data up to 115,200 bps

User Convenience

- A front input/output port for a headphone monitor
- Signal indicator
- Network connection, Operation, Power LED
- Network information display window
- Compact 1U size
- Hardware reset switch (rear side)
- Audio input volume control
- Supports AC and DC power simultaneously
- Ensures stability through bonding

Ease Of Use

- A web-based software for AOE-N300 monitoring and easy configuration
- Mobile webpage for AOE-N300 monitoring and easy configuration
- Synchronization with MS-N300, which allows integrated control of all equipments connected to the network and full system operation (NCS-1000 equipment required)

Easy Installation

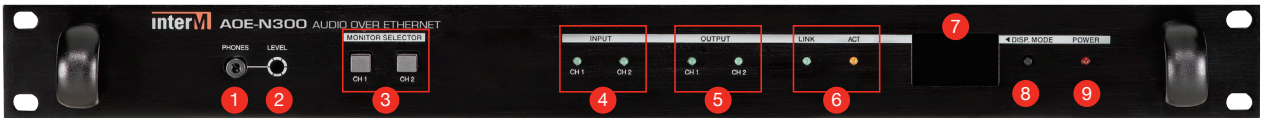
- Euroblock for easy audio line connection
- Audio balance Input/Output
- Handle for convenient removal
- Remote Microphone (RM-6024) extension accessory (CIA-01, CIA-02)

Ethernet Transmission



AOE-N300 supports transmission in LAN and WAN environment using Ethernet network. AOE-N300 can transmit two channels of analog audio signals bidirectionally in real time. It can connect with various data in the local area through 8-channel contact closure input/output and RS-232C and RS-422 data transmission, and can transmit high-quality audio to the equipment located in remote locations.

Front Panel



1 MONITOR PORT
You can monitor the output signal of the selected channel using 3.5Ø jack.

2 MONITOR VOLUME

3 MONITOR OUTPUT SELECTION SWITCH

4 INPUT SIGNAL DISPLAY LED

5 OUTPUT SIGNAL DISPLAY LED

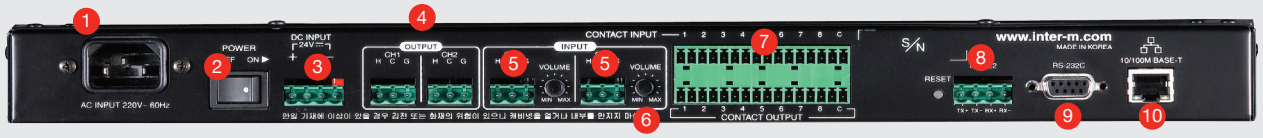
6 LINK/ACT
Indicates the device's network connection status and network data transmission/reception.

7 LCD
Displays network (IP, MAC Address, S/W Version, etc.) settings and server connection status.

8 DISPLAY SELECTION SWITCH
Click to check the information in the following order.
- Inter-M logo + IP Address
- MAC Address + Bandwidth + S/W Version
- Audio status (Server, Client ON/OFF, etc)
- RS-232C status
- RS-422 status
- PIO status

9 POWER DISPLAY LED

Rear Panel



1 AC INLET

2 POWER SWITCH

3 DC INPUT TERMINAL
An emergency backup battery (DC 24V) connection terminal.

4 4 AUDIO OUTPUT TERMINAL
A two-channel balance (H, C, G) output terminal.

5 AUDIO INPUT TERMINAL
A two-channel balance (H, C, G) input terminal.

6 AUDIO INPUT VOLUME
You can adjust the volume of the input audio signal from -10 dB to +10 dB.
※ Maintain 80% of the total volume for stable use of the equipment.

6 AUDIO INPUT VOLUME
You can adjust the volume of the input audio signal from -10 dB to +10 dB. Maintain 80% of the total volume for stable use of the equipment.

7 CONTACT CLOSURE and OUTPUT TERMINAL
Contact input and output terminals for a total of eight channels. When a contact closure signal is input to each contact terminal of transmitting AOE-N300, a contact closure signal is output from the corresponding contact output terminal of receiving AOE-N300.

8 RS-422 TRANSMISSION TERMINAL

9 RS-232C TRANSMISSION TERMINAL
※ Data communication using RS-422/RS-232C terminal supports 1:1 transmission and reception.

10 NETWORK TERMINAL
It is a RJ-45 connection terminal.

AOE-N300 Installation Checkpoints

1. Request IP allocation for AOE-N300 and check the IP address to use (exclusive IP is recommended)
   * Connection between AOE-N300 may be restricted due to dynamic IP access restriction.

2. Check the bandwidth of AOE-N300, and consult with the computer administrator at the installed location regarding QoS and port forwardin

1) AOE-N300 Uncompressed Bandwidth

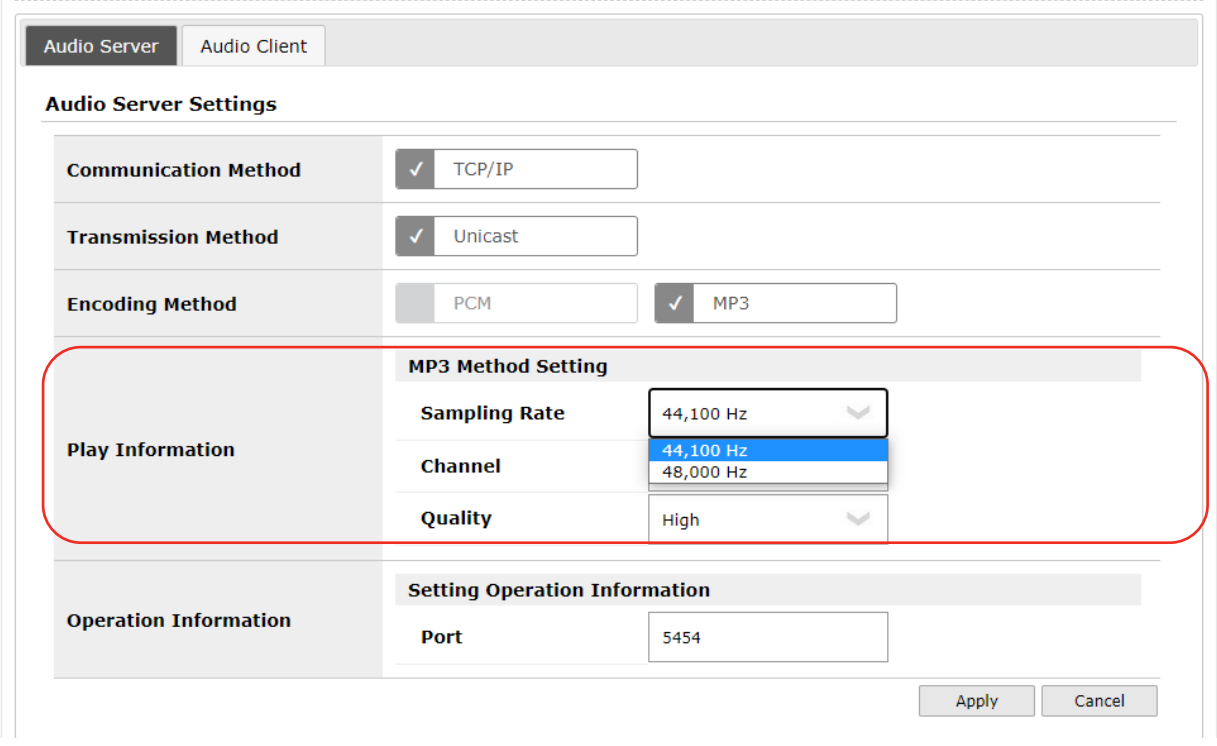
Sampling freq.(Hz)	AOE-N300 Number Of Channels	Bandwidth (Mbps)
44100 (CD Sound Quality)	1	0.70
44100 (CD Sound Quality)	2	1.40
48000 (DVD Sound Quality)	1	0.75
48000 (DVD Sound Quality)	2	1.50

- Bandwidth to use = bandwidth x Number of AOE-N300s
  ex) In case of 48 kHz, 2CH, 20 units of AOE-N300 (maximum), bandwidth of 42Mbps or higher is required
  1.5(Mbps) X 20 (Units) / 0.7(Headroom) = 42.857Mbps (bandwidth to use)

2) Check bandwidth in use

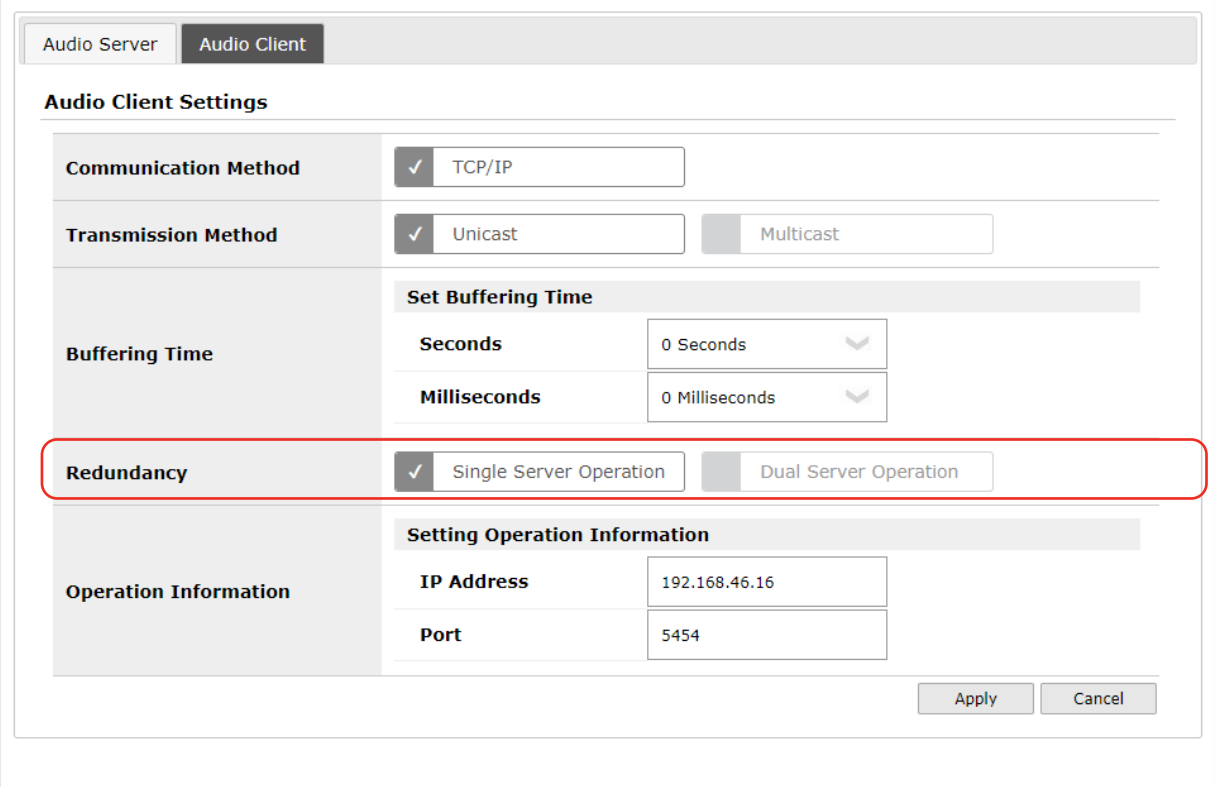
Bandwidth	Conditions of AOE Use	Remarks
10Mbps	Use upper and lower 1CH	Not recommended
100Mbps	Use upper and lower 16CH	When using with other network equipment, set the exclusive bandwidth in advance.
1Gbps	Use upper and lower 15CH	When using with other network equipment, set the exclusive bandwidth in advance.

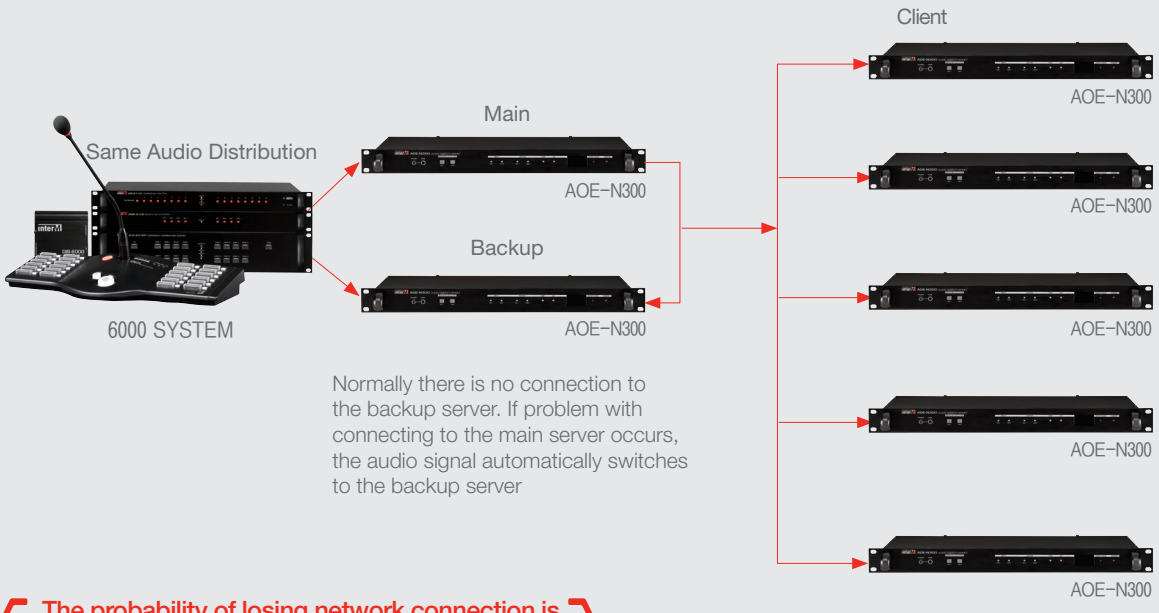
3) AOE-N300 Compressed Bandwidth
   • Bandwidth to use = Selected bandwidth per channel x 1.3



Features of Server Bonding

Features of Server Bonding





Normally there is no connection to the backup server. If problem with connecting to the main server occurs, the audio signal automatically switches to the backup server

The probability of losing network connection is about 1/1,000, and when configured in bonded network, it is reduced to 1/1,000,000.

AOE-N300 WEB GUI

AOE-N300 can monitor and set equipment status through WEB GUI without installing a separate program. Using a PC, laptop, mobile phone, or tablet, you can control AOE-N300 by simply accessing it from anywhere on the Internet.

※ You can set up and control the AOE-3000 using multiple PCs, laptops, mobile phones, and tablets simultaneously.

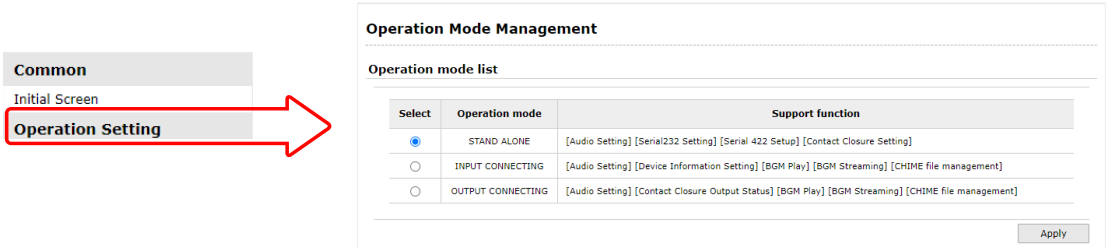


[Web browser for PC]



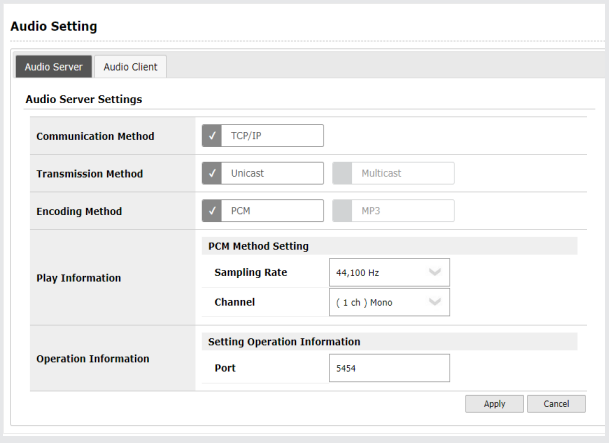
[Web browser for Mobile]

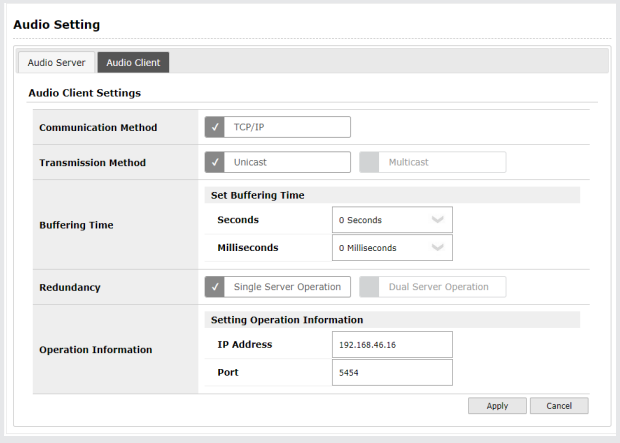
You can use AOE-N300 in 3 modes through 'Manage operation mode' in the management menu. The STAND ALONE mode is the same as the existing AOE-212N. INPUT CONNECTING mode and OUTPUT CONNECTING mode can be used in conjunction with NCS (Network Connecting System), the network integrated broadcasting system of Inter-M.



NO	Mode	Features
1	STAND ALONE MODE	Audio settings, Serial 232 settings, Serial 422 settings, and Contact Closure settings
2	INPUT CONNECTING MODE	Audio settings, Device Information
3	OUTPUT CONNECTING MODE	Audio settings,Contact Closure status, Audio file management

1. COMMON SETTINGS - Audio





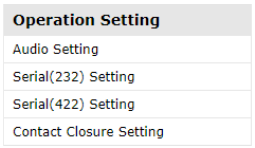
[Audio Server]

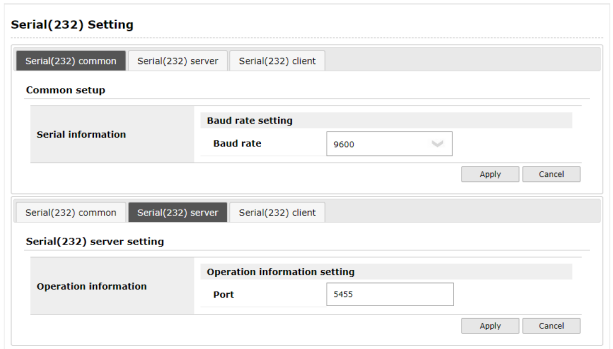
- Fixed TCP/IP
- Setting encoding method
- Setting sampling rate and channel
- Setting operation information

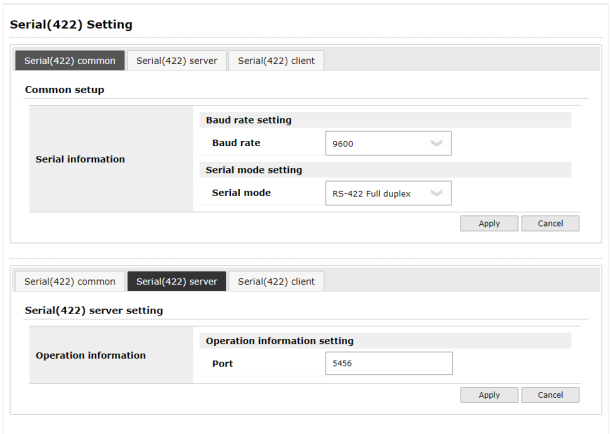
[Audio Client]

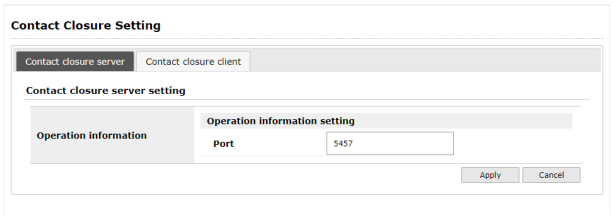
- Fixed TCP/IP
- Setting transmission method
- You can set the buffering time from 0 to 10 seconds in 100 millisecond intervals
- Setting bonding operation
- Modification of server information to connect

2. STAND ALONE MODE



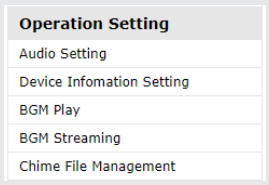


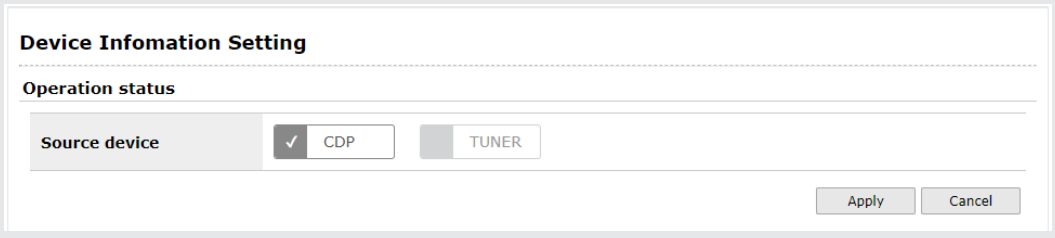




In STAND ALONE MODE, you can set 232 serial, 422 serial, and contact closure in addition to audio, which is a common part of the three modes.

3. INPUT CONNECTING MODE

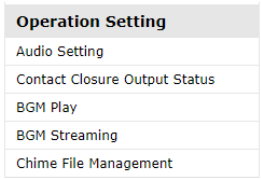


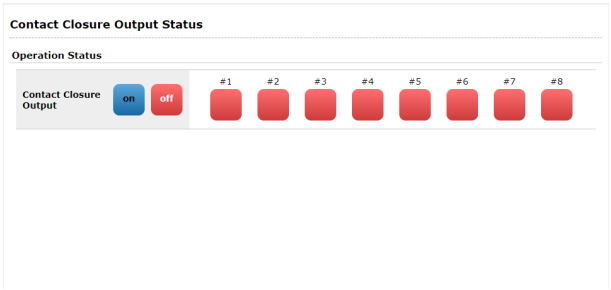


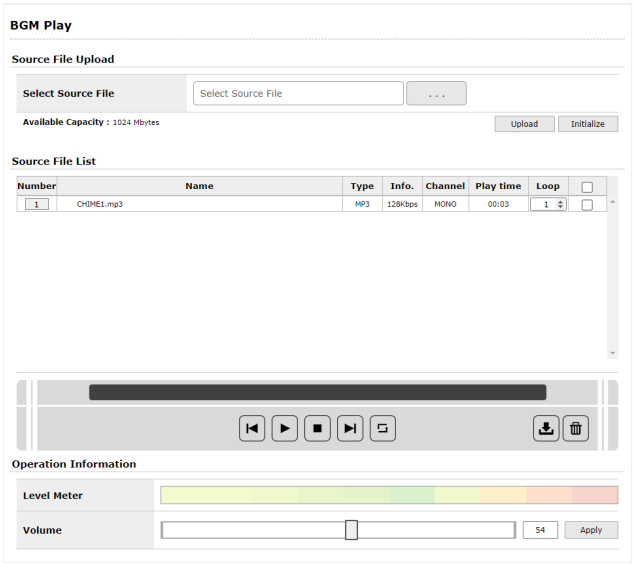
In INPUT CONNECTING MODE, you can set the source device information in conjunction with NCS (Network Connecting System), the network integrated broadcasting system of the Inter-M.

• If you select [TUNER], you can set the radio preset setup.

4. OUTPUT CONNECTING MODE



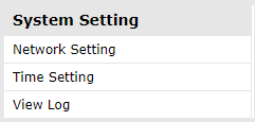




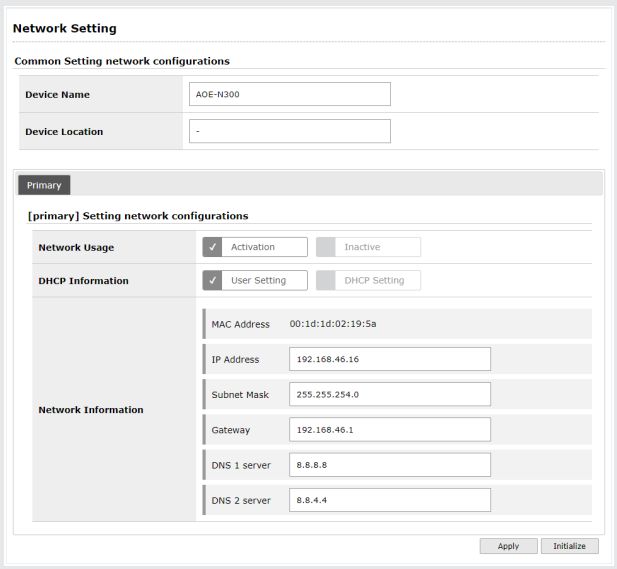
In OUTPUT CONNECTING MODE, you can set the source device information in conjunction with NCS (Network Connecting System), the network integrated broadcasting system of the Inter-M.

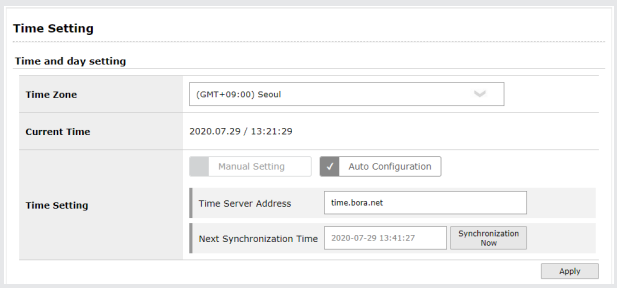
- The contact closure output status tab allows remote control using the Open API in association with MS-N300.
- Sound file management tab allows you to confirm/delete and play back/stop the uploaded sound file(s).

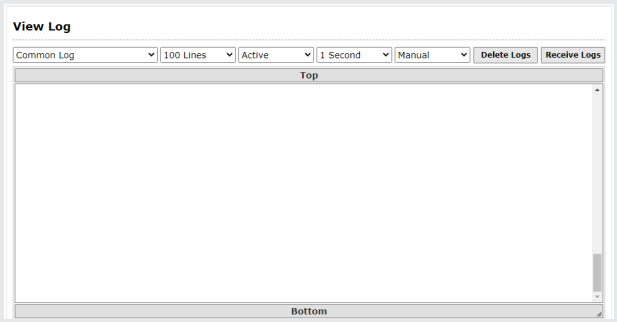
5. SYSTEM CONFIGURATION



You can set network and time, and view system logs in system configuration.



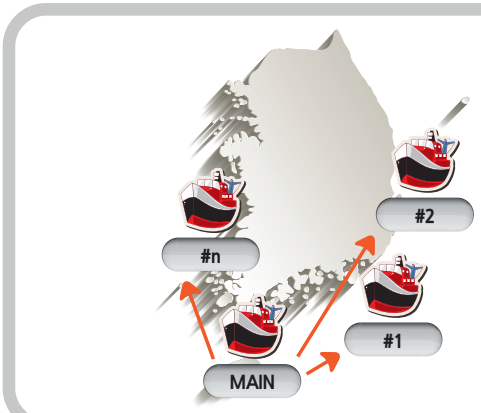




※ For more detailed functions and operation, please refer to the operating manual on our website (www.inter-m.com).

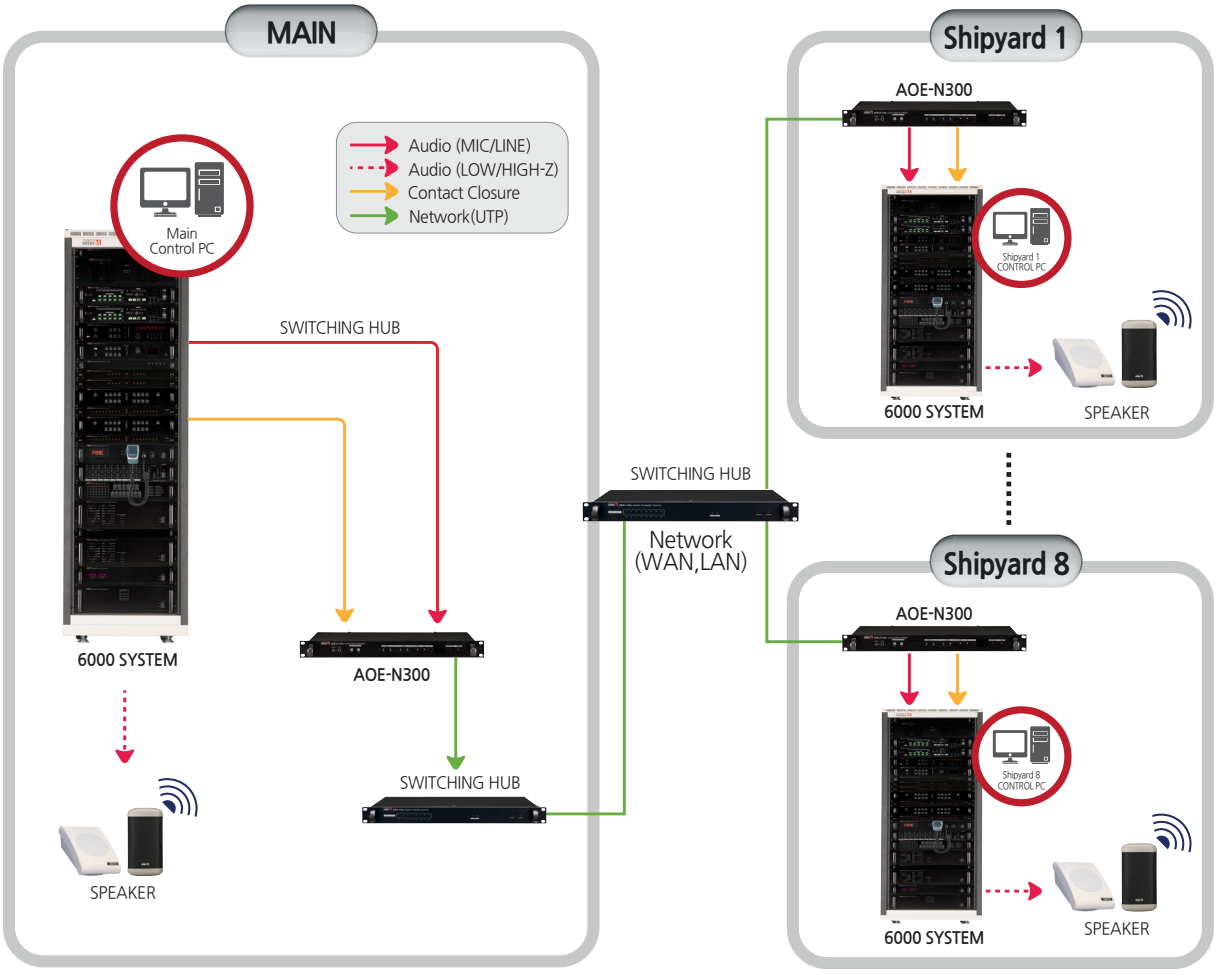
APPLICATION #1

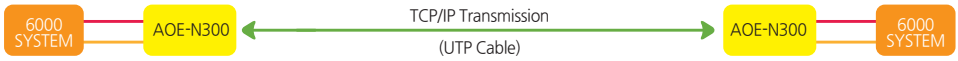
6000 ▶ 6000 DIGITAL SYSTEM (TCP/IP transmission)



Shipyard

The main shipyard can deliver announcements through the network to each regional shipyard (8 locations), or each region can broadcast itself.





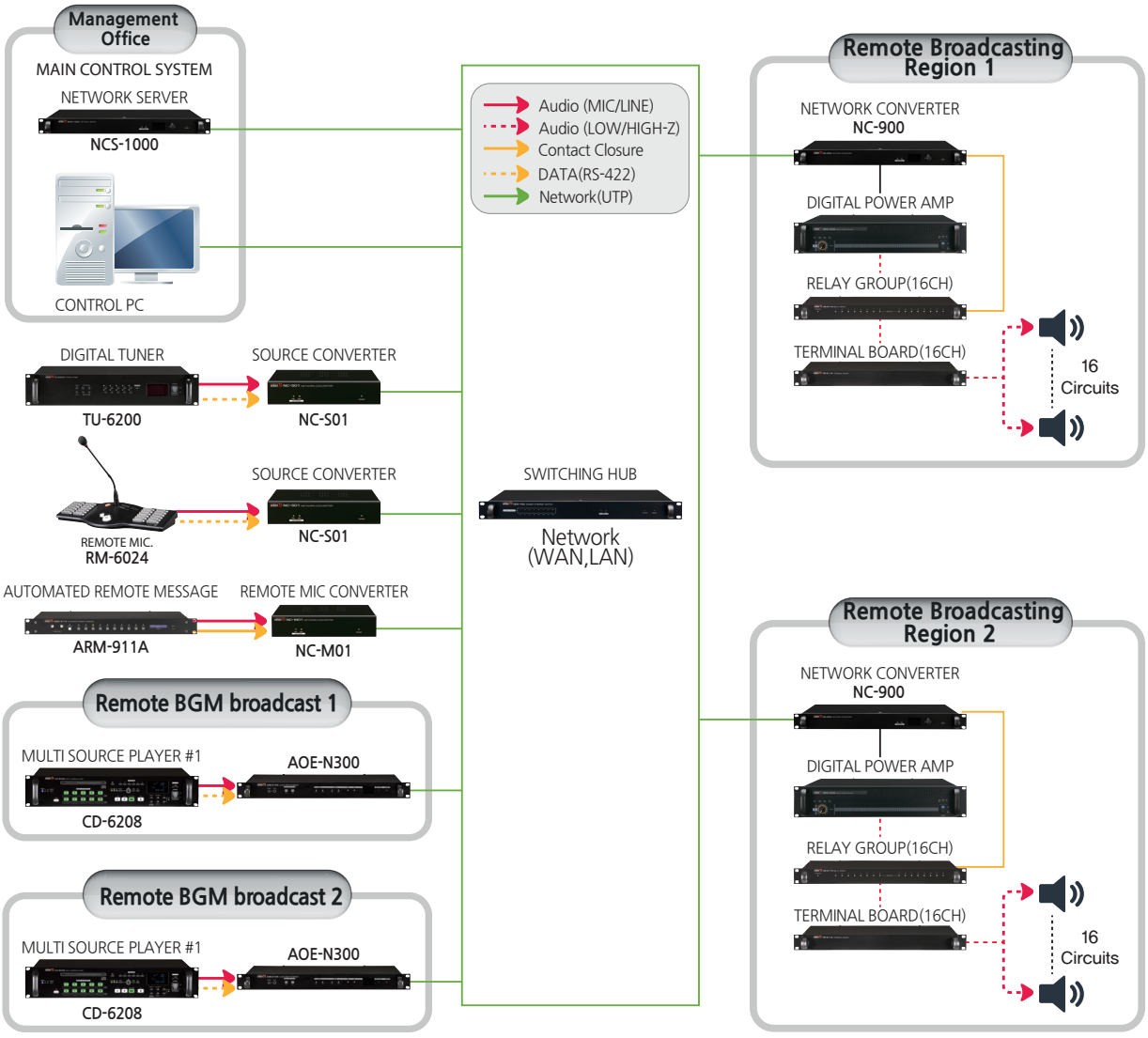
APPLICATION #2

Synchronizing Network Connecting System and the sound files



Theme Park

BGM of each building distributed over a large area is broadcasted on the network, and the announcement is controlled by a main office in this network integrated broadcasting system.



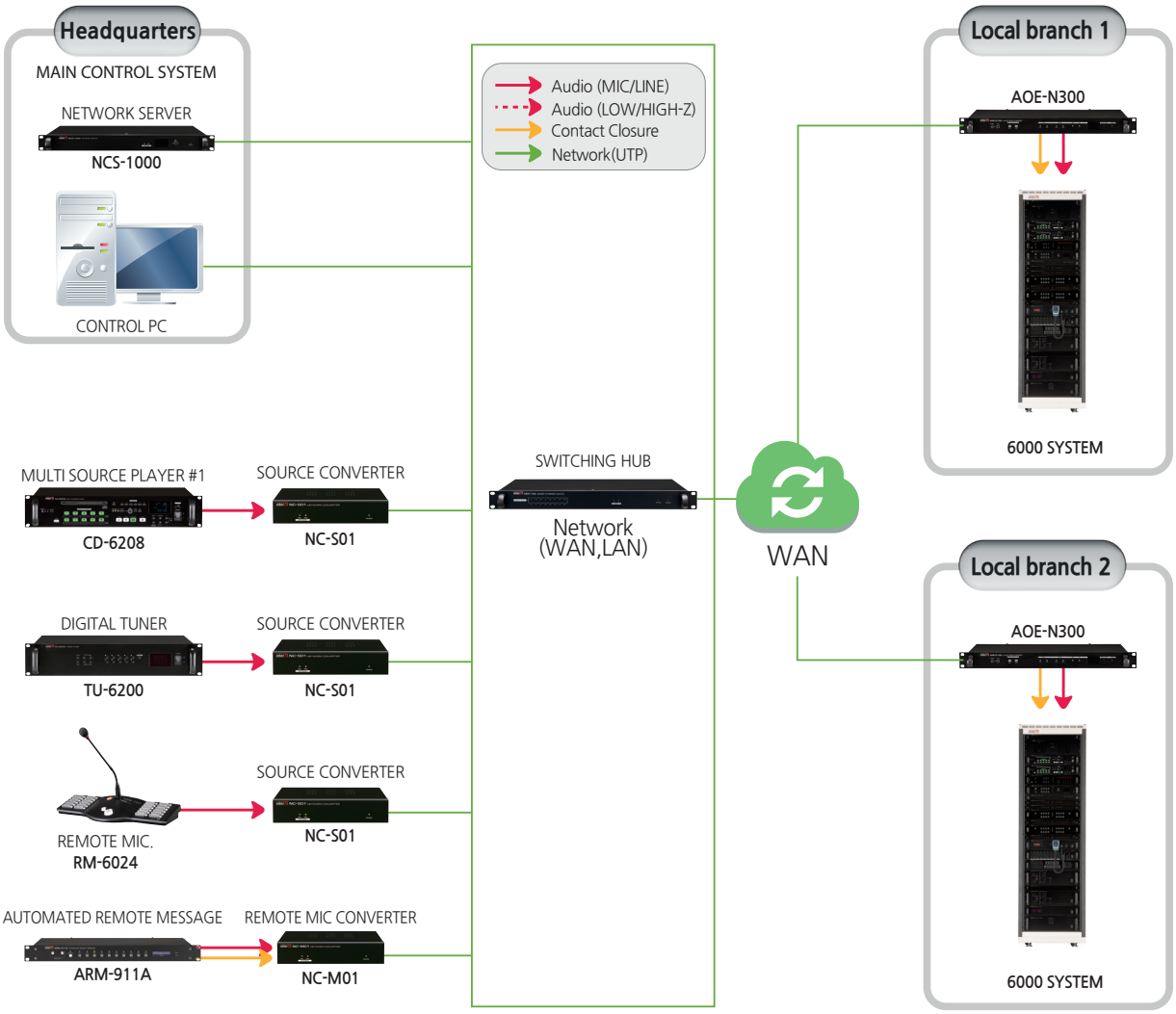
APPLICATION #3

Network connection system and 6000 system synchronization



In-house broadcast network

It is an integrated broadcasting system that links the head office and the local branches or factories, which are using 6000 system or 3rd party broadcasting system, with the network connection system.



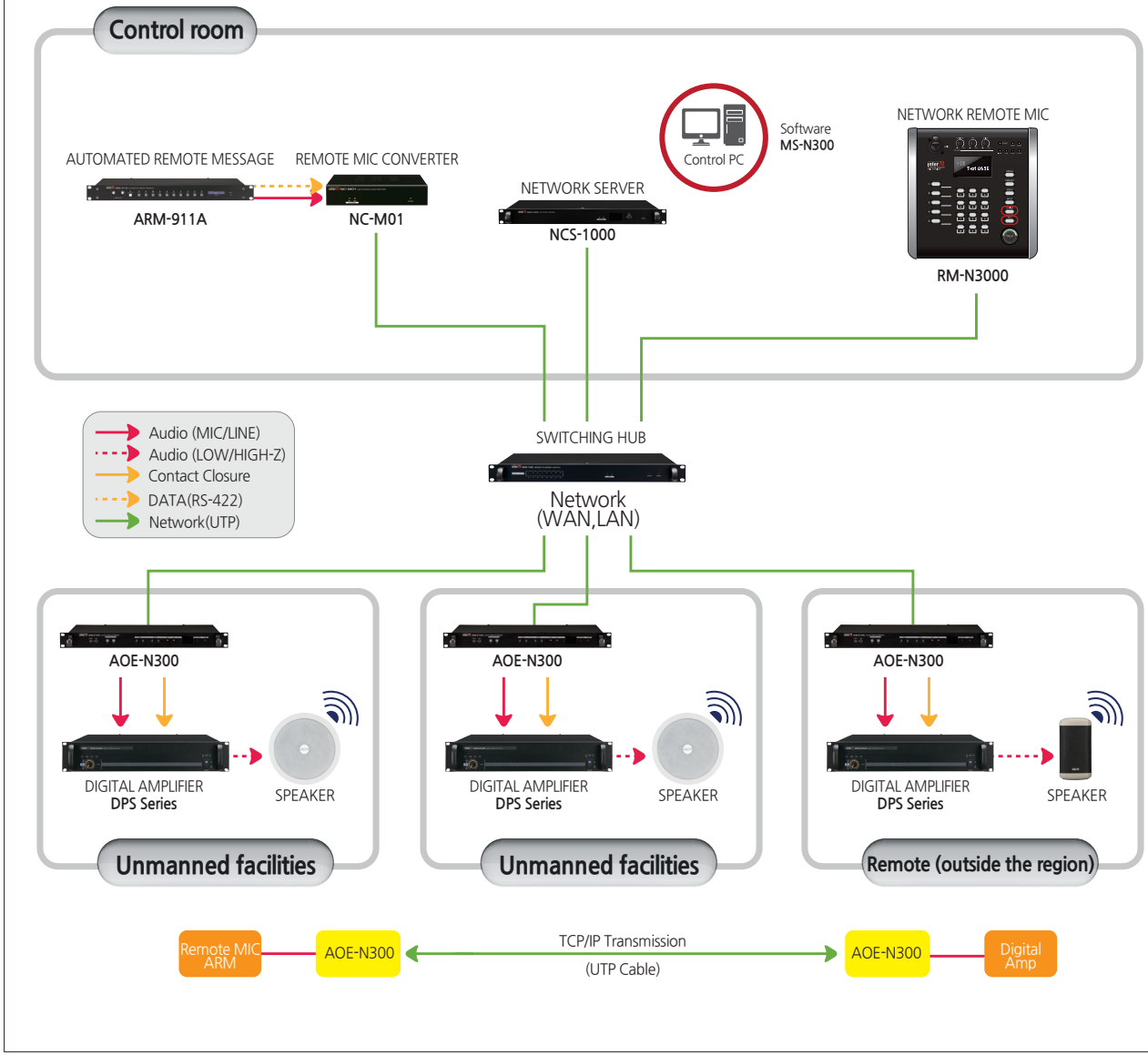
APPLICATION #4

Remote MIC/ARM-911A ▶ DPS SERIES (TCT/IP transmission)



Unmanned facilities and outside management

It is a system that broadcasts all or individually to various regions in the control room (digital PA system), and it can broadcast to unmanned facilities and remote area without people through a software GUI.



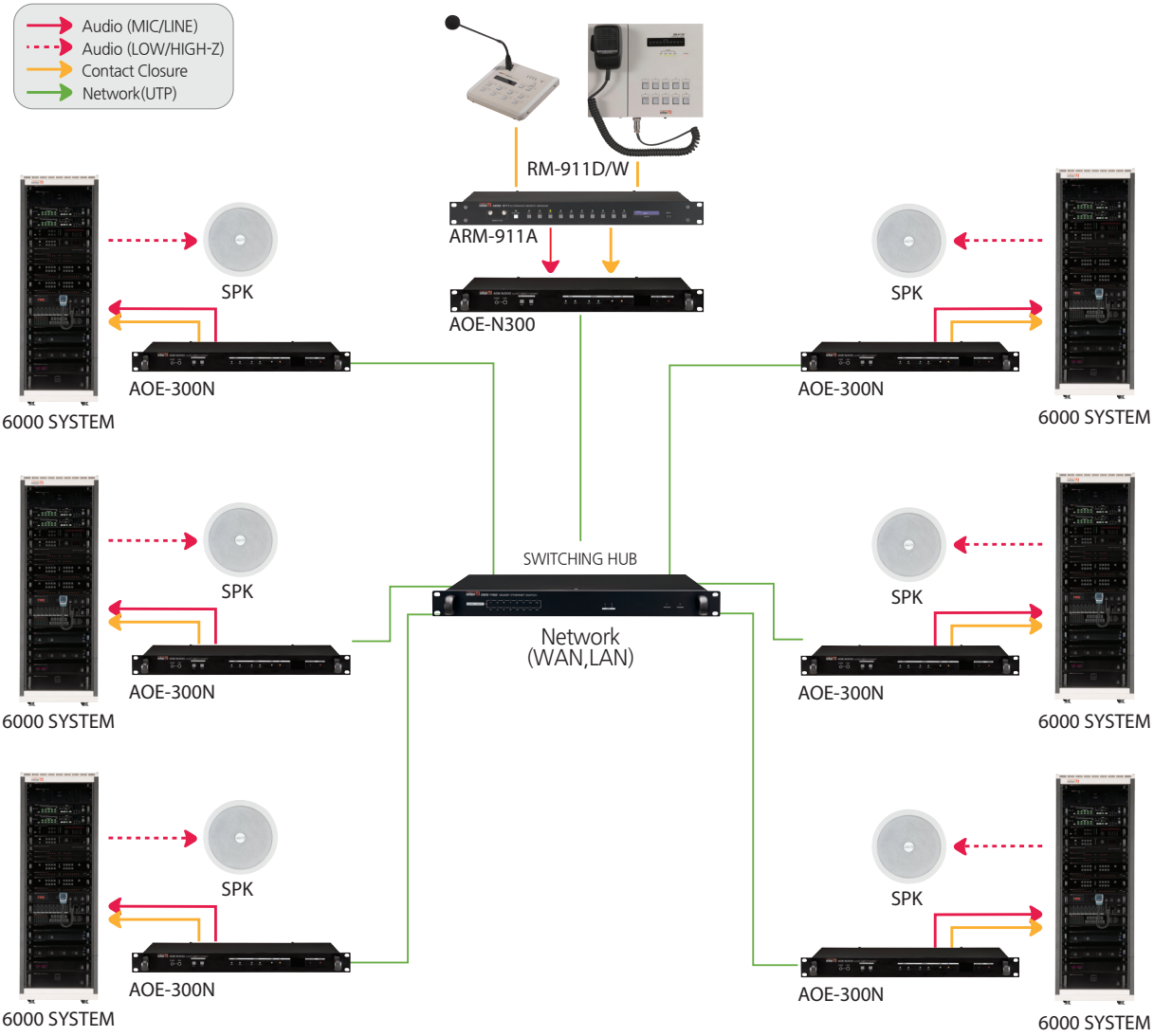
APPLICATION #5

Broadcasting system configuration using AOE-N300



Broadcasting system control room

When AOE-300N is used as a broadcast device, it is possible to configure a broadcast system that broadcasts voice and messages over a remote area using a network. The pre-recorded sound source can be simultaneously transmitted to a remote location using the ARM-911A, or paging can be made directly by connecting a remote microphone, enabling stable broadcasting in any situation.



APPLICATIONS



- Factory facilities
  - Integrated broadcasting in large factories



- Commercial facilities
  - Broadcasting en bloc to each branch from a department store headquate



- Business facilities
  - Headquarters and branch
  - Distributed system



- Educational facilities
  - Integrated broadcasting of universities, etc. with multiple buildings



- Military facilities
  - Integrated broadcasting for divisions and solidarity



- Leisure facilities
  - Large leisure facilities such as ski resort or golf courses



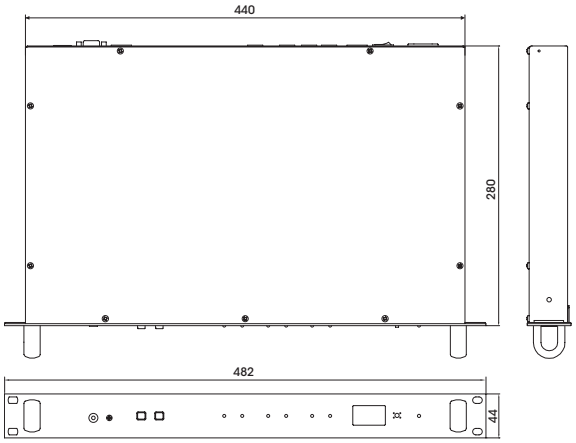
- Public office
  - Broadcast from ward office to village office(broadcasting)

- Remote broadcast
- Where it is not easy to pull lines when additional construction of an existing system is being carried out.
- Integrated control with Network Connecting System`

SPECIFICATIONS

AUDIO	
Maximum Input Level	+20dBV
Maximum Output Level	+20dBV
Frequency characteristics (48kHz Sampling, ±1dB)	100Hz ~ 20kHz
THD (48kHz Sampling)	Less than 0.05%
S/N	80dB
Supoort Sampling Frequency	44.1kHz, 48kHz
Quantization bits	24bit
Data Communication	
Communication type	Contact, RS-232C, RS-422
Contact Input, Output	Input 8-Channel, Output 8-Channel
Serial communication rate	2,400bps ~ 115,200bps
ETHERNET (LAN)	100/1G Base-T (RJ-45)
General Characteristics	
Operating temperature	-10 °C ~ 40 °C
Power Source	AC 220V-240V, 50/60Hz, 15W or 24VDC, 0.5A
Weight(set)	3.02kg/6.65lb
Dimensions(set)	482(W) x 44(H) x 280(D)mm / 18.97(W) x 1.73(H) x 11.02(D)in

Dimensions



Inter-M's digital network transmission equipment transmits audio and data over the network. If packets other than the exclusive data used by the AOE-N300 are permeated, AOE-N300's bandwidth may be lost. Thus, when used with business or network CCTV, AOE-N300 may be temporarily buffering. It is recommended to use an exclusive network of at least 100M or faster, as the signal may be lost if the network load continues.

Inter-M Corp. (IMK)
719, Dobong-ro, Dobong-gu, Seoul, Korea
Overseas Sales Team
Tel_ +82-2-2289-8141~7 **Fax_** +82-2-2289-8149 **E-mail_** overseas@inter-m.com **www.inter-m.net**

※ Design and specification are subject to be changed for the improvement of product quality without pre notice.