TOA

N-8000 Series

IP Intercom System

All-Purpose IP Intercom System with
TOA's Advanced Packet Audio Technology
Assuring Higher Levels of Security,
Versatility and Sound Quality

A versatile, highly reliable IP inte
for flexible, cost-effective configu

TOA's unique N-8000 IP Intercom System is an integrated audio communication system that employs packet audio technology over the IP network to achieve fast, accurate communications with optimal security and reliability. Applications range from conversation, paging broadcasting and BGM broadcasting to emergency paging and broadcasting, audio triggering and other security functions. Users can select between two communication modes according to their needs: Master-to-Master station communication for duplex conversation at factories, hospitals and various other facilities; or Master-to-Sub station communication for use by institutions such as schools or prisons. The system frequency response extends to 7 kHz, enabling reliable transmission of a full range of emergency communications, including clear, easily understandable PA announcements.

The N-8000 System's impressive scalability enables users to configure an intercom system that satisfies their precise requirements, from a small system with just two stations to a large, complex system with up to 192 components and 3,072 stations. Its open architecture permits flexible interfacing with other systems, moreover, reducing costs by enabling users to upgrade and expand their intercom system without replacing currently installed equipment, such as surveillance cameras, telephones and access controls. Since the N-8000 System is not server based, users can use dedicated TOA software to manage settings and centralized control on a PC and to conduct real-time monitoring of system operation and line status using an Internet browser.

ercom system designed to meet user needs
uration and operation

System Features

- System configuration by LAN with intuitive software
- Master-to-Master and Master-to-Sub station communication
- Choice of four wiring configurations:CAT5, 2-core shielded cables, 2 wires or 4 wires
- Integration with access control, voice alarm, CCTV and other such systems
- Time correction
- Operation and stream logs
- System diagnosis

Basic Communication Features

- Handset or hands-free conversation
- Recall • Redial • Camp on busy • Mic-Off
- Remote response • Single-digit dialing
- Call transfer • Comprehensive call-forwarding features
- Three-party conferencing

System scalability

The cost-effective N-8000 System can be configured to a scale that meets users' specific requirements, however small or large. As few as two stations can be linked in a small system, or up to 192 components can be interconnected to operate as many as 3,072 stations.

Borderless communications

Since the N-8000 System is IP network-compatible, it supports linkage between local areas and other locations worldwide. Centralized PC control with dedicated TOA software enables connection of all exchanges, IP stations and interface units with LAN, WAN and optical fiber networks.

Integrated communications and safety features

Efficient centralized control integrates various systems to handle communications ranging from duplex conversations between stations to paging broadcasts, scheduled broadcasts and BGM broadcasting. The N-8000 System also provides master control for connection to users' pre-existing intercom, alarm, surveillance, door entry/departure authorization and other systems as well as to telephone lines.

Easy installation and maintenance

The surprisingly easy system installation requires a minimum of on-site work, since existing wiring can be used and new components simply plugged in. The dedicated TOA software includes a maintenance application for system status monitoring, troubleshooting and logging as well as for system updating and remote control.

Long-term cost-effectiveness

Since N-8000 software and all calls between stations are free of charge, users enjoy the benefit of significantly lower telephone bills. Overall ownership costs are also reduced by the open-ended system architecture and network scalability permitting individualized configuration.

Superior sound quality

The N-8000 system provides high-quality audio for BGM, paging and recording applications.

Full logging options

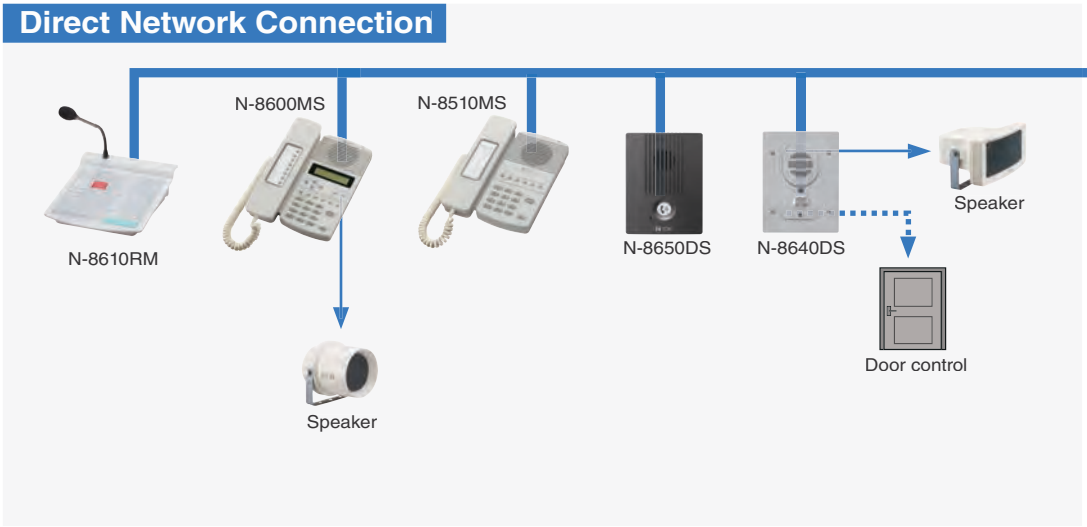
The complete menu of operation and stream logging options includes operation verification, voice communications and line supervision logs, all of which can be archived easily for instant recall.

Internal and external system security

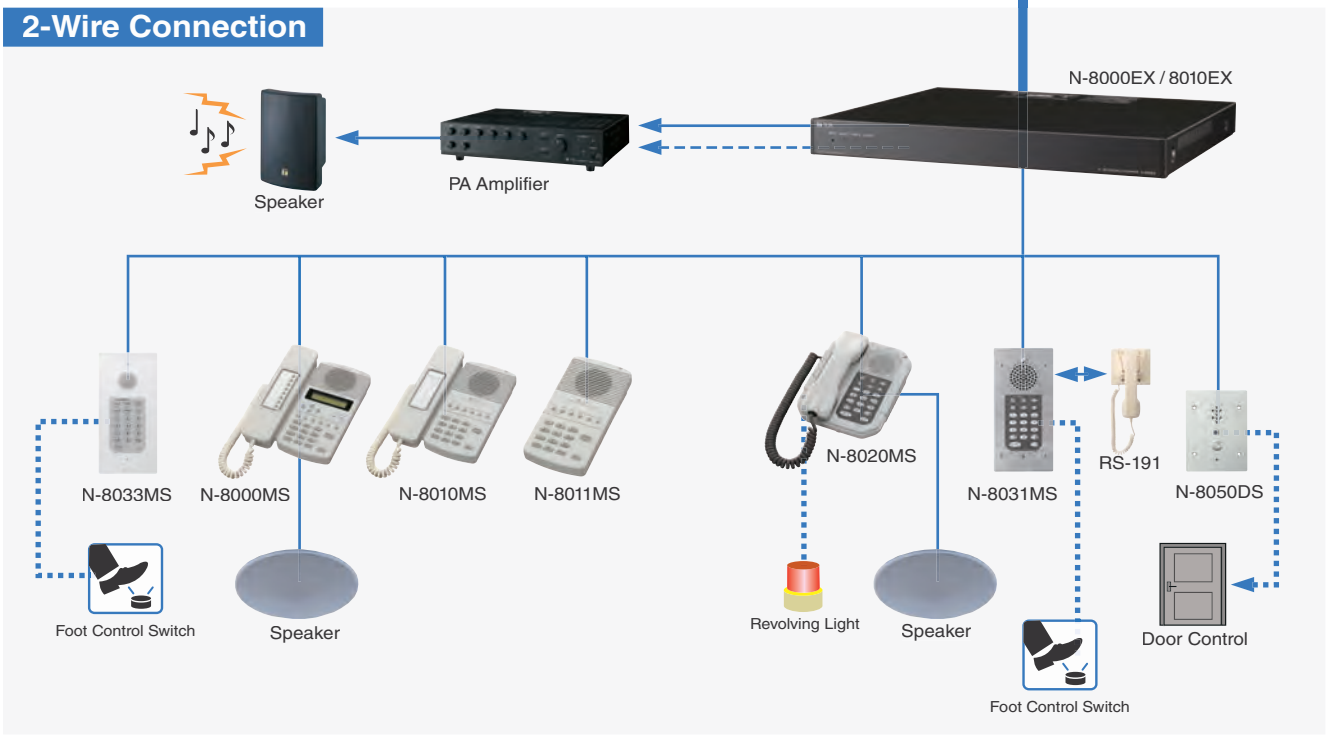
The N-8000 System is equipped with both a round-the-clock internal surveillance function to minimize downtime and a proprietary packet audio protocol to prevent wiretapping.

N-8000 System Overview

Direct Network Connection



2-Wire Connection



System Specifications

LAN Connections
Max. 192 units (total no. of Exchanges, Interface Units and IP stations)

Station Connections
Max. 3,072 stations (16 stations connected to each of 192 Exchanges)

Voice Links
Max. 768 links (4 links for each of 192 connected N-8000EX Exchanges)

Paging
Zones
Max. 192 zones

Paging Outputs
Max. 384 outputs (2 outputs for each of 192 connected N-8000 Exchanges or Multi-Interface units)

BGM
Max. 8 channels (number of channels selectable from a station)

PBX Interface
Max. 384 units (2 units for each of 192 connected Multi-Interface units)

Tie-Line Interface
Max. 384 units (2 units for each of 192 connected Multi-Interface units)

Outside-Line Interface
Max. 192 units

Telephone Interface
Max. 192 units (when 192 Telephone Interface units are connected)

External Contact Output
N-8000MI
Max. 3,072 (16 outputs for each of 192 connected Multi-Interface units)
N-8000DI
Max. 6,144 (32 outputs for each of 192 connected Direct Select units)
N-8000AF
Max. 1,536 (8 outputs for each of 192 connected Audio Interface units)

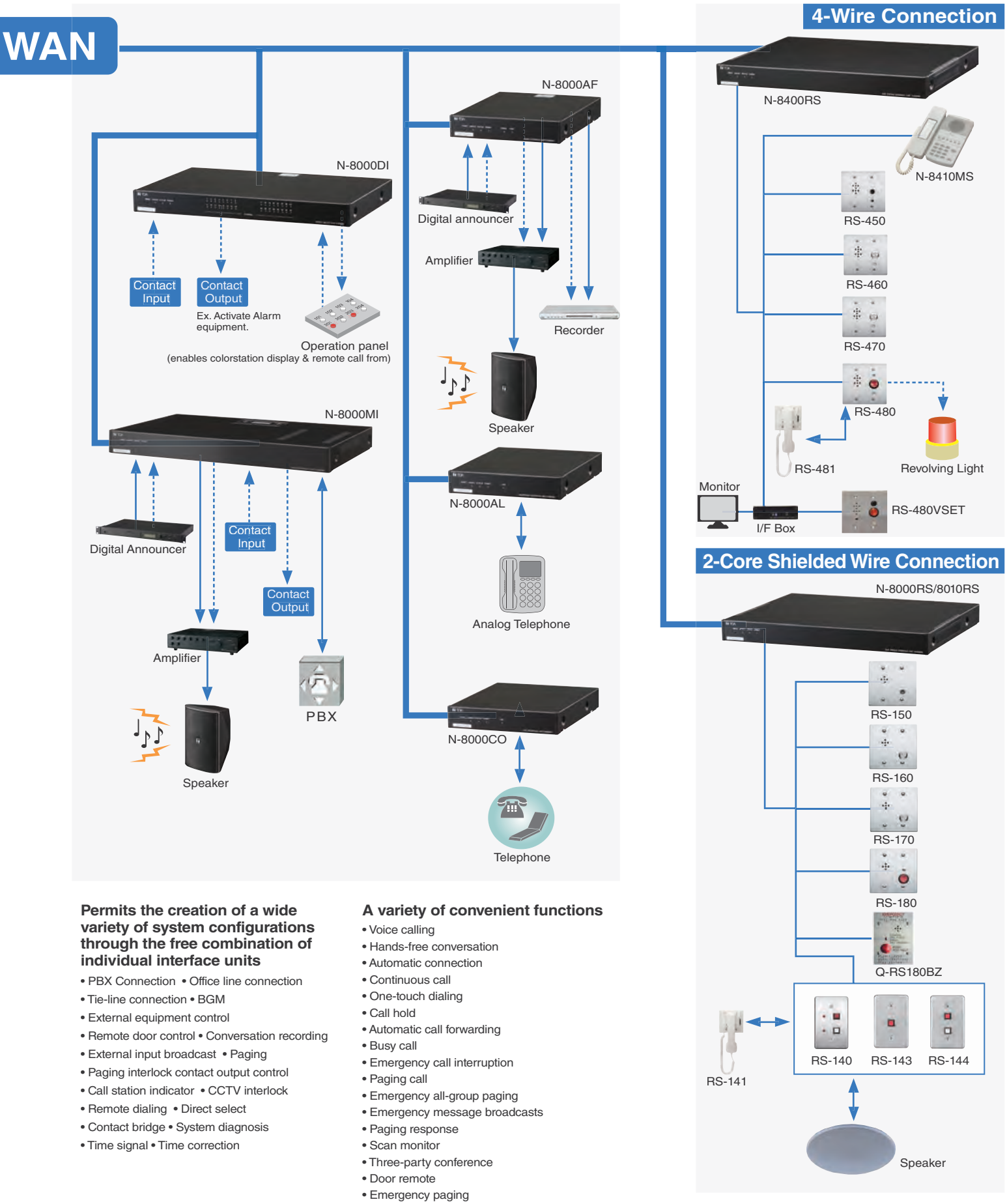
External Contact Input
N-8000MI
Max. 3,072 (16 inputs for each of 192 connected Multi-Interface units)
N-8000DI
Max. 6,144 (32 inputs for each of 192 connected Direct Select units)
N-8000AF
Max. 1,536 (8 inputs for each of 192 connected Audio Interface units)

[Network Relations]
Audio Delay Time
80 ms/320 ms; changeable

Connection Delay Time
Max. 1 second (when 191 multicast paging destinations are set)

Bandwidth Used
Max. 2.08 Mbps (one-way)/unicast paging to 16 locations

Max. 130 Kbps (two-way)/per call



Permits the creation of a wide variety of system configurations through the free combination of individual interface units

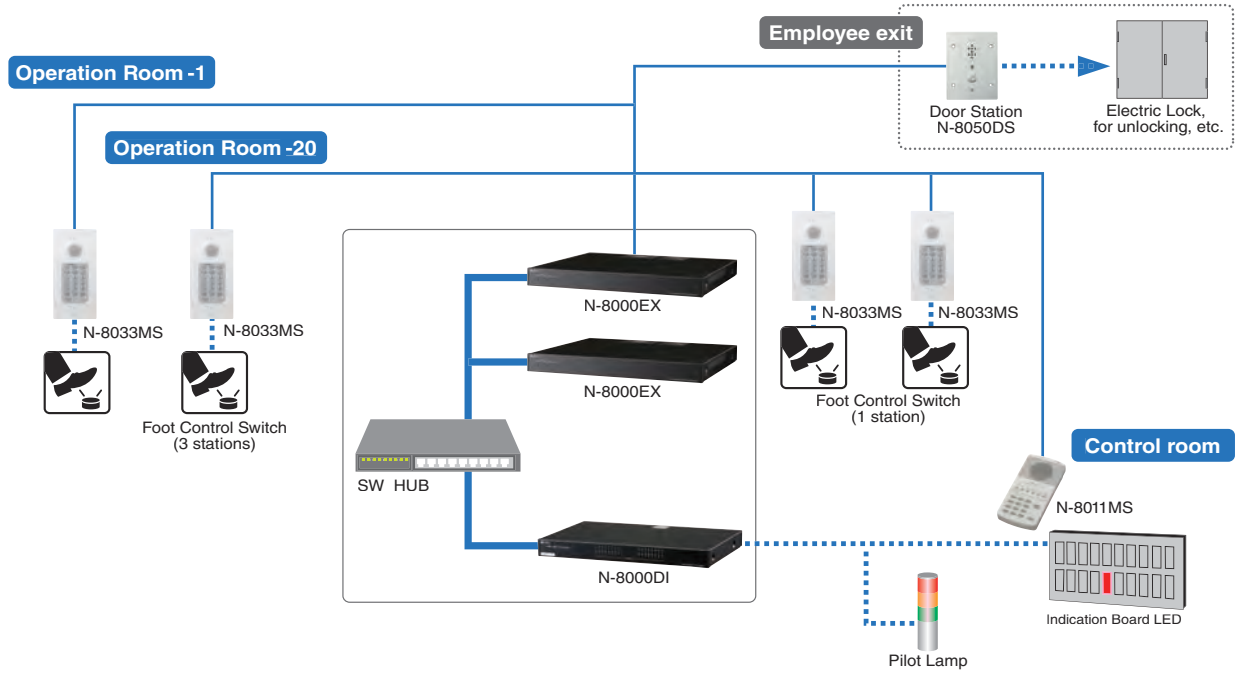
- PBX Connection • Office line connection
- Tie-line connection • BGM
- External equipment control
- Remote door control • Conversation recording
- External input broadcast • Paging
- Paging interlock contact output control
- Call station indicator • CCTV interlock
- Remote dialing • Direct select
- Contact bridge • System diagnosis
- Time signal • Time correction

A variety of convenient functions

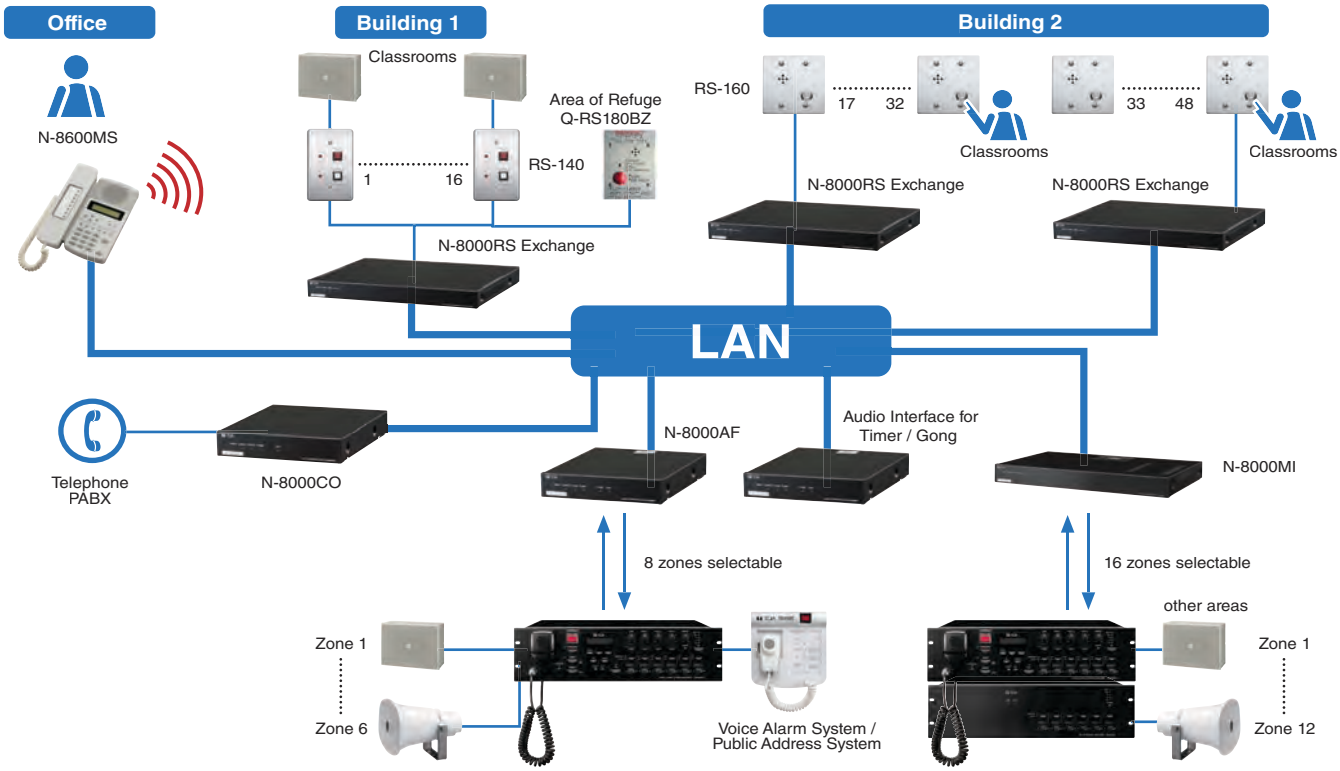
- Voice calling
- Hands-free conversation
- Automatic connection
- Continuous call
- One-touch dialing
- Call hold
- Automatic call forwarding
- Busy call
- Emergency call interruption
- Paging call
- Emergency all-group paging
- Emergency message broadcasts
- Paging response
- Scan monitor
- Three-party conference
- Door remote
- Emergency paging
- Audio trigger

Application Examples

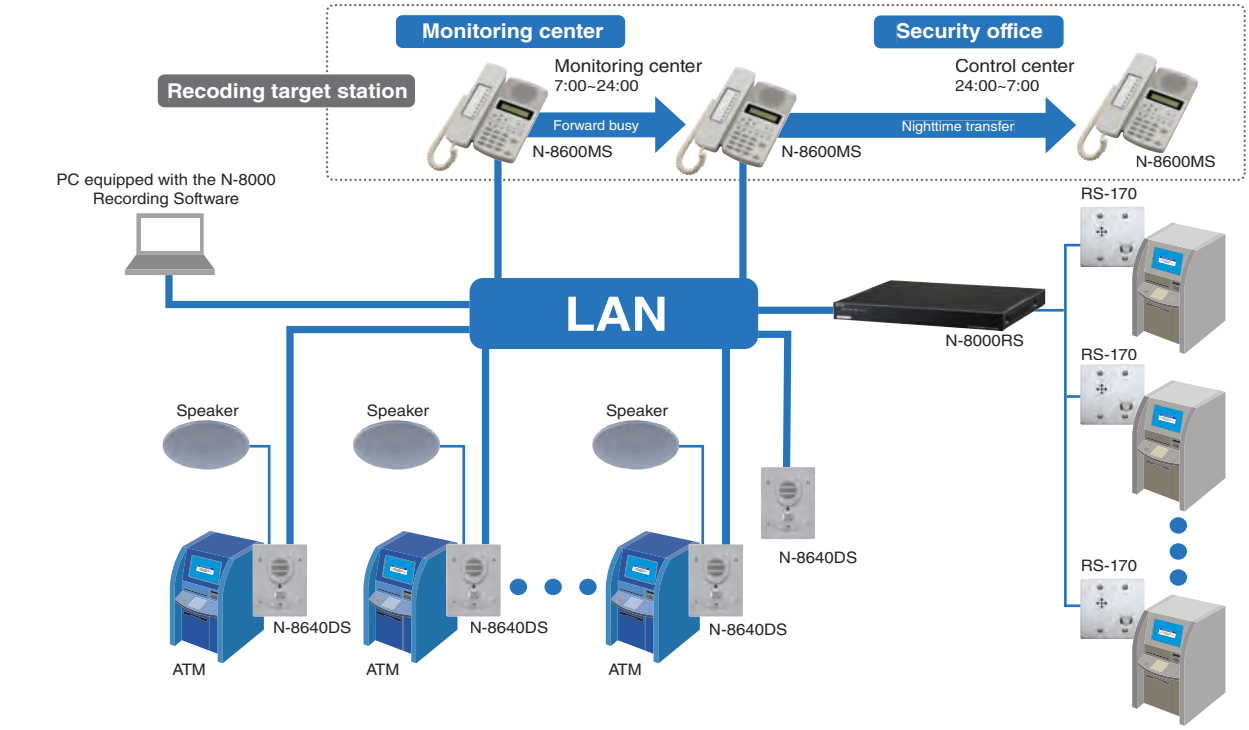
Hospital



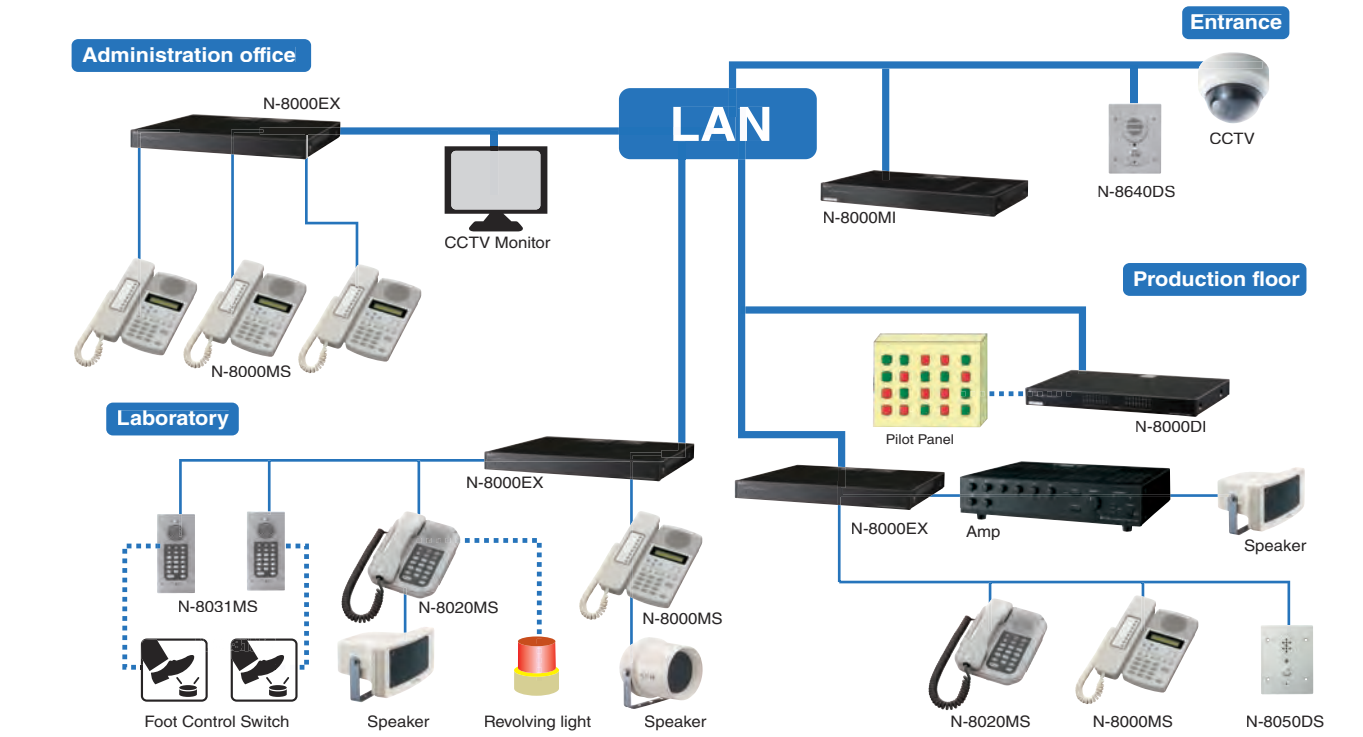
School



Bank

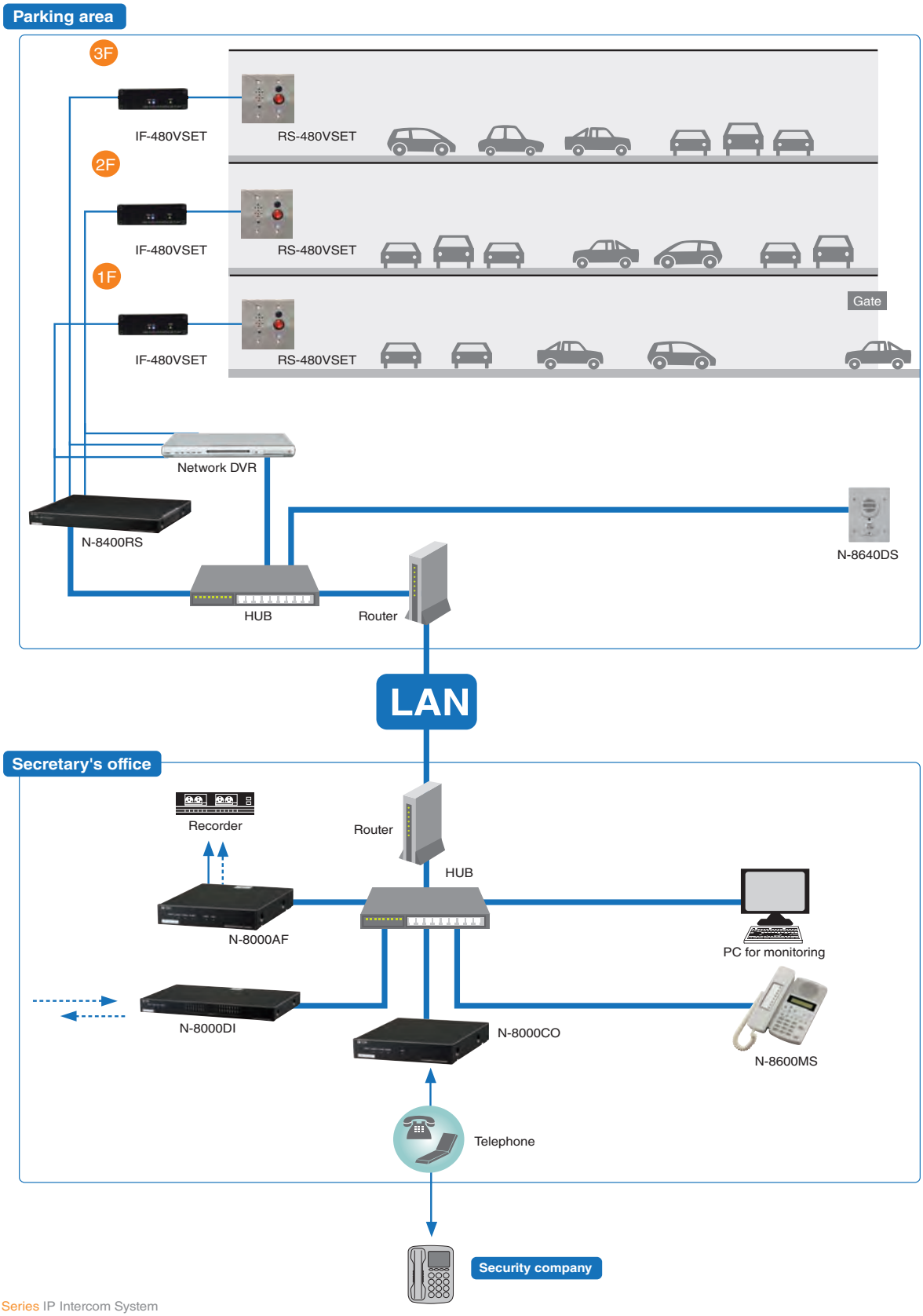


Factory



Application Examples

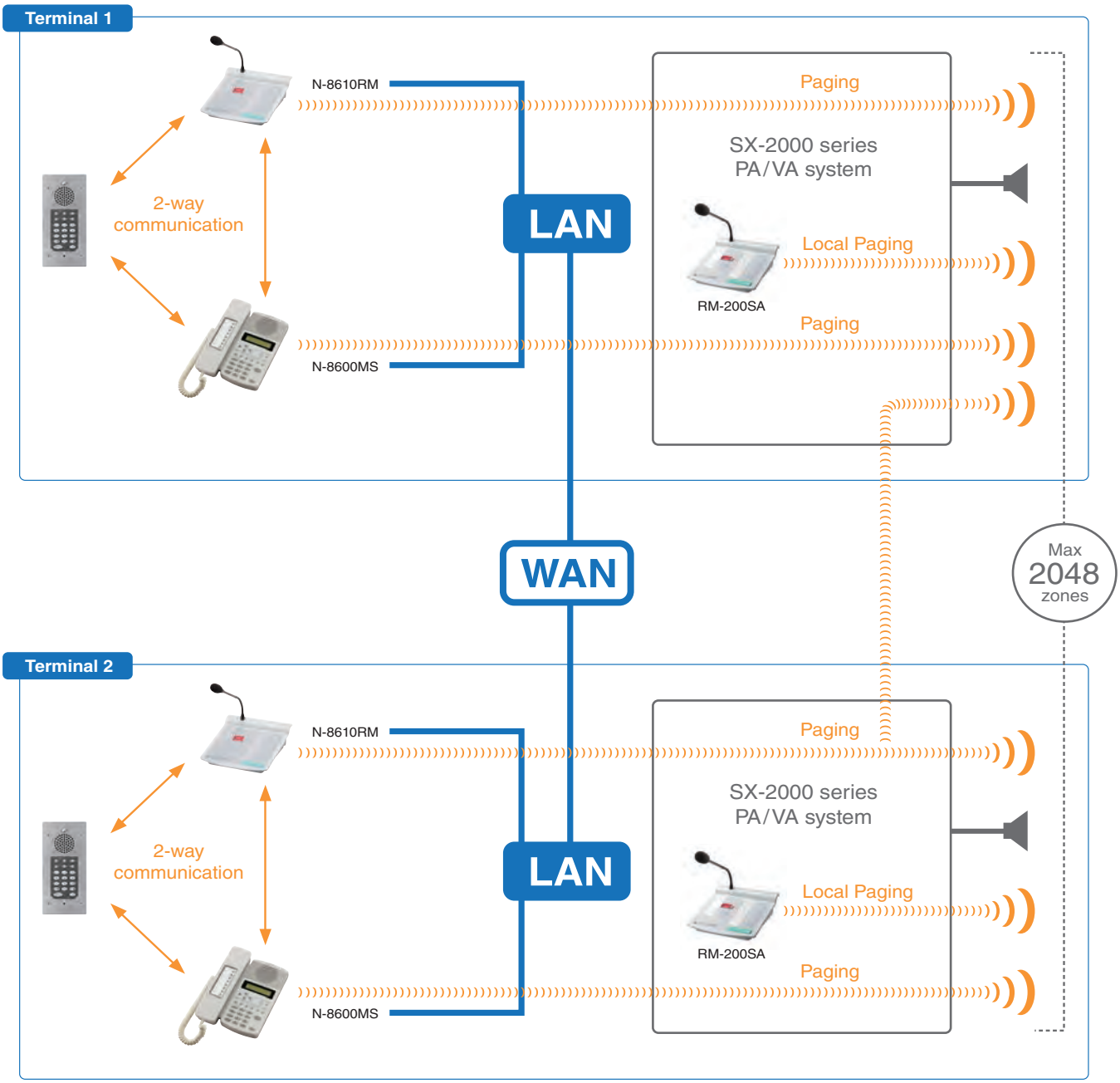
Parking garage



Large-scale communication & Paging system at Airport

Integration of N-8000 with SX-2000 Audio Management System strengthens system capabilities.
A large system with up to 2048 zones is realized on the IP Network.
From a remote location, IP Station* can make a paging call to any selected zone(s).

*N-8610RM and N-8600MS.



Station Selection Chart

		Desk-top	Optional Bracket	Wall-mount	Applicable Exchanges/ Interfaces
IP Base	Master/ Door Stations	N-8610RM	WB-200RM	N-8640DS, N-8640SB, N-8650DS	
		N-8600MS	YC-280		
		N-8510MS	YC-280		
2-Wire Type	Master/Door Stations	N-8000MS	YC-280	N-8050DS	N-8000EX
		N-8010MS	YC-280	N-8031MS, N-8033MS	
		N-8011MS	YC-290		N-8010EX
		N-8020MS	YC-280	N-8050SB, N-8031SB	
2-core Shielded Type	RS Sub-stations			RS-150, RS-140, RS-142, RS-144, RS-143	N-8000RS, N-8010RS
				Vandal-resistant type: RS-160	
				Outdoor type: RS-170, RS-180, Q-RS180BZ	
4-wire Type		N-8410MS	YC-280	RS-450, RS-442	N-8400RS
				Vandal-resistant type: RS-460	
				Outdoor type: RS-480, RS-470, RS-480VSET	

N-8000 System Software

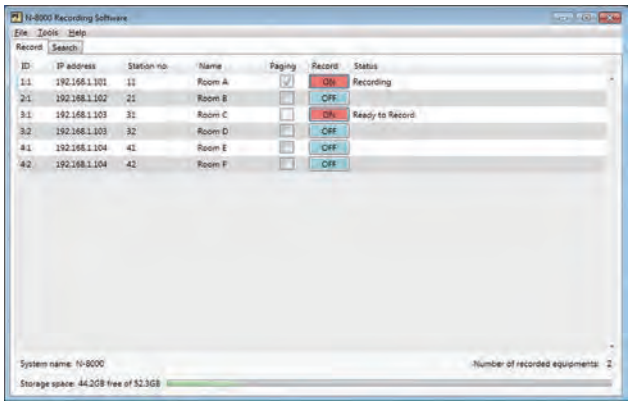
Setting software

The network settings and the detection of the equipment connected to the local network can be set. The paging system settings, advanced settings of functions for each individual equipment and settings for the whole system can also be adjusted.

[System Requirements]
OS: Windows® XP Professional SP2 or later/Vista Business/7 Professional
CPU: Pentium® 4 2 GHz or faster
Memory: 1 GB or more
Required component: Microsoft® .NET Framework 3.5 SP1 or later, and Microsoft® SQL Server 2005 Express Edition

Recording software

Telephone calls, paging, and 3-Party Conference on the N-8000 system and recording of the voice during the Scan Monitor can be managed as a wav format. After selecting the recording subjected equipment, recording related settings can be adjusted. It is possible to easily search the recorded audio files and also to export the audio files to an external storage.

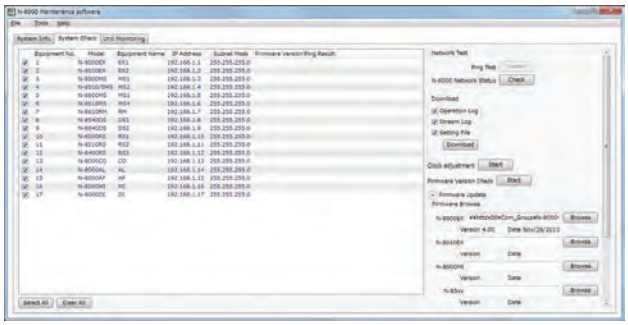


[System Requirements]
OS: Windows® 7 Professional SP1(32/64bit)
Screen resolution: Over 1024 × 768 pixels
Required component: Microsoft® .NET Framework 4

[Recommended Specifications]
CPU: Intel® Core® i5-2400 CPU @3.10GHz or faster
Memory: 4 GB or more
Free Hard Disk Space: 100GB or more
(About 2.7 GB is used per sound source at 24-hour continuous recording)

Maintenance software

This software displays the equipment name, station number, station name, etc. of individual equipment components within the system in the form of an at-a-glance list. System check function is used to confirm equipment firmware versions, update firmware, check connections between a PC and equipment components and between components, download various equipment log and setting files, and perform equipment clock settings. Although the above functions can be done on the browser, use of the N-8000 Maintenance Software permits such functions to be performed simultaneously for multiple components. Moreover, it displays the operation status of individual components in real time. Equipment operation logs can also be automatically saved to a designated file on the PC.



[System Requirements]
OS: Windows® XP SP2 or later
Required component: Microsoft® .NET Framework 3.5 SP1 or later
Screen resolution: Over 800 x 600 pixels

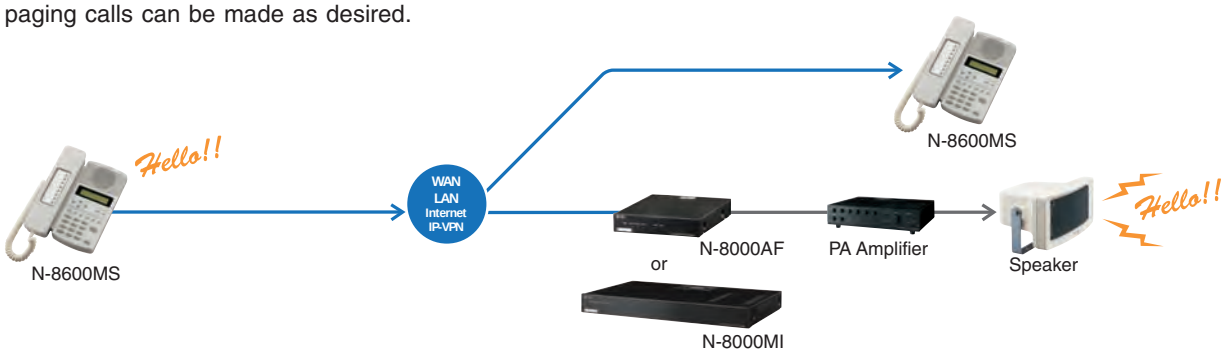
[Recommended Specifications]
OS: Windows® Vista Business/7 Professional
CPU: Pentium® 4, 2 GHz or faster
Memory: 2 GB or more
Screen resolution: Over 1024 x 768 pixels

*Microsoft, Windows XP, Windows Vista, Windows 7 and .NET Framework are either registerd trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
*Intel, Pentium and Intel Core are either trademarks of Intel Corporation in the United States and/or other countries.
*By use of different software, it is possible to configure for a large amount of telephone calls. For more information, please contact your nearest dealer.

Key Functions

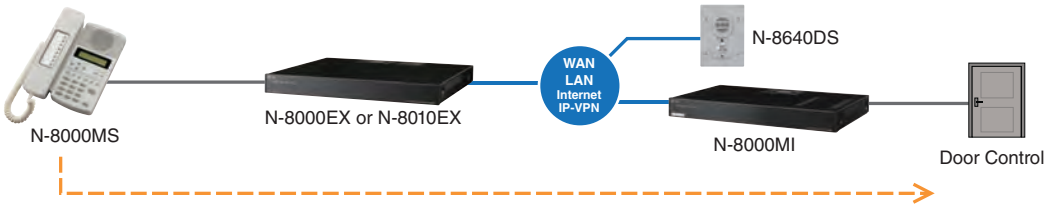
Paging Function

Allows the master station as well as external input equipment to initiate paging by PA equipment or the speakers of individual stations. Operators can use the setup software to configure up to 192 paging zones to which paging calls can be made as desired.



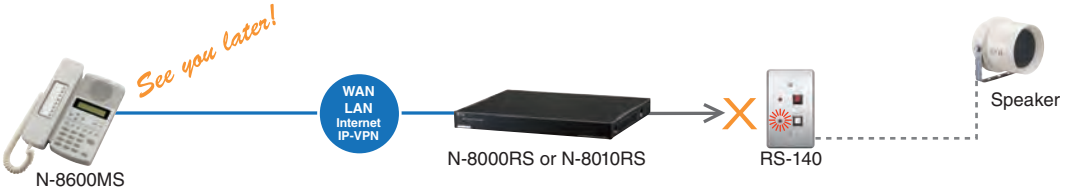
Remote Control of External System

Makes it possible to execute door lock control easily through a contact output when the master station is engaged in ongoing conversation with the N-8640DS or N-8050DS Door Station.



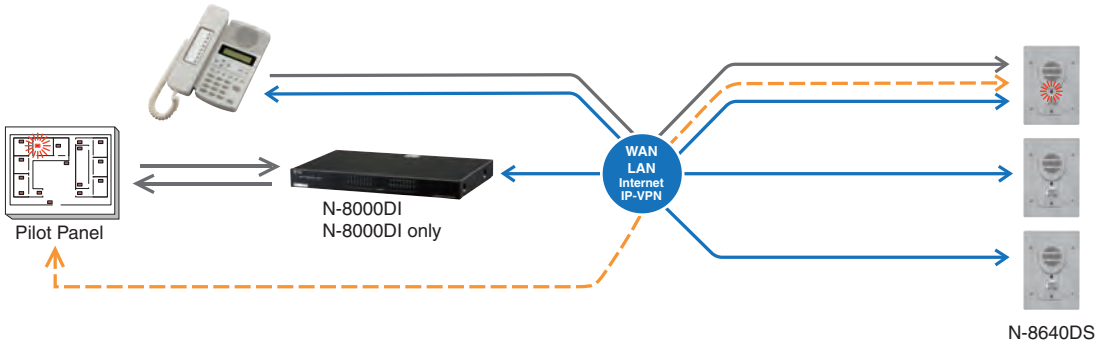
Privacy Mode

Activated by a control on the RS-140 Switch Panel, blocks paging calls to connected speakers and prevents scan monitoring except for emergency calls.



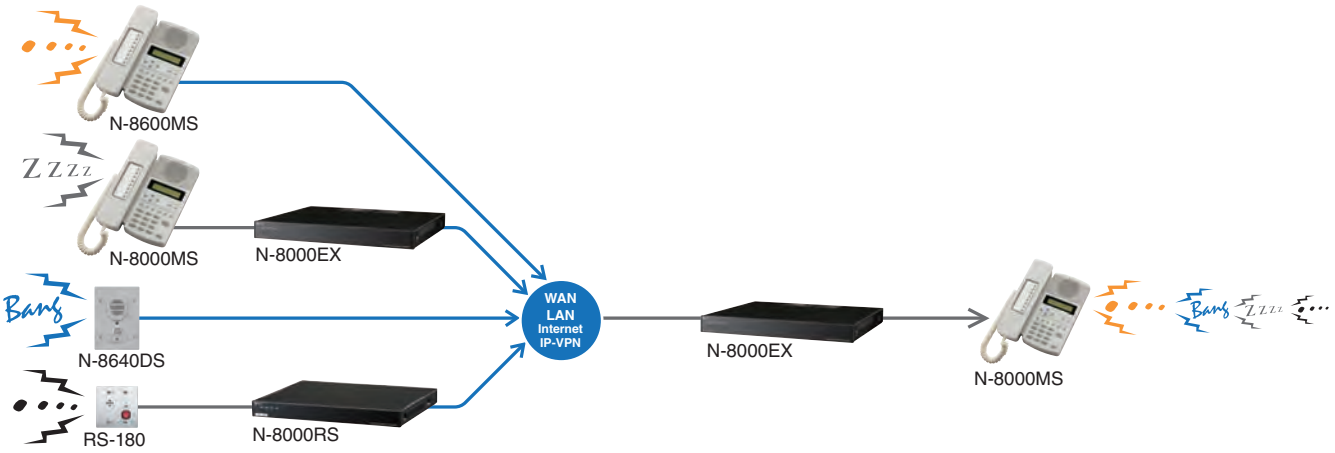
Direct Select

Configures an operation panel equipped with indicator lamps and control buttons for the master station. Compatible with other stations, the panel assigns the various contact input and output channels to the master station and substations for purposes of identifying which substation is calling the programmed master station.



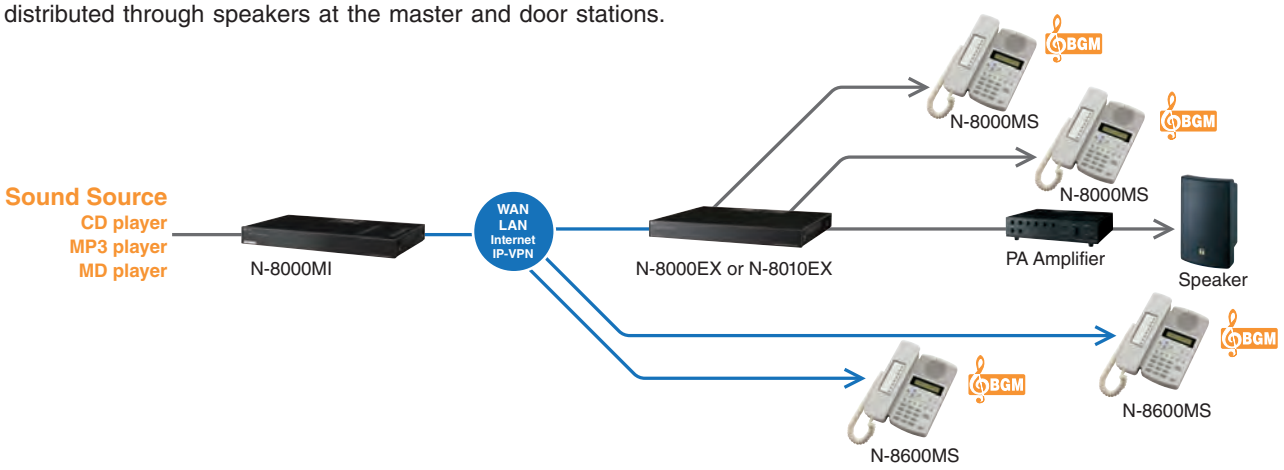
Scan Monitor

Enables remote security monitoring by allowing the master station as well as analog telephones and external telephones to audio monitor two or more pre-programmed stations.



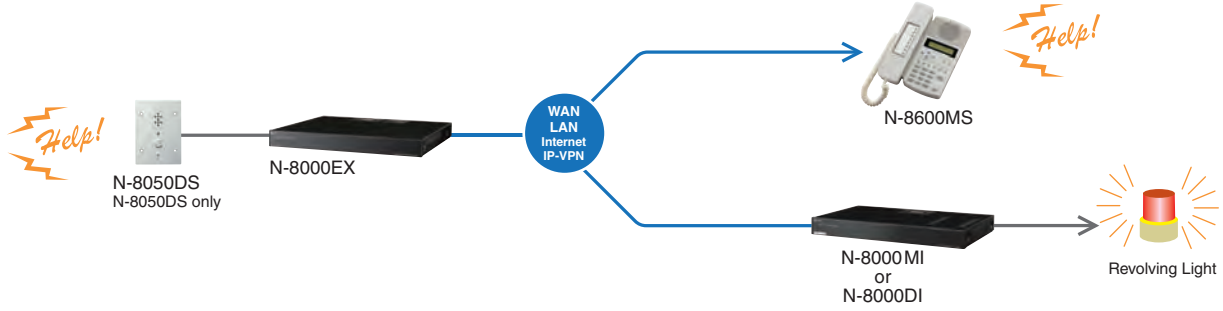
BGM Broadcasting

Enables music from any of eight BGM sources connected to the N-8000MI to be distributed through speakers at the master and door stations.



Audio Trigger

Sets off an alarm if audio input to a pre-programmed station's microphone fulfils pre-set conditions (detection time or signal level). Examples include calls to the designated master station or contact output generated by another interface unit.



Specifications

IP Base Station

IP Multifunctional Master Station

IP Remote Microphone Station

	N-8600MS	N-8610RM
Power Source	Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option))	
Power Consumption	3W (max.)	Use of the AC adapter (12 V DC): 4W (microphone only), 8.5W (when connecting 4 RM-210 Extension units) Use of the PoE (48 V DC): 5.2W (microphone only), 7.5W (when connecting 4 RM-210 Extension units)
Speech Method	Hands-free or handset conversation	Hands-free conversation (use of goose-neck microphone)
Audio Frequency Range	300 Hz – 7 kHz	
External Speaker Terminal	Maximum output 0.5W, 8Ω, screwless connector (2P)	—
No. of Connectable Expansion	—	Max.4 units (maximum 2 units at PoE power supply)
Network Section		
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Voice Packet Loss Recovery	Silence insertion	
Audio Delay Time	80ms, 320ms (controllable on the software)	
Finish	Body, Handset: ABS resin, gray	ABS resin, blueishgray
Dimensions	148 (W) x 208 (H) x 70.5 (D)mm (excluding a curl cord section)	190 (W) x 76.5 (H) x 215 (D)mm (excluding microphone)
Weight	770g	700 g
Option	Wall mounting bracket: YC-280, AC adapter: AD-1210P, AD-1215P	Remote microphone extension: RM-210 Wall mounting bracket: WB-RM200, AC adapter, AD-1210P, AD-1215P

*0dB = 1V

IP Door Station

IP Door Station

IP Door Station Board Unit

	N-8640DS	N-8650DS	N-8640SB
Power Source	Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option))		
Power Consumption	5W (max.)		
Speech Method	Hands-free conversation		
Audio Frequency Range	300 Hz – 7 kHz		
Contact Input	1 channel, no-voltage make contact input, open circuit voltage: 5V DC, short circuit current: 10mA or less, unterminated ends		
Contact Output	Open collector output, 4 channels, withstand voltage: 30V DC, control current; Max. 50mA (4 output 1COMMON), unterminated ends Relay contact output, 1 channel, withstand voltage; 30V DC. control current: Max. 500mA, unterminated ends		
External Speaker Terminal	0.5W, 8Ω		
Network Section			
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)		
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP		
Audio Packet Transmission System	Unicast, Multicast		
Voice Packet Loss Recovery	Silence insertion		
Audio Delay Time	80ms, 320ms (controllable on the software)		
Dust/Water Protection	IP65 (Note that panel edges must be sealed at installation.)	—	—
Finish	Panel: Stainless steel, hairline/ Call button: Metal	ABS resin, dark gray	—
Dimensions	115 (W) x 162 (H) x 58.5 (D)mm	117.2 (W) x 162 (H) x 60 (D)mm	79 (W) x 134 (H) x 53 (D)mm
Weight	780g	400g	350g
Option	For flush-mount: 3-gang electrical box or Back Box YC-150, Wall surface-mount: Wall mount Box YS-13A, AC adapter: AD-1210P, AD-1215P		AC adapter: AD-1210P, AD-1215P

*0dB = 1V

2-Wire Type Station

	Multifunctional Master Station	Standard Master Station	Standard Hands-Free Master Station	Industrial-Use Master Station
	N-8000MS	**N-8010MS**	**N-8011MS**	**N-8020MS**
Power Source	48V DC (supplied from the IP network intercom exchange)			
Power Consumption	2.4W (max.)			
Wiring Method	1 set of twisted pair cable			
Speech Method	Hands-free or handset conversation		Hands-free conversation	Hands-free or handset conversation
Audio Frequency Range	300 – 7,000Hz			
Transmission Range	Max. 1500m (ø0.65mm. Loop resistance 170Ω)			
Dial-in Contact Output	—	—	—	Open collector output (The contacts have polarity.)/ Withstand voltage: Max. 30V DC, Control current: Max. 50mA, screwless connector (2P)
External Speaker Terminal	0.6W, 8Ω, screwless connector (2P)	—	—	0.6W, 8Ω, screwless connector (2P)
Dust/Water Protection	—	—		IP54
Resistance to Environment	—	—	—	—
Finish	Body, Handset: ABS resin, gray		Body: ABS resin, gray	Body, Handset: ABS resin, gray
Dimensions	148 (W) x 208 (H) x 70.5 (D)mm(excluding a curl cord section)		92 (W) x 195 (H) x 56.1 (D)mm	170 (W) x 220 (H) x 97.8 (D)mm (excluding a curl cord section)
Weight	800g	700g	400g	1kg
Options	Wall mounting bracket: YC-280		Wall mounting bracket: YC:290	Wall mounting bracket: YC-280

*0dB = 1V

	Flush-Mount Master Station	Flush-Mount Hands-Free Master Station	Master Station Board	Door Station	Door Station Board
		RS-191			
	N-8033MS	**N-8031MS**	**N-8031SB**	**N-8050DS**	**N-8050SB**
Power Source	48V DC (supplied from the IP network intercom exchange)				
Power Consumption	2.4W (max.)				
Wiring Method	1 set of twisted pair cable				
Speech Method	Hands-free or handset conversation				
Audio Frequency Range	300 – 7,000Hz				
Transmission Range	Max. 1500m (ø0.65mm. Loop resistance 170Ω)				
Contact Output	—			Open collector output, withstand voltage: Max. 30V DC, control current: Max. 50mA, one shot: can be set from1 to 9 sec, screw terminal (polarized)	
External Dial Input	No-voltage make contact input, open voltage: 5V DC, short-circuit current: 1mA, screwless connector (5 pins)			—	
Housing Protection	—	—	—	BS EN62262: 2002: IK02 equivalent	—
Dust/Water Protection	IP65 (Note that panel edges must be sealed at installation.)	—	—	IP54 (Note that panel edges must be sealed at installation.)	—
Resistance to Environment	Chemical Resistant	—	—	—	—
Finish	Membrane switch (Front pasting): Polyester film	Panel: Stainless steel (SUS304), hairline	—	Panel: Stainless steel, hairline/ Call button: Metal	—
Dimensions	115 (W) x 254 (H) x 54.6 (D)mm		70 (W) x 185 (H) x 20.6 (D)mm	115 (W) x 162 (H) x 54 (D)mm	67 (W) x 128.3 (H) x 26 (D)mm
Weight	850g		205g (including accessories)	680g	100g (including accessories)
Options	Back Box YC-841	Flush-mount: Back Box, YC-241 Wall surface-mount: Wall mount Box YC-251 Handset: RS-191	Handset: RS-191	Flush-mount: 3-gang electrical box or Back Box YC-150 Wall surface-mount: Wall mount Box YS-13A	—

*0dB = 1V

Specification

IP Network Exchange

IP Network Intercom Exchanges

	N-8000EX	N-8010EX
Power Source	120V AC, 50/60Hz	
Power Consumption	50W (at rated), 75W (max.)	
Interface Section or Station		
Speech Link	Internal: 4/External: 8	Internal: 1/External: 2
Line Capacity	Up to 16 stations	
Wiring Method	1 set of twisted pair cables	
Transmission Range	Max. 1500m (ø0.65mm. Loop resistance 170Ω)	
Paging Output	Audio: 2 channels Max. 0dB*, 600Ω, balanced, detachable terminal block Control: 2 channels, no-voltage make contact output (24V DC/0.5A), removable terminal block	Station paging only
Network Section		
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Audio Packet Omission	Silence insertion	
Audio Delay Time	80ms, 320ms (Controllable on the software)	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	420 (W) x 44.3 (H) x 356 (D)mm	
Weight	4.1kg	4.2kg

*0dB = 1V

Interface Unit

Multi Interface Unit

Direct Select Unit

Audio Interface Unit

	N-8000MI	N-8000DI	N-8000AF
Power Source	120V AC, 50/60Hz		
Power Consumption	(CE): 24W (230mA) (max.)/(CU): 21W (330mA) (max.)	16W (Max.)	7W (Max.)
Audio Input	Input: 2 inputs (2P/input), Max. 0dB*, under 600Ω, balanced, with a semi-fixed volume for adjustment (0 to –25dB) Control: 2 inputs (2P/input), no-voltage make contact input, open voltage: 12V DC, short-circuit current: 10mA Removable terminal block (8 pins)		1 input (transformer isolated), -58dB* to 0dB*, 2kΩ, balanced (MIC/LINE input, controllable on the software) with input volume control knob, removable terminal block (3 pins)
Audio Output	Output: 2 outputs (2P/output), Max. 0dB*, under 600Ω, balanced Control: 2 outputs (2P/output), relay contact output, contact capacity: 24V DC/0.5A Removable terminal block (8 pins)	—	1 output (transformer isolated), 0dB*, 600Ω, balanced, removable terminal block (3 pins)
Contact Input	16 inputs, no-voltage make contact input, open voltage: 12V DC, short-circuit current: 10mA, removable terminal block (18 pins) (1 common terminal for 4 inputs)	32 inputs, no-voltage make contact input, open voltage: 24V DC, short-circuit current: 5mA or less, removable terminal block (20 pins),	8 inputs, no-voltage make contact input, open voltage: 24V DC, short-circuit current: 5mA or less, removable terminal block (10 pins), (1 common terminal for 4 inputs)
Contact Output	16 outputs, relay contact output, contact capacity: 24V DC/0.5A, removable terminal block (18 pins)	32 outputs, relay contact output, contact capacity: 24V DC/2 – 500mA, removable terminal block (32 pins)	8 outputs, relay contact output, output capacity: 24V DC/2 – 500mA, removable terminal block (16 pins)
Network Section			
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)		
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP		
Audio Packet Transmission System	Unicast, Multicast		
Voice Packet Loss Recovery	Silence insertion	—	Silence insertion
Audio Delay Time	80ms, 320ms (Controllable on the software)	—	80ms, 320ms (Controllable on the software)
Finish	Pre-coated steel plate, black, 30% gloss		
Dimensions	420 (W) x 44.3 (H) x 239.5 (D)mm	420 (W) x 44.3 (H) x 267 (D)mm	210 (W) x 44.3 (H) x 267 (D)mm
Weight	2.8kg	2.8kg	1.7kg
Options	—	Wall mounting bracket: YC-850	Rack mounting bracket: MB-15B-BK, MB-15B-J Wall mounting bracket: YC-850

*0dB = 1V

Interface Unit

Telephone Interface Unit

C/O Interface Unit

	N-8000AL	N-8000CO
Power Source	120V AC, 50/60Hz	
Power Consumption	8W (Max.)	7W (Max.)
Line: Public Switched telephone networks		
Number of Lines	1 line	
Selective Signal Type	DTMF Signal	
Signal System	—	Compatible with loop start signaling
Monitor Function	Line Loop detection	—
Control Function	Caller ID function	—
Wiring Method	1 pair of twisted pair cable	
Network Section		
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multicast	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	210 (W) x 44.3 (H) x 267 (D)mm	
Weight	1.7kg	
Options	Rack mounting bracket: MB-15B-BK, MB-15B-J Wall mounting bracket: YC-850	

* 0dB = 1V

IP Interface Module

IP Interface Module

	SX-200IP
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Connector	RJ45 connector
Voice sampling frequency	16 kHz, 8 kHz (controllable on the software) 48 kHz, sample rate is used for SX-2000 system only
Quantifying bit number	16-bit
Voice encoding method	Sub-band ADPCM, Cryptosystem
Voice Packet Loss Recovery	Silence insertion
Audio Delay Time	80ms, 320ms (Controllable on the software)
Indicator	Operation indicator (RUN)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) x 44.3 (H) x 325.5 (D)mm
Weight	150g

Specification

2-Core Shielded Cable Type

Sub-station Interface Unit

	N-8000RS	N-8010RS
Power Source	120V AC, 50/60Hz	
Power Consumption	35W(at rated), 45W(max.)	26W (at rated), 32W (max.)
Interface Section for Sub-station		
Number of Lines	16 lines	
Number of Speech Link	2 links	1 link
Transmission Range	500m/0.5mm, 800m/0.65mm, 1300m/0.9mm	
Wiring Method	Two-core shielded cable	
Network Section		
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)	
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio Packet Transmission System	Unicast, Multcast	
Voice Packet Loss Recovery	Silence insertion	
Audio Delay Time	80ms, 320ms (Controllable on the software)	
Finish	Pre-coated steel plate, black, 30% gloss	
Dimensions	420 (W) x 44.3 (H) x 325.5 (D)mm [16.5 (W) x 1.7 (H) x 12.8 (D)in]	
Weight	3.9kg (8.6lbs)	3.8kg (8.4lbs)
Options	Wall mounting bracket: YC-850	

ADA-compliant emergency outdoor substation

Sub-station (Emergency Use)

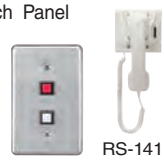
Sub-station (Outdoor Vandal-Resistant Type)

Sub-station (Indoor Vandal-Resistant Type)

Sub-station (Indoor Type)

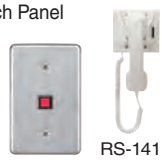
	Q-RS180BZ	RS-180	RS-170	RS-160	RS-150
Control Output	Open collector, Withstand voltage: 30VDC, Control current: 30 mA (The open collector output and the buzzer are kept turned on till the conversation is finished after the call button was pressed.)	Open collector output: 24V DC, 30mA (The open collector output is kept turned on till the conversation is finished after the call button was pressed.)	-	-	-
Finish	Panel: Stainless steel, hairline Braille: "EMERGENCY PUSH FOR HELP" "FLASHING: CALL PLACED STEADY: CALL ANSWERED" Call button: Metal (RED Mushroom) Printed circut board: Weather-resistant coating	Panel: Stainless steel (SUS304), hairline Call Button: Metal, red Printed Circuit Board: Weather-resistant coating	Panel: Stainless steel (SUS304), hairline Call Button: Metal		Panel: Stainless steel (SUS304), hairline Call Button: Resin, black
Dimensions	115(W) x 162(H) x 66.8(D) mm 4.53(W) x 6.38(H) x 2.63(D) in	120 (W) x 120 (H) x 58.5 (D) mm 4.7 (W) x 4.7 (H) x 2.3 (D) in	120 (W) x 120 (H) x 57.5 (D)mm [4.7 (W) x 4.7 (H) x 2.3 (D) in		120 (W) x 120 (H) x 48.5 (D) mm 4.7 (W) x 4.7 (H) x 1.9 (D) in
Weight	700 g (1.54 lbs)	570g (1.3lbs)	540g (1.2lbs)	410g (0.9lbs)	
Options	3-gang electrical box: YC-150 or YS-13A	2-gang electrical box: YC-302, Indoor wall-mount box: YC-822, Outdor wall-mount box: YC-823	2-gang electrical box: YC-302, Indoor wall-mount box: YC-822, Outdor wall-mount box: YC-823	2-gang electrical box: YC-302, Indoor wall-mount box: YC-822	

IP Intercom Switch Panel



RS-141

IP Intercom Switch Panel



RS-141

Switch Panel

RS-141

	RS-144	RS-143	RS-140
Call-in Switch	Momentary (EMERGENCY, NORMAL)	Momentary	
Privacy Switch	—		Latching
Wiring	Two-core shielded cable		
Finish	Panel: Stainless steel, hairline Call-in Switch: Resin, red Privacy Switch (normal): Resin, white	Panel: Stainless steel, hairline Call-in Switch: Resin, red	Panel: Stainless steel, hairline Call-in Switch: Resin, red Privacy Switch (normal): Resin, white
Dimensions	70 (W) x 115 (H) x 28.6 (D)mm [2.8 (W) x 4.5 (H) x 1.1 (D) in]		
Weight	80g (0.2lbs)		
Options	Flush-mount box: YC-801, Wall-mount box: YC-802, Handset: RS-141		

IP Intercom Switch Board

	RS-142
Call Switch Wiring	4 cables (for 2 momentary switches)
Wiring	Two-core shielded cable
Weight	30g (0.1lbs)

4-Wire Type

Sub-station Interface Unit

Analog Standard Master Station

	N-8400RS
Power Source	120V AC, 50/60Hz
Power Consumption	30W(at rated), 45W(max.)
Interface Section for Sub-station	
Number of Lines	16 lines
Number of Speech Link	2 links
Transmission Range	1km)/0.5mm, 1.5km/0.65mm, 2km/0.9mm
Wiring Method	2 sets of twisted pair cables
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast, Multcast
Voice Packet Loss Recovery	Silence insertion
Audio Delay Time	80ms, 320ms (Controllable on the software)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) x 44.3 (H) x 325.5 (D)mm [16.5 (W) x 1.7 (H) x 12.8 (D)in]
Weight	4kg (8.8lbs)
Option	Wall mounting bracket: YC-850

	N-8410MS
Power Source	24V DC (supplied from the sub station interface unit N-8400RS)
Current Consumption	Max. 30mA
Wiring Method	2 set of twisted pair cable
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 – 7,000Hz
Transmission Range	1km/0.5mm (AWG24),1.5km/0.65mm (AWG22), 2km/0.9mm (AWG19)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (W) x 208 (H) x 70.5 (D)mm (excluding a curl cord section) 5.8 (W) x 8.2 (H) x 2.8 (D) in (excluding a curl cord section)
Weight	720g (1.6lbs)
Option	Wall mounting bracket: YC-280

*0dB = 1V

Video Intercom System

Sub-station (Emergency Use)

Sub-station (Outdoor Vandal-Resistant Type)

Sub-station (Indoor Vandal-Resistant Type)

Sub-station (Indoor Type)

	RS-480VSET	RS-480	RS-470	RS-460	RS-450
Call-in Switch	Momentary (Emergency call: Press twice within 400 ms)				
Control Output	Open collector, Maximum controlled voltage: 30 V DC, Control current: 30 mA	Open collector output: 30V DC, 30mA	-	-	-
Wiring	CAT5 cable, RJ45 female connector attached	Twisted pair cables (2-pair)			
Dust/Water Protection	-	IP54		-	-
Finish	Panel: Stainless steel, hairline Call button: Metal, silver	Panel: Stainless steel, hairline Call Switch: Metal, red Circuit board: Weather-resistant coating	Panel: Stainless steel, hairline Call Switch: Metal, silver		Panel: Stainless steel, hairline Call Switch: Resin, black
Dimensions	120 (W) x 120 (H) x 50.5(D)mm 4.72 (W) x 4.72 (H) x 1.99 (D)in	120 (W) x 120 (H) x 50.5 (Dmm 4.72 (W) x 4.72 (H) x 1.99 (D)in	120 (W) x 120 (H) x 49.5 (D)mm [4.72 (W) x 4.72 (H) x 1.95 (D) in]		120 (W) x 120 (H) x 41.5 (Dmm 4.72 (W) x 4.72 (H) x 1.63 (D)in
Weight	605g (1.3 lbs)	575g (1.2 lbs)	550g (1.2 lbs)	540g (1.2 lbs)	510g (1.1 lbs)
Options	2-gang electrical box: YC-302	2-gang electrical box: YC-302, Handset: RS-481 Indoor wall-mount box: YC-822, Outdor wall-mount box: YC-823	2-gang electrical box: YC-302, Indoor wall-mount box: YC-822, Outdor wall-mount box: YC-823	2-gang electrical box: YC-302, Indoor wall-mount box: YC-822	

	RS-442
Call Switch Wiring	6 cables (for 3 momentary switches)
Wiring	Twisted pair cables (2-pair)
Weight	140g (0.3lbs)

YC-850 **Wall-Mount Bracket**
Designed to mount N-8000RS, N-8010RS, N-8400RS, N-8000DI, N-8000AF, N-8000AL and N-8000CO on a wall.
Finish: Surface-treated steel plate, black, 30% gloss
Dimensions: 45.1 (W) x 220 (H) x 10 (D)mm

YC-280 **Wall-Mount Bracket**
Designed to mount N-8000MS, N-8010MS, N-8020MS, N-8410MS, N-8510MS and N-8600MS on a wall.
Finish: Surface-treated steel plate, gray, paint
Dimensions: 100 (W) x 140 (H) x 31.8(D) mm

YC-290 **Wall-Mount Bracket**
Designed to mount N-8011MS on a wall.
Finish: Surface-treated steel plate, gray, paint
Dimensions: 64 (W) x 131.5 (H) x 31.8 (D) mm

YC-251 **Surface-Mount Back Box**
Designed to mount N-8031MS on a wall.
Finish: Surface-treated steel plate, white
Dimensions: 124 (W) x 258.5 (H) x 50.5 (D) mm

YC-241 **Flush-Mount Back Box**
Designed to surface-mount N-8031MS in a wall.
Finish: Colored chrome painting
Dimensions: 276 (W) x 119 (H) x 67 (D) mm

YC-150 **Flush-Mount Back Box**
Designed to flush-mount N-8050DS and N-8640DS in a wall.
Finish: Zinc-plating
Dimensions: 184 (W) x 119 (H) x 57 (D) mm

YC-801 **Flush-Mount Box**
Designed to flush-mount RS-140, RS-143 and RS-144 in a wall.
Finish: Colored chrome painting
Dimensions: 72 (W) x 119 (H) x 57 (D) mm

YS-13A **Surface-Mount Back Box**
Designed to surface-mount N-8050DS and N-8640DS in a wall.
Finish: Zinc-plating
Dimensions: 163.5 (W) x 116.5 (H) x 55 (D) mm

YC-802 **Wall-Mount Box**
Designed to flush-mount RS-140, RS-143 and RS-144 in a wall.
Finish: Surface-treated steel plate, white
Dimensions: 75 (W) x 124 (H) x 50.5 (D) mm

YC-302 **2-Gang Electrical Box**
Designed to mount RS-150, RS-160, RS-170, RS-180, RS-450, RS-460, RS-470 and RS-480 in a wall.
Finish: SPHT, MFZn4 (glazed chromate)
Dimensions:
Outlet box: 102 (W) x 102 (H) x 44 (D)mm
Cover: 106 (W) x 106 (H) x 13 (D)mm

YC-841 **Back Box**
Designed to flush-mount N-8033MS on a wall.
Finish: Surface-treated steel plate, white
Dimensions: 119 (W) x 258 (H) x 57 (D) mm

YC-823 **Outdoor Wall-Mount Box**
Designed to mount RS-170, RS-180, RS-470 and RS-480 on a wall.
Finish: Stainless plate, off-white
Dimensions: 124 (W) x 124 (H) x 62 (D) mm.

AD-1215P **AC Adapter**
The AD-1215P is an AC adapter to operate the IP Station on AC.

YC-822 **Indoor Wall-Mount Box**
Designed to mount RS-150, RS-160, RS-170, RS-180, RS-450, RS-460, RS-470 and RS-480 on a wall.
Finish: Surface-treated steel plate, white
Dimensions: 124 (W) x 124 (H) x 61 (D) mm