N-8000 SERIES
IP INTERCOM SYSTEM

Cutting-edge TOA technology for greater versatility and improved sound quality

IP Network-Compatible Intercom System
with Packet Audio Technology

The TOA N-8000 Packet Intercom System opens a new era for information communication.

The N-8000 is an IP network-compatible intercom system that employs packet audio technology[1]. By linking to an existing local network (LAN), wide-area network (WAN[2]) or optical fiber network, it is possible to construct an optimal system for in-house or wide-area information communications. The N-8000 is a communication system capable of duplex conversations between stations, paging, plus periodic and BGM broadcasts. An echo-canceling feature prevents howling and echoing during communications and enables hands-free duplex communications between stations. Moreover, connection to the multi-interface unit makes it possible for users to utilize the system free of restrictions on operating distance and in a wide range of applications, including connection to an existing in-house intercom system and hooking up to a door remote or surveillance camera system for entry- and departure-control.

[1] Technology that uses IP networks to enable transmission of high-quality voice and music in real time
[2] To connect via the Internet, it is necessary to assign a fixed global IP address.

N-8000 Series
IP Intercom System
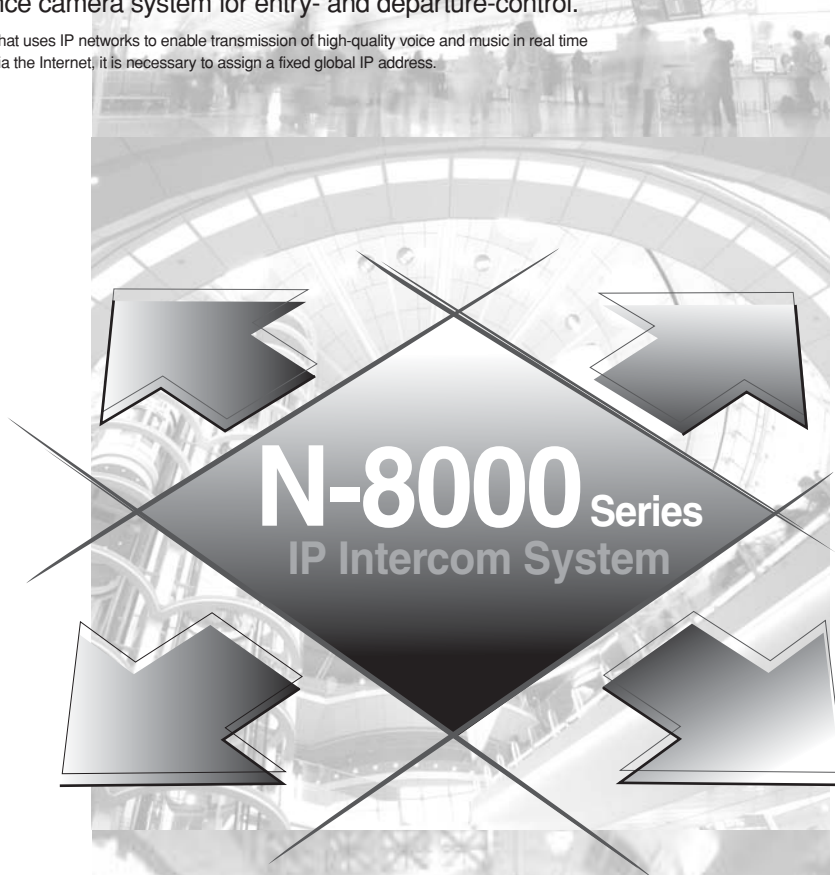
TOA's Packet Intercom System comes with a full range of functions that make the system ideal for use at a range of venues, such as hospitals, factories, parking garages, schools, ATMs, airports and offices, wherever smooth and accurate information communications are required.

With its wide array of functions, the Packet Intercom System ensures easy, worry-free use.

The N-8000 Series comes packed with convenient functions, including such essential functions as Conversation, Call and Paging. It can also be used as a Security Intercom System with its ability to ensure that a call will be answered at all times and collaboration with CCTV and Access Control Systems can be configured.

Distinctive Function 1
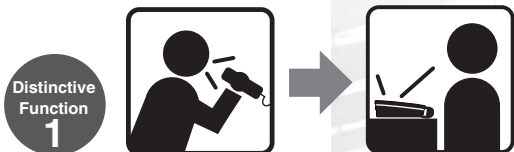
Automatic Transfer

3 modes (Group hunting, Absence transfer and Call forwarding) will ensure that a call will be transferred to an open line for urgent situations.

Voice Calling

Pressing the PTT key while a continuous ring tone is sounding enables the caller to make a voice call to the other party. When the PTT key is released, voice calling reverts to the original continuous ring tone.

Group Call

When a station is assigned to a group call, if the stations is called, all stations within that group are simultaneously called by a continuous call tone.

Distinctive Function 2

Executive Priority

When a called station is in use, as indicated by a busy tone, a call-interrupt tone is issued for several seconds, after which the call in progress is forcibly terminated, to let the call go through. Each station can be individually designated for acceptance or refusal of the call interruption operation.

*Stations connected to the N-8010EX cannot be interrupted.

N-8000 Series
IP Intercom System

Distinctive Function 3
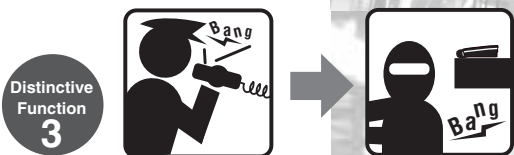
Scan Monitor

The station can scan any selected pre-registered stations for ambient sound monitoring, in order of registration.

Distinctive Function 4

Operating Log

System maintenance (Verifying operation log and line supervision) can also be performed with a personal computer and internet explorer. The equipment's operated records and a history of voice communication (both conversation and paging) carried out over a IP network can be displayed and stored to a PC.

Distinctive Function 5

Door Remote Control

External equipment such as an electronic lock can be controlled by way of the contact output terminals of the Door Station or the Multi-Interface Unit. When the door remote is operated from the N-8000MS/8500MS master station engaged in conversation with the door station, the contact output terminals of the door station are shorted for a specified period of time.

The N-8000 Series is well-matched to wide-ranging applications, from small to large-scale.

LAN WAN

Up to **80 IP** components can be used (Exchanges, Multi-Interface Units and IP Stations)

Up to **1,280** stations can be used in one system.

Up to **1,280** contact inputs and outputs

N-8000EX / N-8010EX
IP Network Intercom Exchange

N-8000MI
Multi-Interface Unit

N-8540DS
IP Door Station

N-8500MS
IP Multifunctional Master Station

Speaker

Sound Source Equipment

Contact input

Contact output

UPS

to AC Mains

PA Amplifier

Speaker

PA Amplifier

Speaker

UPS

to AC Mains

Up to **16** stations can be connected to one Exchange (N-8000EX or N-8010EX).

Up to **8** audio players for background music.

Intercom System

PBX

N-8000MS
Multifunctional Master Station

Speaker

N-8010MS
Standard Master Station

N-8011MS
Standard Hands-Free Master Station

Up to **320** conversations at the same time are possible.

Up to **160** connections to PBX.

Up to **160** different paging zones.

N-8020MS
Industrial-Use Master Station

RS-191
Optional Handset Unit

N-8031MS
Flush-Mount Hands-Free Master Station

N-8050DS
Door Station

Speaker

Foot Switch

Key features of the N-8000MI Multi-Interface Unit:

Paging

Paging can be done by pushing the paging button of the master stations. Up to 160 different paging zones can be defined in a system. A paging zone can be one amplifier with its connected speakers.

N-8500MS
IP Master Station

N-8000MI
Multi-Interface Unit
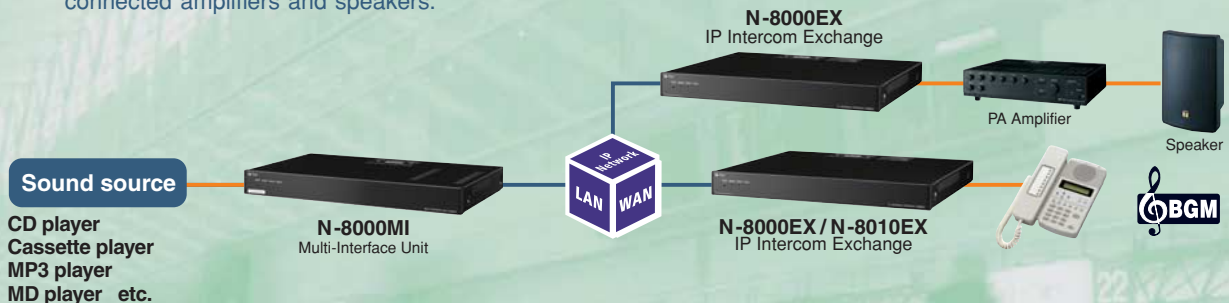
PA Amplifier

Speaker

Telephone Connection

The N-8000MI provides the possibility to connect telephone systems. Each Multi-Interface Unit can send and receive up to two audio signals from the PBX (Telephone Exchange).

N-8000 System

Stations

N-8000EX / N-8010EX
IP Intercom Exchange

N-8000MI
Multi-Interface Unit

External Telephone Exchange

PBX / PABX
Telephone interface

Public Telephone Line

Conversation

Paging

Calling to Public Telephone Line

BGM Broadcasting

Background music is very important for many applications. Several types of audio sources can be connected to the Multi-Interface Unit and then, it is possible to broadcast the music through stations or connected amplifiers and speakers.

N-8000EX
IP Intercom Exchange

PA Amplifier

Speaker

Sound source

CD player
Cassette player
MP3 player
MD player   etc.

N-8000MI
Multi-Interface Unit

N-8000EX / N-8010EX
IP Intercom Exchange

BGM

Remote Control of External System

Control signals can be used in many different ways. One example is the controlling of doors and gates. Gates can be opened or closed by function keys of the master stations.

N-8000EX/N-8010EX
IP Intercom Exchange

N-8000MI
Multi-Interface Unit

Gate Control

Specifications

Model No.	N-8000EX	N-8010EX
Power Req.	230V AC, 50/60Hz (CE version)/ 120V AC, 50/60Hz (CU version)	
Power Consumption	50W (at rated), 75W (max.)	
Speech Link	Internal: 4/External: 8 (Both Half duplex/Full duplex use)	Internal: 1/External: 2 (Both Half duplex/Full duplex use)
Hands-free Speech Method	Simultaneous conversation by way of echo canceller or Half-duplex conversation by way of voice switch	
Line Capacity	Up to 16 stations	
Paging Output	Audio: 2 channels Max. 0dB*, 600Ω, balanced, removable 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 (Simultaneous paging to up to 16 zones) Multicast (Simultaneous paging to up to 79 zones)	
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) × 44.3 (H) × 356 (D)mm (16.54" × 1.74" × 14.02")	420 (W) × 44.3 (H) × 349 (D)mm (16.54" × 1.74" × 13.74")
Weight	4.1kg (9.04 lb)	4.2kg (9.26 lb)
Accessory	AC power cord (2m) × 1, CD (for PC setting, maintenance use) × 1, Removable terminal plug (4 pins) × 2, Mini-clamp plug (2 pins) × 20, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for rack mounting × 4, Wall mounting bracket × 2, Screw for mounting bracket × 8, Screw for wall mounting × 4	AC power cord (2m) × 1, CD (for PC setting, maintenance use) × 1, Removable terminal plug (2P) × 20, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for rack mounting × 4, Wall mounting bracket × 2, Screw for mounting bracket × 8, Screw for wall mounting × 4

Model No.	N-8000MI
Power Req.	230V AC, 50/60Hz (CE version)/120V AC, 50/60Hz (CU version)
Power Consumption	19W (180mA) (at rated), 24W (230mA) (max.) (CE version)/16W (250mA) (at rated), 21W (330mA) (max.) (CU version)
Audio Input	Input: 2 inputs (2P/input), Max. 0dB*1, 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)
Audio Output	Output: 2 outputs (2P/output), Max. 0dB*1, under 600Ω, balanced Control: 2 outputs (2P/output), relay contact output, contact capacity: 24V DC/0.5A Removable terminal block (8 pins)
Control Input	16 inputs, no-voltage make contact input, open voltage; 12V DC, short-circuit current: 10mA, removable terminal block (9 pins)
Control Output	16 outputs, relay contact output, contact capacity: 24V DC/0.5A, removable terminal block (9 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 (Simultaneous paging to up to 16 zones) Multicast (Simultaneous paging to up to 79 zones)
Connector	RJ45 connector
Voice Sampling Frequency	16kHz, 8kHz (Controllable on the software)
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)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 44.3 (H) × 239.5 (D)mm (16.54" × 1.74" × 9.43")
Weight	2.8kg (6.17 lb)
Accessory	AC power cord (2m) × 1, CD (for PC setting, maintenance use) × 1, Mini-clamp plug (2 pins) × 10, Removable terminal plug (8 pins) × 2, Removable terminal plug (9 pins) × 4, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for rack mounting × 4, Wall mounting bracket × 2, Screw for mounting bracket × 8, Screw for wall mounting × 4

Model No.	N-8000MS	N-8010MS	N-8011MS
Power Req.	48V DC (supplied from the IP network intercom exchange (option)		
Wiring Method	Non-polar one pair stranded wire system		
Speech Method	Hands-free or handset conversation		Hands-free conversation
Audio Frequency Range	300 – 7,000Hz		
Finish	Body, Handset: ABS resin, gray		Body: ABS resin, gray
Dimensions	148 (W) × 208 (H) × 70.5 (D)mm (5.83" × 8.19" × 2.78") (excluding a curl cord section)		92 (W) × 195 (H) ×56.1 (D)mm (3.62" × 7.68" × 2.21")
Weight	800g (1.76 lb)	700g (1.54 lb)	400g (0.88 lb)
Option	Wall mounting bracket: YC-280		Wall mounting bracket: YC-290

Model No.	N-8020MS	N-8031MS	N-8050DS
Power Req.	48V DC (supplied from the IP network intercom exchange (option))		
Wiring Method	Non-polar one pair stranded wire system		
Speech Method	Hands-free or handset conversation	Hands-free or handset conversation can be established in conjunction with the RS-191 (option)	Hands-free conversation
Audio Frequency Range	300 – 7,000Hz		
External Dial Input	—	No-voltage make contact input, open voltage: 5V DC, short-circuit current: 1mA, screwless connector (5 pins)	—
Dial-in Contact Output	Open collector output (polarized), Withstand voltage: Max. 30V DC, Control current: Max. 50mA, screwless connector (2 pins)	—	—
Contact Output	—	—	Open collector output, withstand voltage: Max. 30V DC, control current: Max. 50mA, one shot: can be set from 1 to 9 sec, screw terminal (polarized)
Dust/Water Protection	IP54	—	IP54
Finish	Body, Handset: ABS resin, gray	Panel: Stainless steel (SUS304), hairline	Panel: Stainless steel (SUS304), hairline Call button: Metal
Dimensions	170 (W) × 220 (H) × 97.8 (D)mm (6.69" × 8.66" × 3.85")	115 (W) × 254 (H) × 54.6 (D)mm (4.53" × 10.00" × 2.15")	115 (W) × 162 (H) ×54 (D)mm (4.53" × 6.38" × 2.13")
Weight	1kg (2.20 lb)	850g (1.87 lb)	680g (1.50 lb)
Option	Wall mounting bracket: YC-280	For flush-mount: Back Box YC-241, For surface-mount: Wall-mount Box YC-251	For flush-mount: 3-gang electrical box or Back Box YC-150, For wall mount: Wall-mount Box YS-13A

Model No.	N-8500MS	N-8540DS
Power Req.	Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option))	
Speech Method	Hands-free or handset conversation	Hands-free conversation
Contact Output	—	Open collector output, withstand voltage: Max. 30V DC, control current: Max. 50mA, one shot: can be set from 1 to 9 sec, screw terminal (polarized)
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 (1 speech link, simultaneous paging to up to 16 zones) Multicast (simultaneous paging to up to 79 zones)	Unicast, Multicast
Voice Packet Loss Recovery	Silence insertion	
Audio Delay Time	80ms, 320ms (controllable on the software)	
Dust/Water Protection	—	IP54
Finish	Body, Handset: ABS resin, gray	Panel: Stainless steel (SUS304), hairline, Call button: Metal
Dimensions	170 (W) × 220 (H) × 97.8 (D)mm (6.69" × 8.66" × 3.85") (excluding a curl cord section)	115 (W) × 162 (H) × 55.1 (D)mm (4.53" × 6.38" × 2.17")
Weight	810g (1.79 lb)	700g (1.54 lb)
Option	Wall mounting bracket: YC-280, AC adapter: AD-1210P	For flush-mount: 3-gang electrical box or Back Box YC-150, For wall mount: Wall-mount Box YS-13A. AC adapter: AD-1210P

* An AC adapter, when used as power source, cannot be put in the YS-13A, YC-150, or a 3-gang electrical box together with the N-8540DS because such boxes do not have enough room to accommodate both.

Model No.	N-8031SB	N-8050SB
Power Req.	48V DC (supplied from the IP network intercom exchange (option))	
Wiring Method	Non-polar one pair stranded wire system	
Speech Method	Hands-free or handset conversation can be established in conjunction with the RS191 (option)	Hands-free conversation
Audio Frequency Range	300 – 7,000Hz	
Dimensions	70 (W) × 185 (H) × 20.6 (D)mm (2.76" × 7.28" × 0.81")	67 (W) × 128.3 (H) × 26 (D)mm (2.64" × 5.05" × 1.02")
Weight	205g (0.45 lb) (including accessories)	100g (0.22 lb) (including accessories)
Accessory	Removable terminal plug (2 pins, preinstalled on the unit) × 1, Handset jumper (8 pins, preinstalled on the unit) × 1, Ferrite clamp × 1, Hands-free speaker (with connection cord) × 1 Hands-free microphone (with connection cord) × 1	Hands-free speaker (with connection cord) × 1 Hands-free microphone (with connection cord) × 1
Option	Handset: RS-191	—

Functions

| Conversation	Incoming Call Selection	Call Transfer	Paging	Call- and Talk-Interlocked Contact Output (Door Station only)
• Hands-free conversation	• Automatic connection	**Automatic Transfer**	• Zone paging	
• Handset conversation	• Continuous call	• Group hunting	• Selectable paging	**Time-Out**
• PTT conversation	**Speed Dialing**	• Absence transfer	• All-call paging	**Group Blocking**
Call	• Auto-dialing (N-8000MS/8500MS only)	• Call forwarding	**Paging Response**	**Station Speaker Output Setting**
• Individual call	• One-touch dialing	**Remote Response**	• Automatic response	
• Redialing	**Hold**	**Executive Priority**	• Zone number response	**Ambient Noise Control**
• Recall	• Mic Off		**Scan Monitor**	
• Voice calling	• Call hold		**Door Remote Control (Door Station only)**	
• Group call				
• Master station call				

Product Lineup — IP Network Intercom System

N-8000EX
IP Network Intercom Exchange
(Internal:4 links/External:8 links)

N-8010EX
IP Network Intercom Exchange
(Internal:1 link / External:2 links)
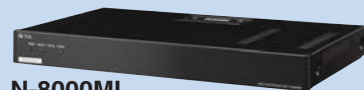
N-8000MI
Multi-Interface Unit

N-8000MS
Multifunctional
Master Station

N-8010MS
Standard
Master Station

N-8011MS
Standard Hands-Free
Master Station

N-8020MS
Industrial-Use
Master Station
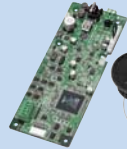
N-8500MS
IP Multifunctional
Master Station

N-8540DS
IP Door Station
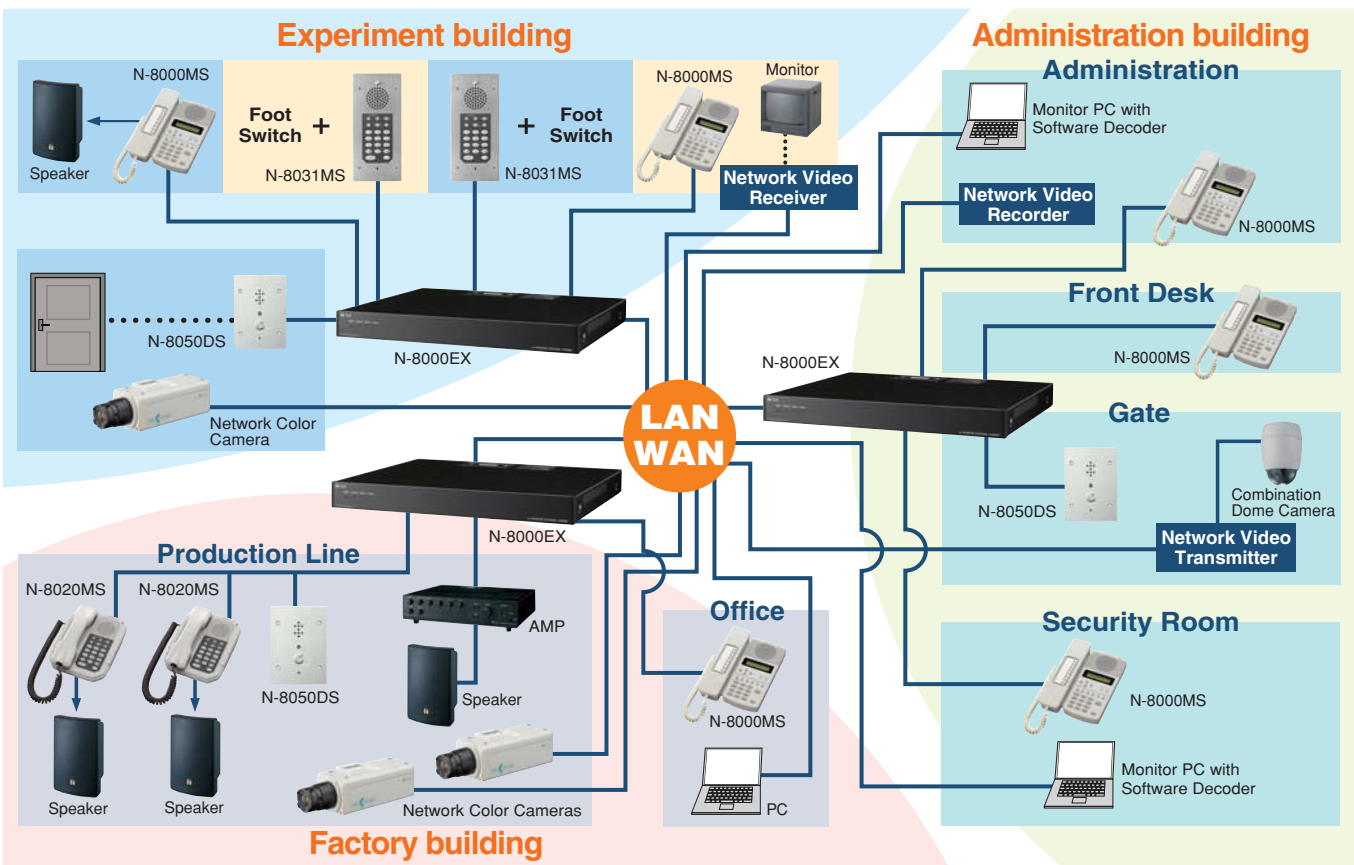
N-8031MS
Flush-Mount Hands-
Free Master Station

RS-191
Optional
Handset Unit

N-8050DS
Door Station

N-8031SB
Hands-Free Master
Station Board Unit

N-8050SB
Hands-Free Substation
Board Unit

Example of System (Factory)

Experiment building

N-8000MS

Speaker

Foot Switch + N-8031MS

Foot Switch + N-8031MS

N-8000MS

Monitor

Network Video Receiver

N-8050DS

Network Color Camera

N-8000EX

LAN WAN

N-8000EX

Administration building

Administration

Monitor PC with Software Decoder

Network Video Recorder

N-8000MS

Front Desk

N-8000MS

Gate

N-8050DS

Combination Dome Camera

Network Video Transmitter

Security Room

N-8000MS

Monitor PC with Software Decoder

Production Line

N-8020MS N-8020MS

N-8050DS

AMP

Speaker

N-8000EX

Speaker Speaker

Network Color Cameras

Office

N-8000MS

PC

Factory building

*Please contact local TOA sales office/dealer for more details on CCTV products.
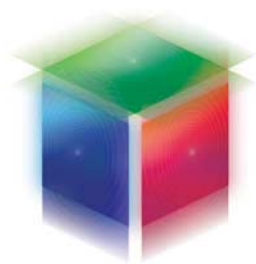
**Human Society with
Security & Communication**

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www.toa.jp

Specifications are subject to change without notice.
Printed in Japan (0712) 833-52-289-00 u