

Inter-M network broadcasting system

# IPA-100 SYSTEM



# Changes in the public address market

PA market in Republic of Korea is rapidly changing to digital public address broadcasting such as IP and optical integration. Due to the emergency broadcasting regulations in Republic of Korea remains in the existing analog method, most of the market maintains as analog PA.

However, in order to meet the requirements of the size and diversity of buildings and the advent of modern digital building systems, the public address system must also change rapidly.



**ANALOG SYSTEM**  
9000 SYSTEM  
(Analog Audio + Contact)



**PC CONTROL SYSTEM**  
6000 SYSTEM  
(Analog Audio + PC Control)

## Digital Network PA System IPA SYSTEM (Digital Audio + Network Control)



1. High-quality digital audio
2. Convenience of operational control (Web-based)
3. Installation environment without the restriction of distance
4. Corresponding digital systems of the IBS building
5. Stable system management

## Digital Network PA System

Division	9000 SYSTEM (Analog + Contact)	6000 SYSTEM (Analog + Serial)	IPA SYSTEM (Digital Audio + Network Control)
Audio	Analog Audio		Digital Audio
Control	Contact	RS-422, RS-485 (PC Control)	Web Control (PC+Mobile)
Device Scalability	Analog(cable) Increases by wiring extension quantity (Audio + Control Line)		Single (LAN/Optical Cable)
Stability	Speaker line short circuit, disconnection		Speaker line short circuit, disconnection detection/Automatic warning in case of network line error
	Spare amplifier and device required in case of amplifier failure (8 channels)		Built-in amplifier's own function without changeover device
Composition	Centralized Method(Difficulty in decentralized method, integrated management between systems)		Centralized/Decentralized Method (No restrictions on configuration)
Others	-		Network APT amplifier, IP speaker linkage

# Inter-M integrated digital broadcasting solution IPA System

The IPA system is a **digital PA broadcasting system** that provides high-quality broadcasting to respond to the **high-level and large-scale market environment**.

From small facilities such as schools and buildings to large spaces such as high-rise buildings, parks, university campuses, and military bases, **we provide an optimal solution for various requirements.**

**It is a system to which the AOE digital audio protocol developed** by Inter-M, and it is a system that can transmit from MP3 sound sources to uncompressed high-quality sound sources. Depending on the usage environment, from short to long-distance broadcasting is possible without restrictions. Installation, setting, and control through a web browser are easy, so user can operate and manage the system easily.



- System setting/operation/management through web browser
- Broadcast and group control for up to 512 zones
- 48 bus broadcast sound source
- Self-developed "AOE" protocol for stability
- Warning in case of digital amplifier error, automatic changeover
- Annual scheduler
- TTS sound source broadcasting supported
- Monitoring by device over network
- Remote Amp Monitoring (PM-N108)
- 24 remote microphones, 24 sound sources
- Unicast/Multicast supported
- Audio transmission through network, control signal transmission
- Easy construction through UTP Cat.5E
- Monitoring major device's network line fault

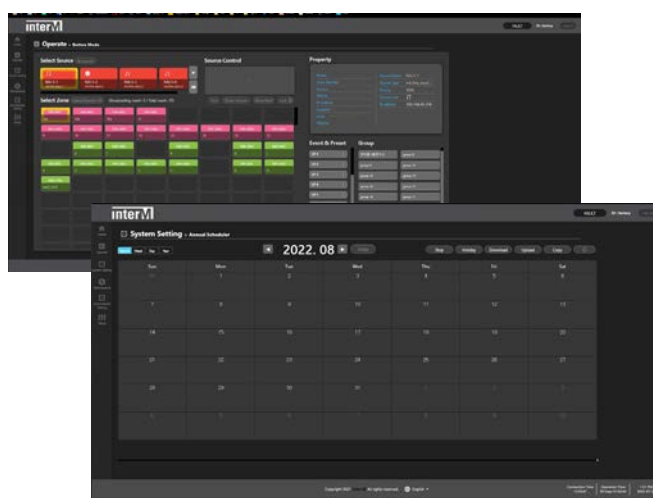




## Operate

System setting/operation/management through web browser

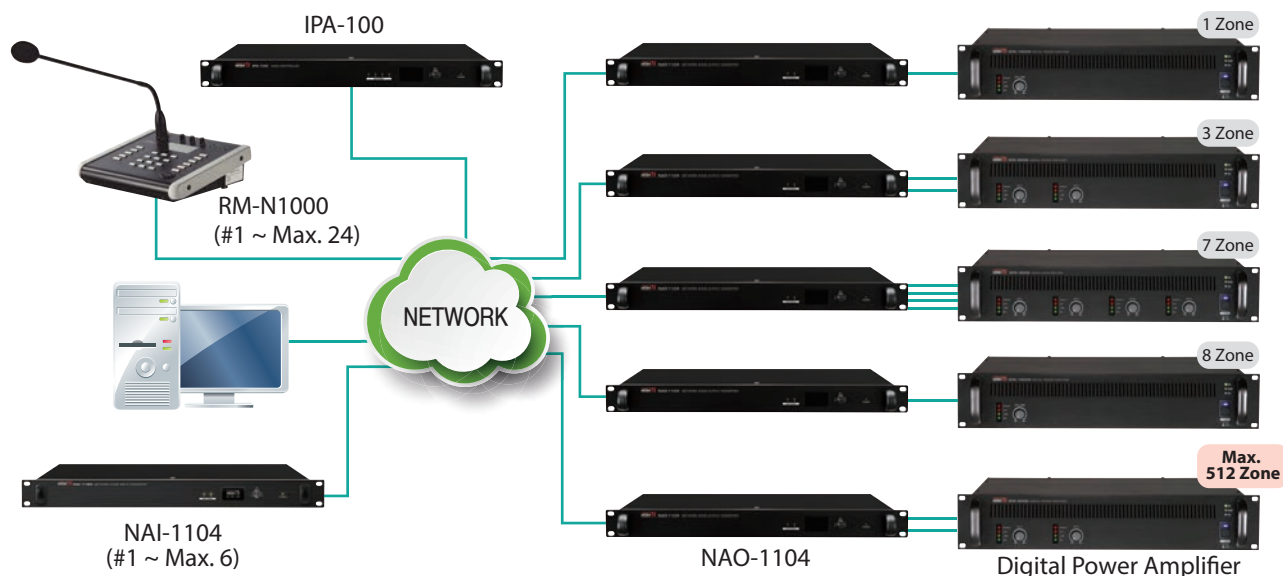
- Remote system operation from multiple PCs as a network server
- Wired/wireless remote control using PC or tablet
- GUI for easy setting and control of various complex systems
- Real-time network monitoring of device status
- Provide sound source broadcasting using TTS



## Control

Digital network-based sound transmission and improved device control

- PCM method 24-bit high-quality sound source transmission
- Emergency and public address for up to 512 zones
- Up to 48 bus (24 sound sources + 24 RM microphones)
- Easy device expansion and installation using network





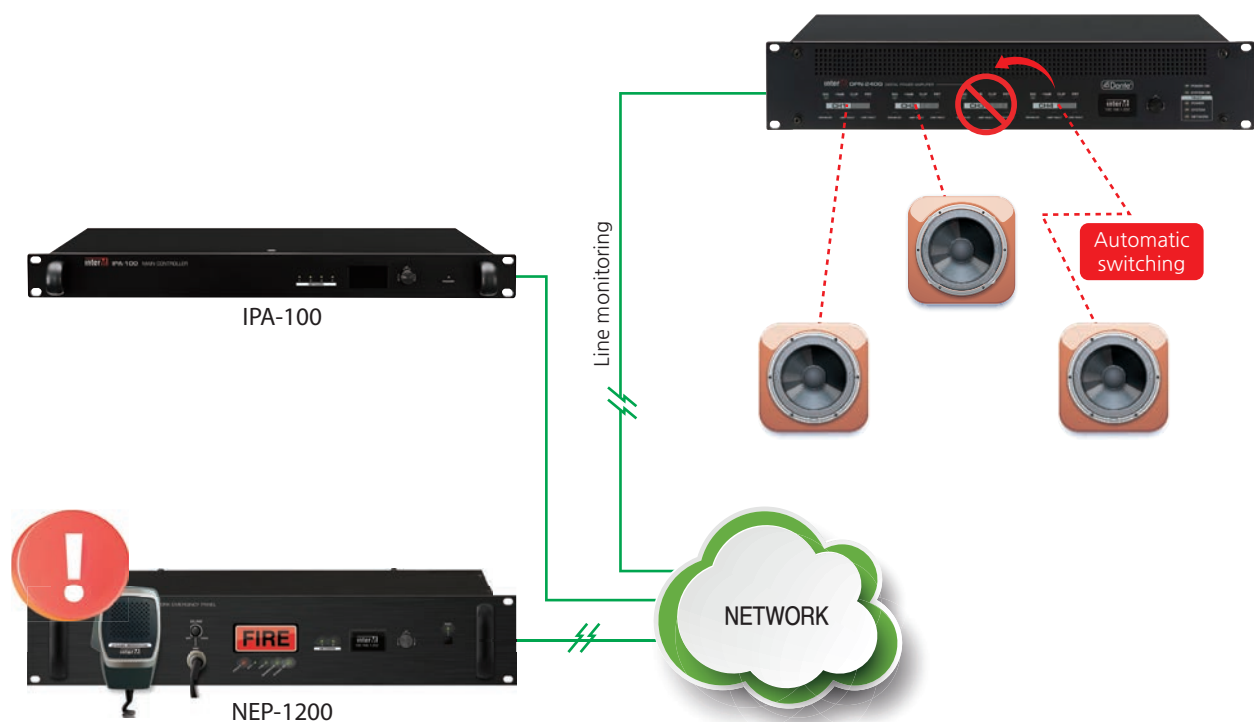
## Safety

Self-developed "AOE" protocol for stability



Alert in case of malfunction of digital amplifier, automatic disconnection

- Alert in case of error from Netwrok Emergency Panel (NEP-1200)
- Network amplifier line detection function
- Automatic switching to a spare amplifier when network amplifier channel's failure.





## Scheduler

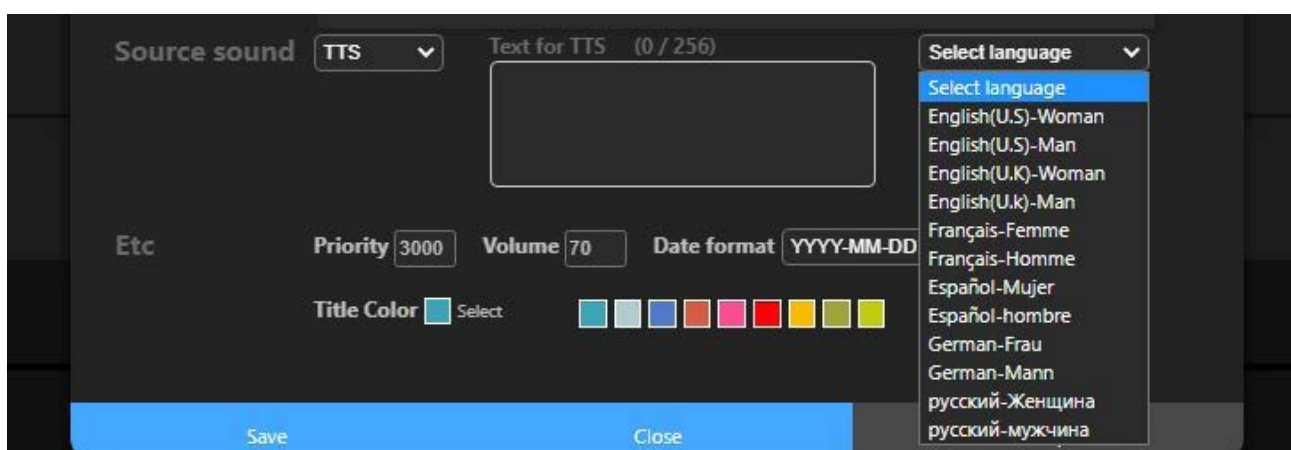
### Annual scheduler

- Scheduled broadcasting on an annual basis
- Managed broadcasting with simple holiday settings
- Check daily, weekly, monthly and annual schedule
- Save and import schedules



### TTS sound source broadcasting

- Music file and TTS sound source schedule broadcasting
- Broadcasting by zone and repeated broadcasting
- Provides a simple date repeat function (period, day of the week)
- Priority and volume settings

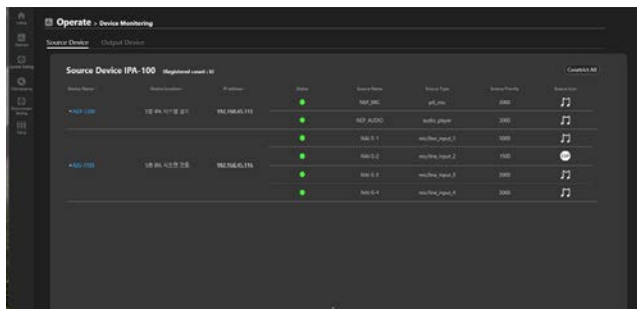




## Monitoring

### Monitoring by device over network

- Check the status of network for source device
- Check the status of network and broadcasting for output device
- Volume control, mute, and output level monitoring for each output zone
- Check the status of each device installed in a remote location through network connection



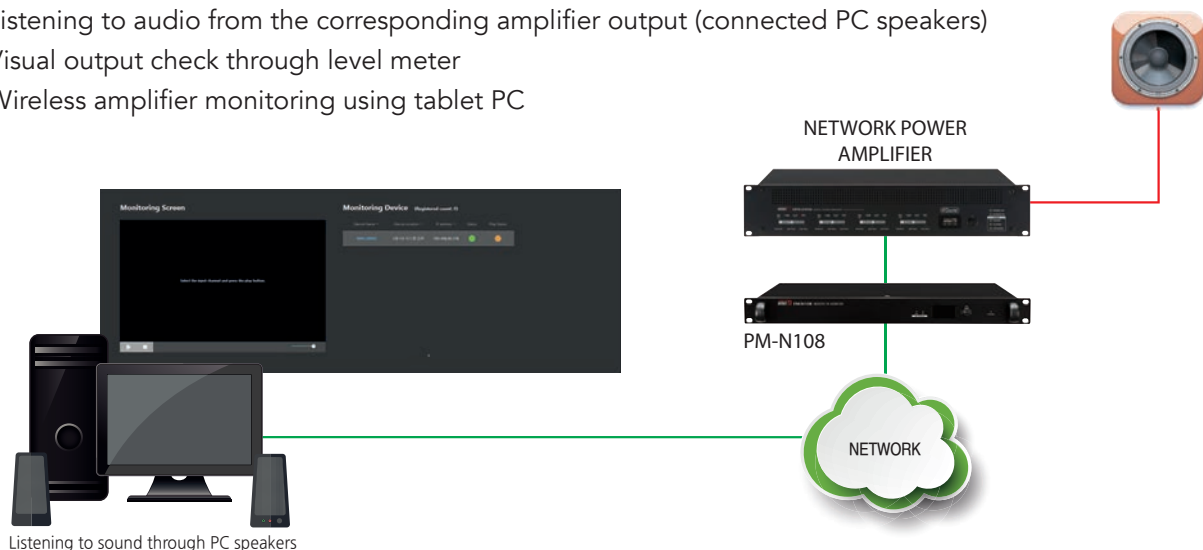
[Source device monitoring screen]



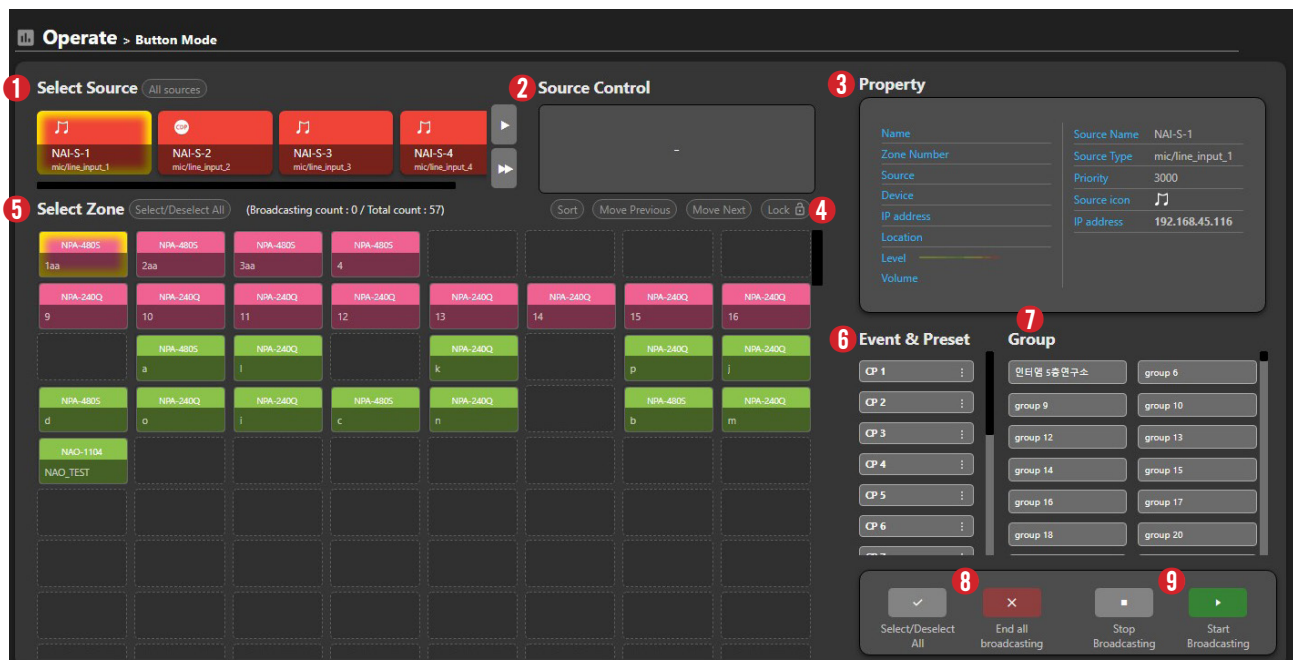
[Output device monitoring screen]

### Network amplifier output monitoring (when PM-N108 is installed)

- Real-time network monitoring of amplifier output
- Listening to audio from the corresponding amplifier output (connected PC speakers)
- Visual output check through level meter
- Wireless amplifier monitoring using tablet PC



# Operation Screen



- ① Source Selection : Select a registered source (24 sound sources)
- ② Source Control : Control the selected source device (CD, TUNER, TTS)
- ③ Properties : Clicking a registered source/zone displays source/zone information
- ④ Lock : Fix the location of the registered area (zone)
- ⑤ Zone Selection : Select a broadcasting area
- ⑥ Events & Presets
  - 16 preset save buttons
- ⑦ Group
  - Up to 255 group broadcast buttons
- ⑧ Select/Unselect All, End All Broadcasts
- ⑨ Broadcast Start and End
  - Broadcast Start : The selected source broadcast to selected area
  - Broadcast End : The broadcasting end

# Application

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Business Building



School



Military Facility



Hospital



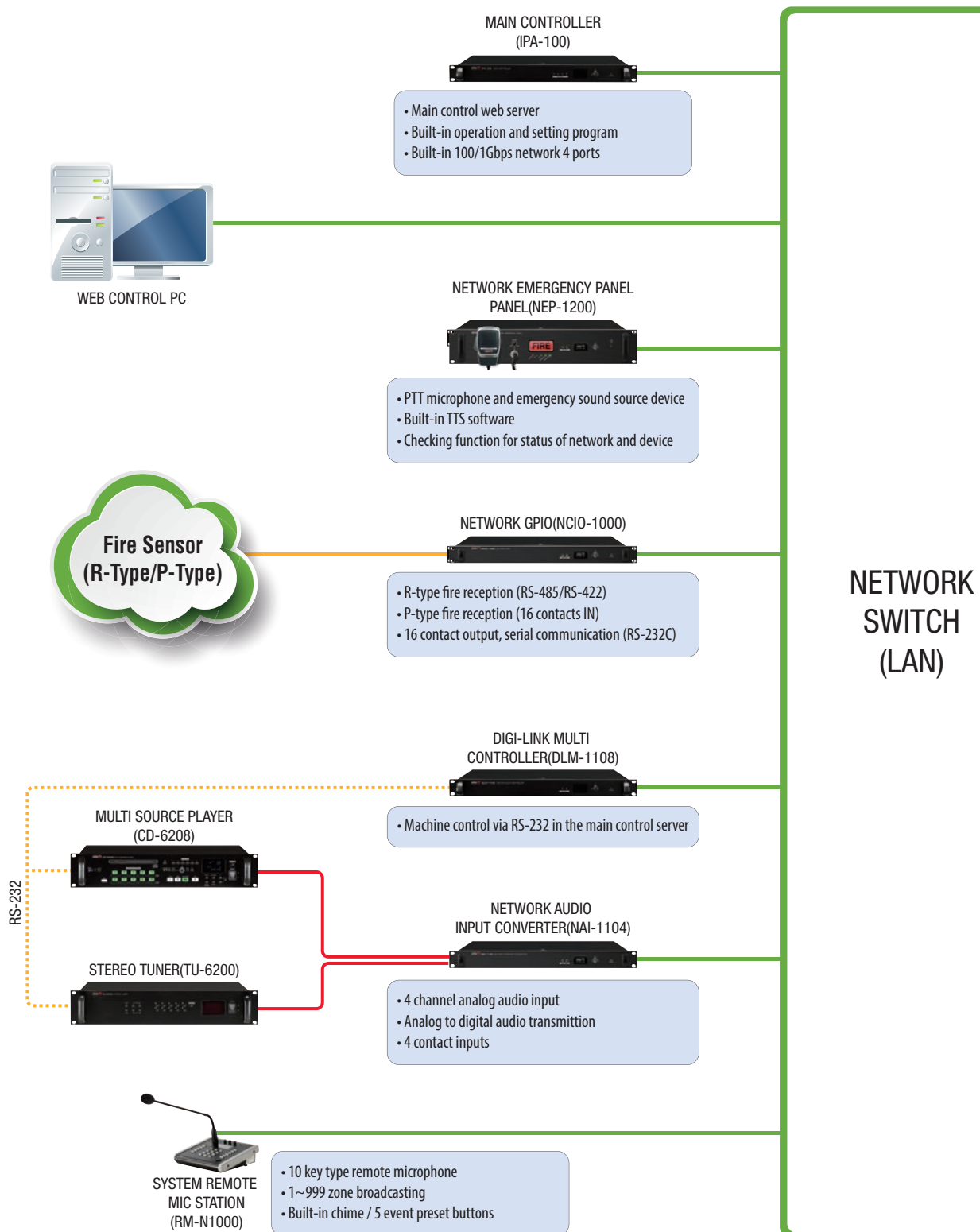
Department Store



Factory

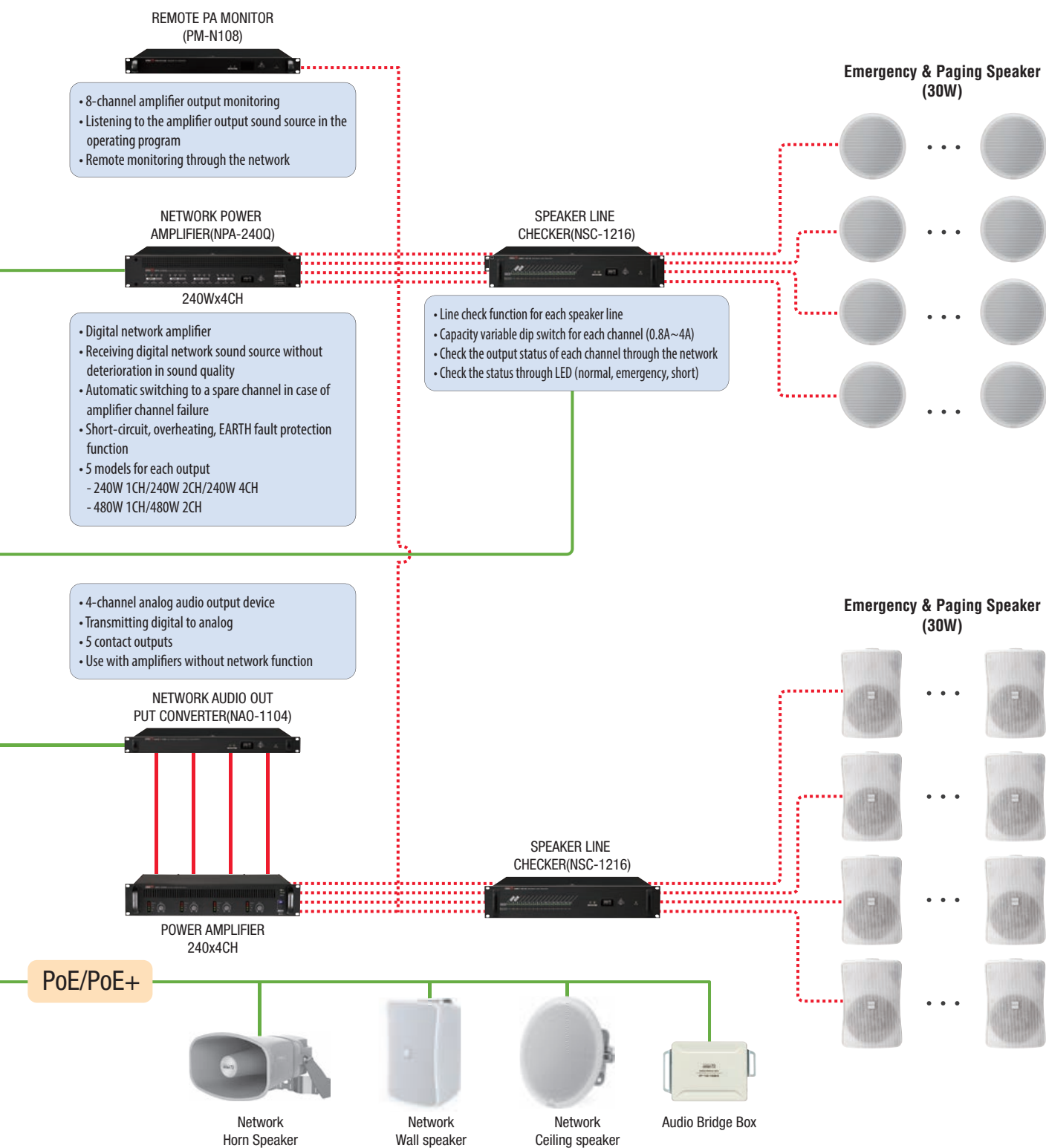
# Application

## Basic Configuration



The IPA-100 system is fully Digital Network based system. All audio and control signals in the system other than the audio output from the amplifier are transmitted through the network. Through easy device expansion and monitoring, which are the strengths of the network system, it provides easier and safer broadcasting system construction compared to the existing analog system's work. Web-based operation control can be accessed with a PC, smart tab, or mobile device on the network, allowing the operator to control broadcasting in real time according to the situation. The IPA-100 system provides safety and convenience by broadcasting scenarios suitable for various situations with 48kHz high-quality audio.

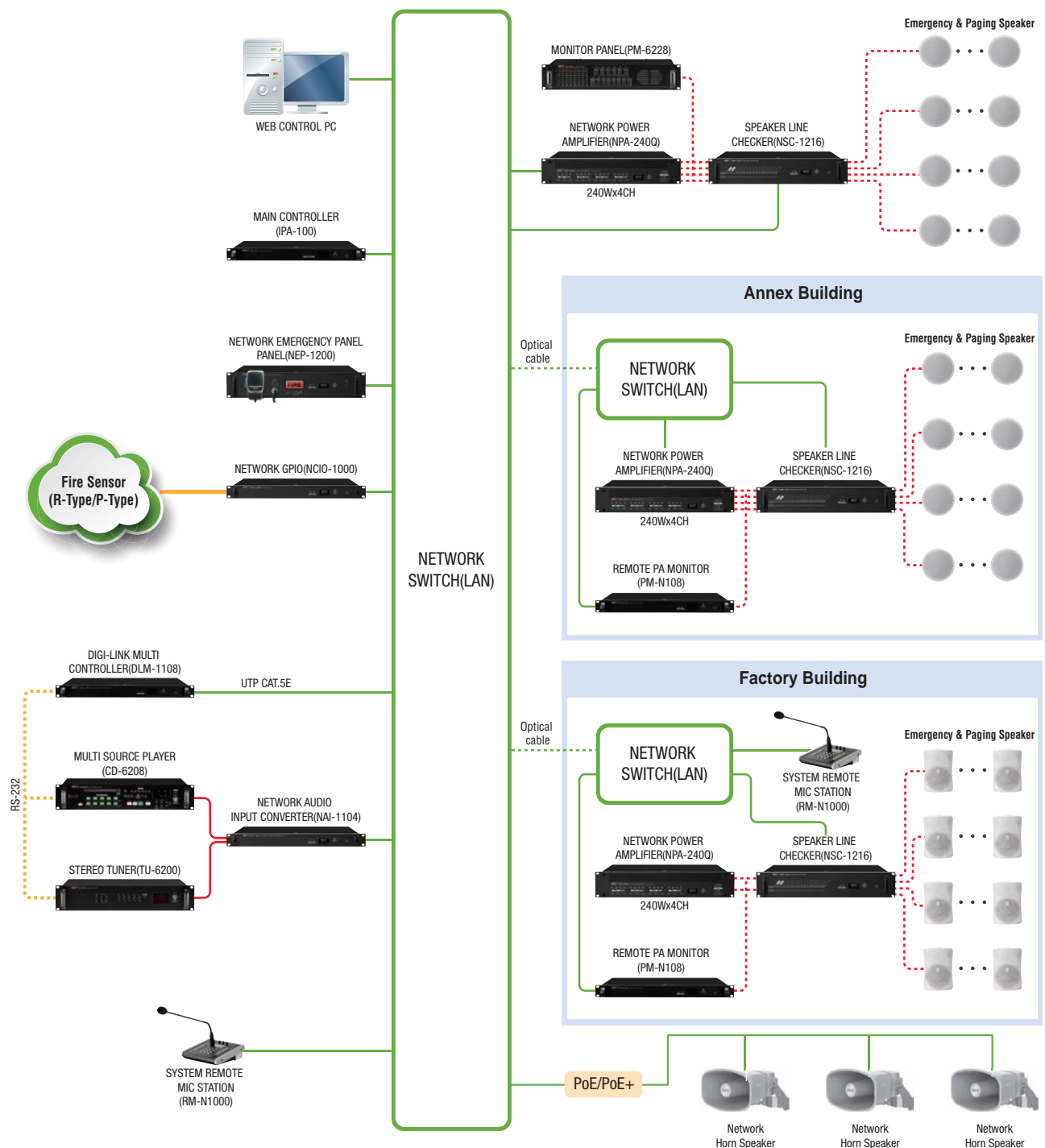
\* For high-quality audio listening, it is recommended to use a speaker of 30W or higher.



# Application

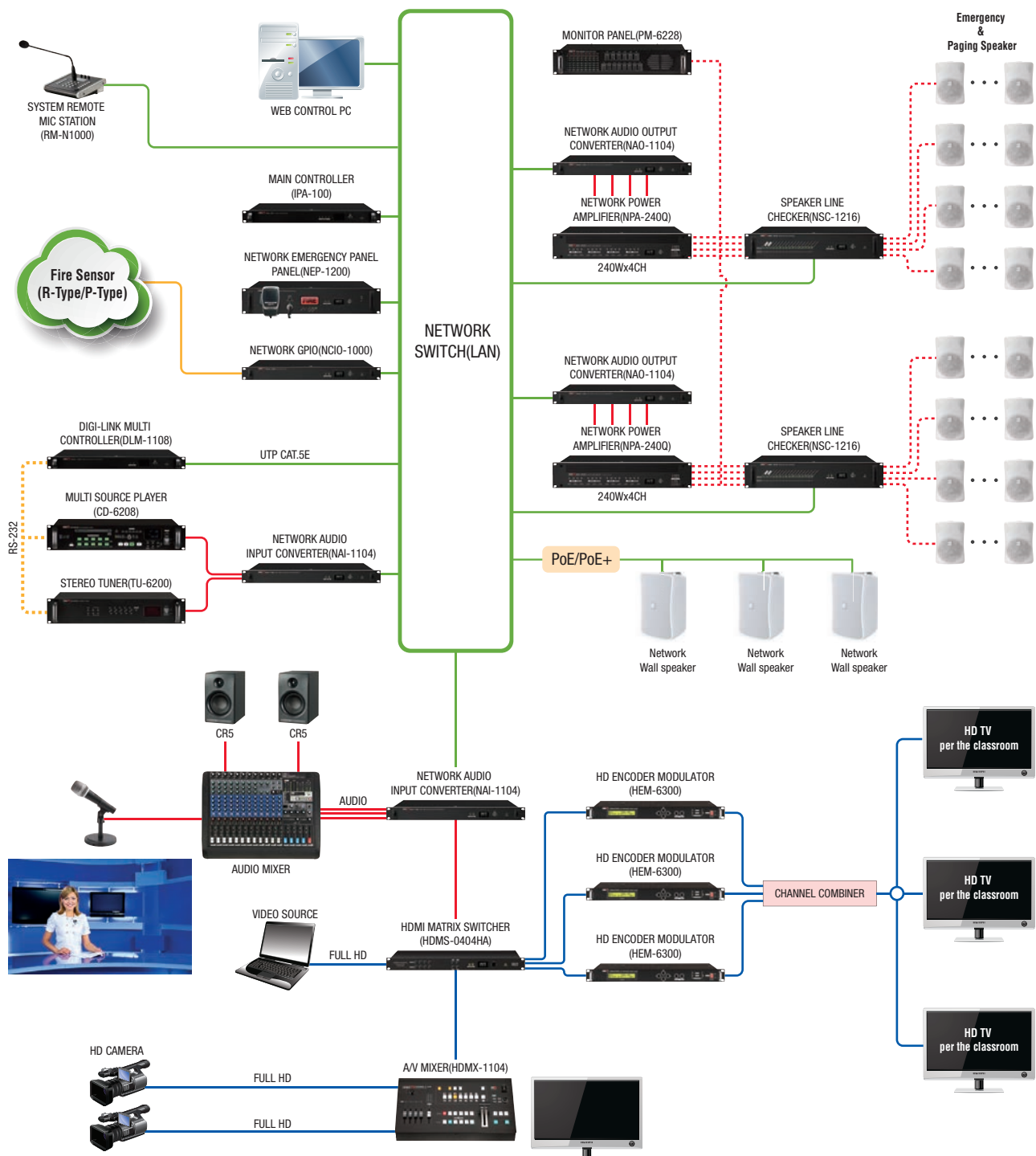
## Factory

The broadcasting system of factories, etc. must be able to broadcast for multiple buildings or to broadcast for each zone in a large-scale building. The IPA-100 system can broadcast to the local area through an amplifier or device at a distance through a network, and a broadcasting system can be easily installed in a new building or factory with only a network line. By preparing scenarios for various events such as an accident, fire, gas leak, earthquake, it is possible to control broadcasting by zone.



## School

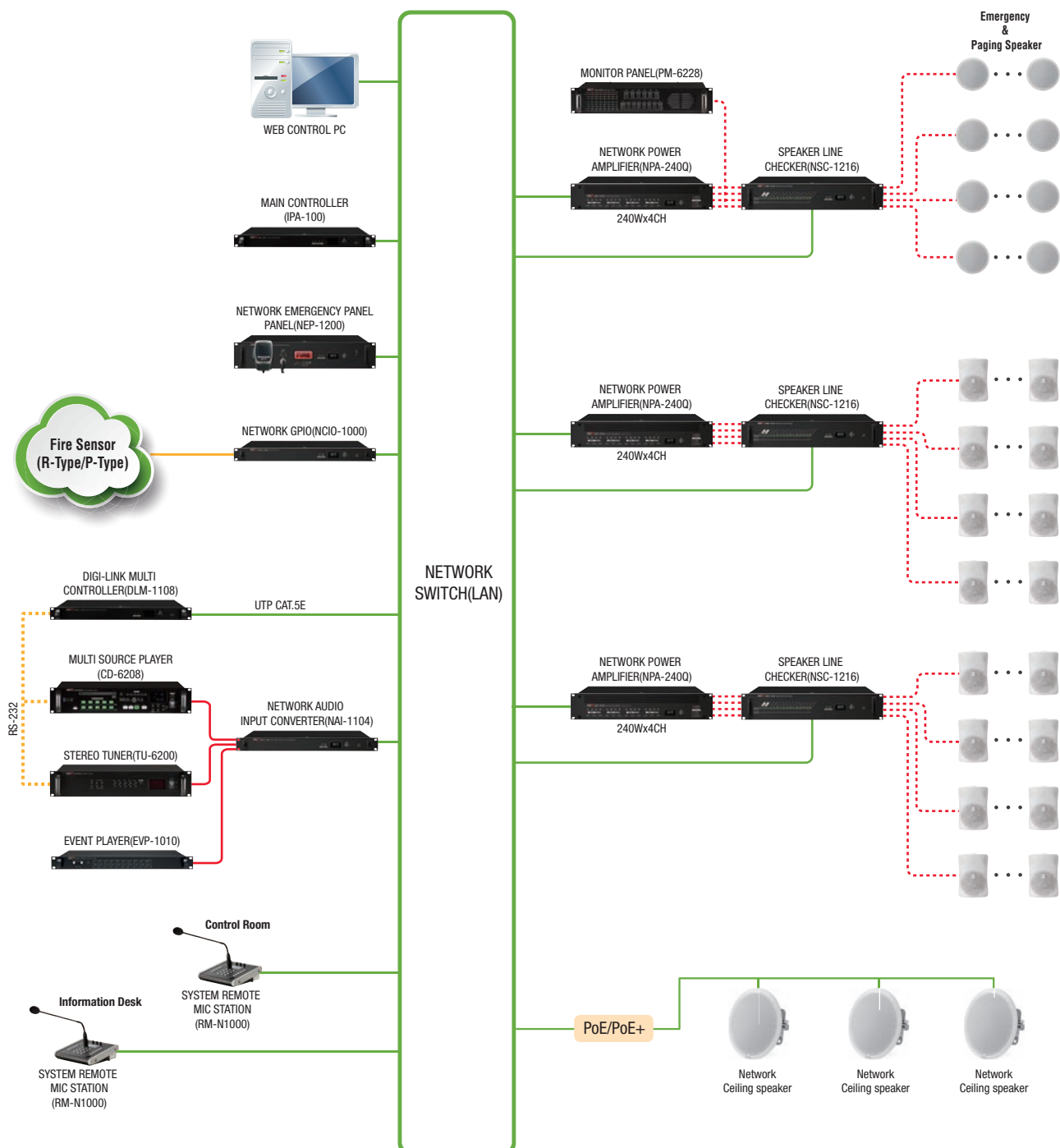
School broadcasting requires various sound output demand by grade level and multiple annexes zones. Multiple sound sources on individual broadcasting zone are strongly useful and required in school broadcasting environment. The IPA-100 system is the optimized solution for the school broadcasting demand as it can broadcast up to 24 BUS and able freely able to set the digital signal of the amplifier input through the network.



# Application

## Hospital

The IPA-100 system supports broadcast up to 24 sound sources and 24 remote microphones. All of these broadcast sound sources can be broadcast to each zones or areas, providing an optimal system for hospital facilities including various specific rooms and broadcasting areas. It is possible to easily establish an integrated hospital broadcasting system in multiple buildings through a network.



# Device Matching Table

Category	Description	6000(8bus) System	IPA System
Operation S/W	Management Software	MS-6800	IPA-100 Software
Main Operating Device	Audio Matrix Controller	PX-6216	IPA-100
	Main Controller		
Amplifier	Power Amp	DPA Series DPS Series	NAO-1104 + DPA/DPS Series
	Amp Fault Detector	AFD-6218	AFD-6218 + NCIO-1000
Sound Source Device	Remote Mic	RM-6024	RM-N1000
	Emergency Panel	EP-6216	NEP-1200
	Voice File	PV-6232	
	Weekly Program Timer	PW-6242A	
	TTS	Operating PC	NEP-1200
Audio Input/ Output Device	AUDIO I/O	PX-6216	NAO-1104 NAI-1104
Control Device	Digi-Link Multi Control	DLM-106	DLM-1108
	Emergency Combination System	ECS-6216MS	NSC-1216
	Speaker Line Checker	SC Series	
	Fire Sensor Receiver (R-type)	ES-6132R	NCIO-1000
	Fire Sensor Receiver (P-type)	ECS-6216MS	
	Monitor Panel	PM-6228	PM-N108

# Product Lineup

## IPA-100

Main Controller



A model that acts as a server in a network system

- Integrated control of all audio and video device connected to the network
- Management of device DB connected to the network
- Web-based integrated control software
- System monitoring using the web
- Up to 512 zones can be selected

## NAI-1104

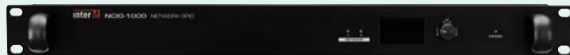
Network Audio Input Converter



- Matrix system for PA broadcasting
- AC/DC power
- Interlocking external device through 4-channel contact input
- Interworking with AOE device
- Receiving 4CH analog audio signal and transmitting as AOE digital audio

## NCIO-1000

Network GPIO



Device control available through contact point, RS-232C, RS-422 communication

- Universal network transport interface
- Bi-directional contact data transmission and reception through network and Control (IN/OUT 16CH each)
- Bi-directional serial data transmission and reception via network
- UGA (Unit Management Alarm) INPUT 4CH

## NAO-1104

Network Audio Output Converter



- Matrix system for PA broadcasting
- AC/DC power
- External device control through 4-channel contact output
- Sound source playback using audio matrix
- Interworking with AOE device
- Receiving 4CH AOE digital audio signal and transmitting as analog audio

## RM-N1000

Network System Remote Mic Station

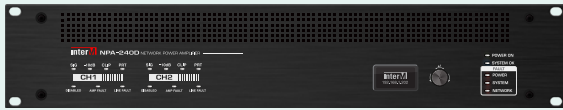


It is possible to broadcast digital network announcements in conjunction with the IPA SYSTEM as a network remote microphone that can be controlled in an integrated way.

- Broadcast paging over the network
- Check the current output in real time through the monitoring speaker
- I/O volume control
- PoE Power supply (Power over Ethernet)
- Max. 256 macro broadcasts (zone, group broadcast)

## NPA Series

Network Power Amplifier



- Class-D amplifier, using SMPS power supply  
Amplifier overheating, output short, overload, DC output, Built-in protection circuit for Earth Fault power failure
- Emergency broadcasting power supported (DC 24V)
- System implementation with IPA-100
- Selectable outputs and channels available according to various installation environment  
NAP-240S/240D/240Q/480S/480D
- Various contact input/output supported
- Status LED / input signal level meter

## NSC-1216

Network Speaker Line Checker



Network Speaker Line Checker that can be implemented with IPA system

- Device control and monitoring available through Network
- Real-time short detection
- Simple monitoring a status of line fault by buzzer sound
- Display a status of various line
- 3-wire speaker line control
- Low voltage detection

## NEP-1200

Network Emergency Panel



It is a device that transmits an emergency sound source from a network system. It can transmit various digital sound sources such as emergency sound playback, TTS, and annual scheduler.

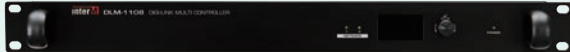
- Universal network transport interface
- Transmission of emergency broadcast through network
- Check the device status on the web page through the network
- Schedule broadcasting through network (MP3, TTS, etc.)
- It can be used even in an emergency by combining AC and DC power

# Product Lineup

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## DLM-1108

Digi-Link Multi Controller

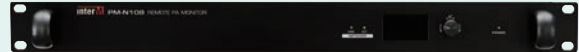


It provides device control function through RS-232C.

- Universal network transport interface
- It can be used even in an emergency by combining AC and DC power
- Source device control through RS-232C (D-SUB 9Pin)
- When main software send a device control protocol through the network, the command is transmitted to the device through the RS-232C terminal.

## PM-N108

Remote PA Monitor



It is a device that monitors PA system audio over the network. Check the audio status by connecting the power amplifier and LINE audio output to the WEB.

- Sound source monitoring through network
- LINE 8-channel, AMP 8-channel audio input
- Receive audio over the network

# IPA-100

## Network Control Server



The IPA-100 is a device that acts as a server in a network system that provides an integrated transmission solution through the network infrastructure. It provides integrated control software for voice reproduction and BGM control by interworking between complex and extensive systems (PA, SR, AV), and provides an ideal solution for various spaces such as large-scale industrial complexes, hospitals, restaurants, and schools.

- Integrated control of all audio and video device connected to the network
- Device DB management connected to the network
- Standard network protocol applied
- 100/1000Mbps support
- DHCP, STATIC IP support
- Network daisy-chain support
- Web-based integrated control software
- Convenient broadcast area setting
- System monitoring using the web
- Web user security function support
- Log file storage function
- Source device (CDP, TUNER, RM, etc.)
- Up to 24 selectable
- Up to 512 zones can be selected
- Up to 12 groups can be specified

	IPA-100
Network Communication	100/1000 Base-T (RJ-45)
Operating temperature	-10°C~40°C
Operating voltage	120-240V, 50/60Hz, DC 24V, 300mA
Power consumption	Max 10W
Weight (set)	2.9kg
Dimensions (set)	482(W) x 44(H) x 280(D)mm

# RM-N1000

## Network System Remote Mic Station



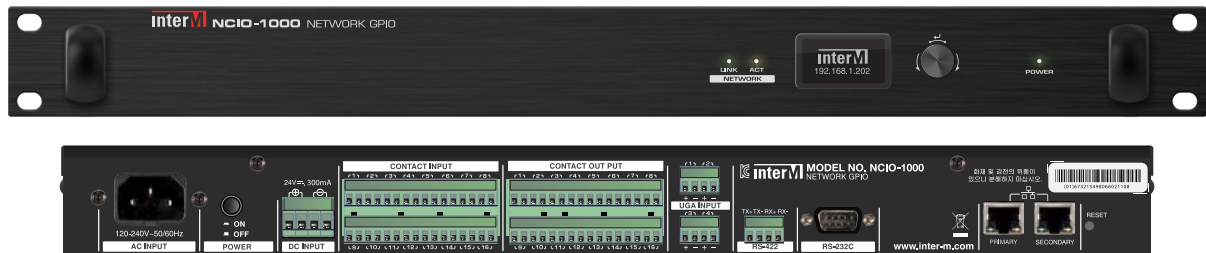
- Broadcast paging over the network
- 100/1000Mbps support
- 0~9 Key, All, Talk, Chime button
- 2.43 inch OLED DISPLAY
- Output level meter
- In real time through the monitor speaker check the current output
- Input/output control volume
- PoE (Power over Ethernet) power supply
- Max. 256 macro broadcasts (zone, group broadcast)

RM-N1000 is capable of digital network announcements by linking with IPA SYSTEM as a network remote microcontroller that can be integrated.

		RM-N1000
MIC	Input sensitivity	-50dBV $\pm$ 3dB
	S/N ( $\leq$ 20kHzLPF, A-wt)	More than 65dB
	THD ( $\leq$ 20kHzLPF)	Less than 0.1%
	Frequency response 100Hz ~ 18kHz (Input: -50dBV, based on 1kHz)	0dB $\pm$ 3dB
AUX	Input sensitivity	-10dBV $\pm$ 3dB
	S/N ( $\leq$ 20kHzLPF, A-wt)	More than 75dB
	THD ( $\leq$ 20kHzLPF)	Less than 0.1%
	Frequency response 100Hz ~ 18kHz (Input: -10dBV, based on 1kHz)	0dB $\pm$ 3dB
Data Communication	Network Communication	100/1000 B ase-t ( RJ-45)
Operating temperature		-10°C ~ +40°C
Power source		DC 24V
Power consumption		MAX 10W
Weight (set)		1.29kg
Dimensions (set)		200(W) x 73(H) x 206(D)mm

# NCIO-1000

## Network GPIO



The NCIO-1000 is a contact point, RS-232C, RS-422 in a network system that provides an integrated transmission solution through an automatic network infrastructure.

- Universal network transport interface
- Bi-directional contact data transmission/reception and control through network (16CH IN/OUT each)
- Check the device status on a webpage over the network
- Bi-directional serial data transmission/reception over the network(RS-232C, RS-422)
- UGA (Unit Management Alarm) INPUT 4CH  
※ UGA: European-style building fire-fighting contact INPUT
- 100/1000Mbps support
- DHCP, STATIC IP support
- It can be used even in an emergency by combining AC and DC power.

	NCIO-1000
Contact Input/Output	DRY CONTACT INPUT : 1CH~16CH DRY CONTACT OUTPUT : 1CH~16CH UGA INPUT : 1CH~4CH
Serial communication	RS-232C, RS-422(485)
Network Communication	100/1000 Base-T (RJ-45)
Operating temperature	-10℃~40℃
Operating voltage	120~240V, 50/60Hz, DC 24V, 500mA
Power consumption	Max 15W
Weight (set)	3kg
Dimensions (set)	482(W) x 44(H) x 280(D)mm

# NAI-1104

## Network Audio Input Converter



- Matrix system for PA broadcasting
- Use AC/DC power
- RACK space saving
- Interlocking external device through 4-channel contact input

- AOE device interworking
  - 4-channel audio input
- It can receive 4 channels of analog audio signals and transmit them as AOE digital audio.

	NAI-1104
Audio input sensitivity	LINE: 0dBV, MIC: -60dBV
Rated output	0dBV
Phantom Power	+24V / 14mA
THD @ Input 1kHz, Output 0dBV	LINE: Less than 0.04% , MIC: Less than 0.2%
MIC: Less than 0.2% S/N @ Input 1kHz, Output 0dBV, A-WTD	LINE: More than 70dB, MIC: More than 65dB
Frequency characteristics	LINE: 20Hz~20kHz, MIC: 20Hz~20kHz
Network communication	100/1000 base-T (RJ-45)
Communication distance	MAX 100m
Contact	Input 4 channels
Operating temperature	-10°C ~ +40°C
Power source	AC 120-240V ~, 50/60Hz, 0.43A, DC +24V, 800mA
Power consumption	22W
Weight (set)	3.1kg
Dimensions (set)	482(W) x 44(H) x 280(D)mm

# NAO-1104

## Network Audio Output Converter



- Matrix system for PA broadcasting
- Use AC/DC power
- RACK space saving
- External device control through 4-channel contact output
- Sound source playback using audio matrix
- AOE device interworking
- 4-channel audio output
- receiving 4CH of AOE digital audio signal and transmitting as analog audio signal

	NAO-1104
Audio input sensitivity	LINE: 0dBV, MIC: -60dBV
Rated output	0dBV
Phantom Power	+24V / 14mA
THD @ Output 1kHz, Output 0dBV	LINE: Less than 0.04%, MIC: Less than 0.2%
S/N@ Output 1kHz, Output 0dBV,A-WTD	LINE: More than 70dB, MIC: More than 65dB
Frequency characteristics	LINE: 20Hz~20kHz, MIC: 20Hz~20kHz
Network communication	100/1000 base-T (RJ-45)
Communication distance	MAX 100m
Contact	Output 4 channels
Operating temperature	-10℃ ~ +40℃
Power source	AC 120-240V~, 50/60Hz, 0.4A, DC +24V, 800mA
Power consumption	20W
Weight (set)	3.1kg
Dimensions (set)	482(W) x 44(H) x 280(D)mm

# NPA Series

## Network Power Amplifier



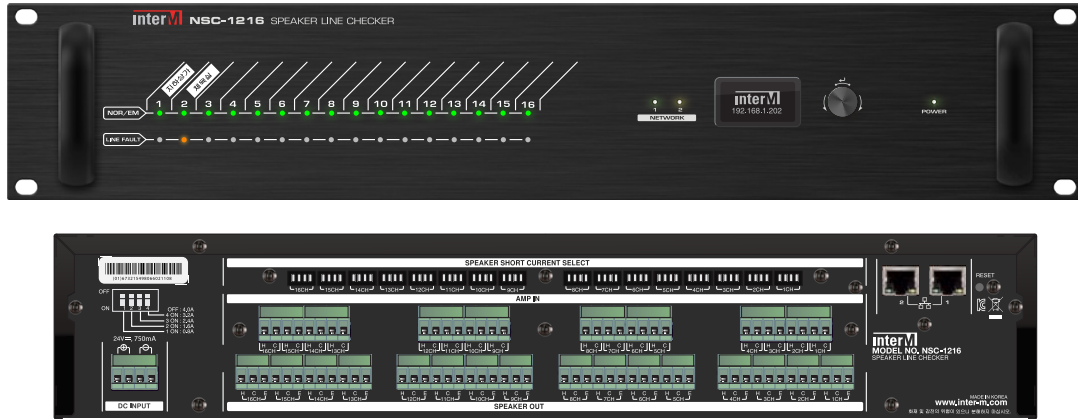
- Class-D amplifier with SMPS power
- Amplifier overheat, output short, overload, DC output, Earth Fault,
- Support for emergency broadcasting power (DC 24V)

- Provides various outputs and channels according to the installation environment
- Various contact input/output support
- Status LED / input signal level meter

	NPA-240S	NPA-240D	NPA-240Q	NPA-480S	NPA-480D
Rated power	240W x 1CH	240W x 2CH	240W x 4CH	480W x 1CH	480W x 2CH
Output voltage/impedance	100V/41.66Ω			100V/20.83Ω	
Input sensitivity	5 dBV				
THD(Rated Power, 1kHz)	Less than 1%				
S/N(20kHz LPF, A-wtd)	More than 85dB				
Frequency response (±3dB, 1W)	20~20kHz				
Network	Ethernet 100/1000 Base-T (RJ-45)				
Operating temperature	-10℃~40℃				
Power source	AC 220-240V, 50/60Hz, DC 24V				
Power consumption	135W	140W	280W	135W	240W
Weight (set)	8.4kg	8.9kg	10kg	8.4kg	9.8kg
Dimensions (set)	482(W) x 88(H) x 454(D)mm				

# NSC-1216

## Network Speaker Line Checker



- Control of device through NETWORK with integrated PC control and
- Real-time short detection function
- Buzzer action
- Various line status display
- 3-wire speaker line control
- Low voltage detection
- Power supply voltage (DC 24V) is less than constant voltage (DC 18V +5%)

NSC-1216					
Real-time short check capacity (variable)	0.8A	1.6A	2.4A	3.2A	4.0A
Recommended amplifier capacity	More than 120W	More than 200W	More than 300W	More than 360W	More than 400W
Amplifier input channels	16 channels				
Speaker output channel	16ch/3-wire type				
Power source	DC 24V, 750mA				
Operating temperature	-10℃ ~ +40℃				
Weight (set)	4.6kg				
Dimensions (set)	482(W) x 88(H) x 280(D)mm				

# NEP-1200

## Network Emergency Panel



- Universal network transport interface
- Emergency broadcast transmission through network
- Check the device status on a webpage over the network
- Scheduled broadcasting through network (MP3, TTS, etc.)
- 100/1000Mbps support
- DHCP, STATIC IP support
- It can be used even in an emergency by combining AC and DC power.

NEP-1200	
MIC Input Sensitivity	-58dBV
MONITOR SPEAKER	Max 1W
Network Communication	100/1000 Base-T (RJ-45)
Operating temperature	-10℃~40℃
Operating voltage	120~240V, 50/60Hz, DC 24V, 400mA
Power consumption	Max 15W
Weight (set)	3.9kg
Dimensions (set)	482(W) x 88(H) x 280(D)mm

# DLM-1108

## Digi-Link Multi Controller



- Universal network transport interface
- 100/1000Mbps support
- DHCP, STATIC IP support
- It can be used even in an emergency by combining AC and DC power
- Source device control through RS-232C (D-SUB 9Pin)
- Check the device status on a webpage over the network
- When the main software transmits the device control protocol through the network, the command is transmitted through the RS-232C terminal to the corresponding device (the main software controls the device, this device receives the protocol over the network and delivers it to the player device)

DLM-1108	
Serial communication	RS-232C 8CH
Network Communication	100/1000 Base-T (RJ-45)
Operating temperature	-10°C~40°C
Operating voltage	120-240V, 50/60Hz, DC 24V, 300mA
Power consumption	Max 10W
Weight (set)	3kg
Dimensions (set)	482(W) x 44(H) x 280(D)mm

# PM-N108

## Remote PA Monitor



The PM-N108 is a device for monitoring PA system audio over a network. Check the audio status by connecting the power amplifier and LINE audio output to the WEB.

- Sound source monitoring through network
- LINE 8ch, AMP 8ch audio input
- Receive audio over the network
- 100/1000Mbps network communication supported
- DHCP, STATIC IP supported

PM-N108		
Audio	Audio input channel	8 channels
	Audio input level	0dBV (1Vrms)
	Frequency response (0dBV)	20Hz ~ 20kHz
	THD+N Ratio (20Hz HPF, 20kHz LPF, 0dBV, 1kHz)	Less than 0.1%
	S/N (20Hz HPF, 20kHz LPF, 0dBV, 1kHz)	More than 80dB
	Amp input channel	8 channels
	Amp input level	40dBV (100Vrms)
	THD+N Ratio (20Hz HPF, 20kHz LPF, 40dBV, 1kHz)	Less than 1%
Communication	Network communication	100/1000 Base-t
Operating temperature		-10℃ ~ 40℃
Power source		DC 24V, 300mA
Weight (set)		3.04kg
Dimensions (set)		482(W) x 44(H) x 280(D)mm





**Inter-M Corp. (IMK)**

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[www.inter-m.net](http://www.inter-m.net)

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

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