TOA

OPERATING INSTRUCTIONS

PACKET INTERCOM SYSTEM

N-8000 SERIES

Thank you for purchasing TOA's Packet Intercom system.
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

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1. SAFETY PRECAUTIONS
For N-8000EX/8010EX/8000RS/8010RS/8400RS/8000MI/8000DI/8000AF/8000CO/8000AL

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.

⚠ **WARNING**	Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.
⚠ **CAUTION**	Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

⚠ WARNING

When Installing the Unit

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.

- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.

- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.

- Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down and causing personal injury and/or property damage.

- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.

When the Unit is in Use

- Should the following irregularity be found during use, immediately disconnect the power supply plug from the AC outlet and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  - · If you detect smoke or a strange smell coming from the unit.
  - · If water or any metallic object gets into the unit
  - · If the unit falls, or the unit case breaks
  - · If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  - · If it is malfunctioning (no tone sounds.)

- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to your nearest TOA dealer.

- Do not insert nor drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.

- Do not touch a plug during thunder and lightning, as this may result in electric shock.

⚠ CAUTION

When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.

- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.

- Do not block the ventilation slots in the unit's cover or fan exhaust vent. Doing so may cause heat to build up inside the unit and result in fire.

- Be sure to follow the instructions below when rack-mounting the unit. Failure to do so may cause a fire or personal injury.
  - Install the equipment rack on a stable, hard floor. Fix it with anchor bolts or take other arrangements to prevent it from falling down.
  - To mount the unit on the TOA equipment rack, use the rack mounting hardware supplied with the unit.
  - When connecting the unit's power cord to an AC outlet, use the AC outlet with current capacity allowable to the unit.

When the Unit is in Use

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.

- Do not stand or sit on, nor hang down from the unit as this may cause it to fall down or drop, resulting in personal injury and/or property damage.

2. OPERATING INSTRUCTIONS CONFIGURATION

This operating instruction consists of Chapter 1 – 8 as follows.
Please read the necessary chapter as required.

To all users	**Chapter 1 General Description**	• System Configuration • Nomenclature and Functions • System Function
To the person who operates the equipment	**Chapter 2 Function and Operation**	• Master Station's Functions and Operation • Remote Microphone Station's Fanctions and Operation • Door Station's Functions and Operation • Substation/Switch Panel's Functions and Operation • N-8000AL Telephone Interface connected Telephone Functions and Operation • Operation from Outside Line Telephone • Other Functions (useful functions) • Remarks (list of signal tones)
To the person who installs and wires the equipment	**Chapter 3 Installation and Wiring**	• Installation of the Exchange • Installation of the Substation Interface Unit • Installation of the Various Kinds of Interface Units • Installation of Stations • Wiring
To the person who designs and maintains the system	**Chapter 4 System Design Precautions**	• Turning the System's Power Switch ON • Network Settings with a Personal Computer • System Setting Items and Default
	Chapter 5 System Settings by Software	• General Description • Installation and Activating • Equipment Scan • System Settings
	Chapter 6 System Settings Using the Browser	• Starting the Browser • Network Settings • Operating Status Indication, Operation Log Indication • System Administration
	Chapter 7 Multifunctional Station Menu Screen Operation (N-8000MS/8500MS only)	• Menu Items • Entering Maintenance Screen • Settings
To the person who installs and wires the equipment	**Chapter 8 Appendix**	• Basic Knowledge about Networks • Trouble Occurs • Indicator Status & Troubleshooting • Specifications

Chapter 1

GENERAL DESCRIPTION

This chapter describes the N-8000 Series Packet Intercom System's basic equipment configurations (exchanges, stations and various interface units), component functions and operations, and two types of conversation methods.

1. GENERAL DESCRIPTION

The N-8000 Series is a packet intercom system (IP network compatible intercom) employing packet audio technology*1. By connecting IP intercom exchanges (which can connect up to 16 stations per exchange), IP stations, and various kinds of interface units to a network (LAN or WAN*2), an optimal system can be constructed for in-house or wide area information communications such as duplex conversations between stations, periodical broadcasts, and BGM broadcasts. Since up to 192 exchanges, IP stations, and various kinds of interface units can be combined, systems of up to a total of 3072 stations can be realized. An echo canceller*3 and voice switch realize hands-free conversation (conversations made without using a handset at both parties) between stations. Depending on conditions, full duplex (simultaneous two-way) conversation by way of an echo canceller or half duplex (alternate two-way) conversation by way of a voice switch is made. (Refer to p. 8-2, "FULL DUPLEX AND HALF DUPLEX CONVERSATIONS.")
In addition, The system's various interface units and modules can be used to realize a host of functions, including contact bridging by means of contact input and output control, contact external equipment control and timer-activated fixed-time broadcasts, connection to outside lines (central office lines), and broadcast to the SX-2000 system. Further, the system supports two different conversation methods and is capable of operating in master/master or master/sub configurations.

*1 Technology related to audio transmission over a network
*2 The fixed global IP address must be assigned to the units connected via the Internet.
*3 A circuit that prevents acoustic feedback or echo generated when the voice output from the station's internal speaker enters the microphone.

Warning
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

2. FEATURES

- Exchanges, IP stations, and various kinds of interface units can be connected over a data communications network.
- Can be connected to an existing local area network (LAN) or wide-area network (WAN). The system can also be easily connected to fiber-optic networks without restrictions on operating distance.
- The dedicated software program enables centralized control with a personal computer.
- System maintenance (verifying operation log and Line supervision) can also be performed with a personal computer and Internet browser.
- 3 types of exchanges differ in the following points.
  (1) 2-wire system
  N-8000EX: Internal 4 links*, external 8 links*, with PA paging output
  N-8010EX: Internal 1 link*, external 2 links*, without PA paging output
  (2) 2-core shielded system
  N-8000RS: External 2 links*
  N-8010RS: External 1 link*
  (3) 4-wire system
  N-8400RS: External 2 links*
- 4 types of stations are available: 2-wire system, 2-core shielded system, 4-wire system and IP-type stations. The first three stations must be connected to a corresponding system exchange to make operation possible, while the IP station can be operated on its own without being connected to any exchange. (However, the system configured only with IP door stations cannot be realized.)
  (1) IP-type
  (2) 2-wire system
  (3) 2-core shielded system
  (4) 4-wire system
- There are five types of interface units as shown below:
  (1) Multi interface unit
  (2) Audio interface unit
  (3) Direct select unit
  (4) C/O interface unit
  (5) Telephone interface unit
- The Multi interface unit or Direct select unit can interlock with an electronic lock system or CCTV surveillance system by way of contact input/output control function.
- Using IP stations permits a system having no exchange to be created. However, the system configured only with IP door stations cannot be realized.
- Using IP interface modules permits broadcast to the SX-2000 system.

* Link is a speech path. The "internal 4 links" means that 4 simultaneous calls can be performed between the stations connected to an exchange or 4 different broadcasts can be simultaneously made in a system. The "external 8 links" means that 8 simultaneous calls can be made to the stations connected to other exchange or to IP stations, or 8 different broadcasts can be simultaneously made to other exchange system.

3. HANDLING PRECAUTIONS

The Internet is not guaranteed quality. So, when this system is connected to the Internet, packet loss may result if the network is congested, possibly causing voice communications to be interrupted or noise to be generated.

4. SPECIFICATIONS

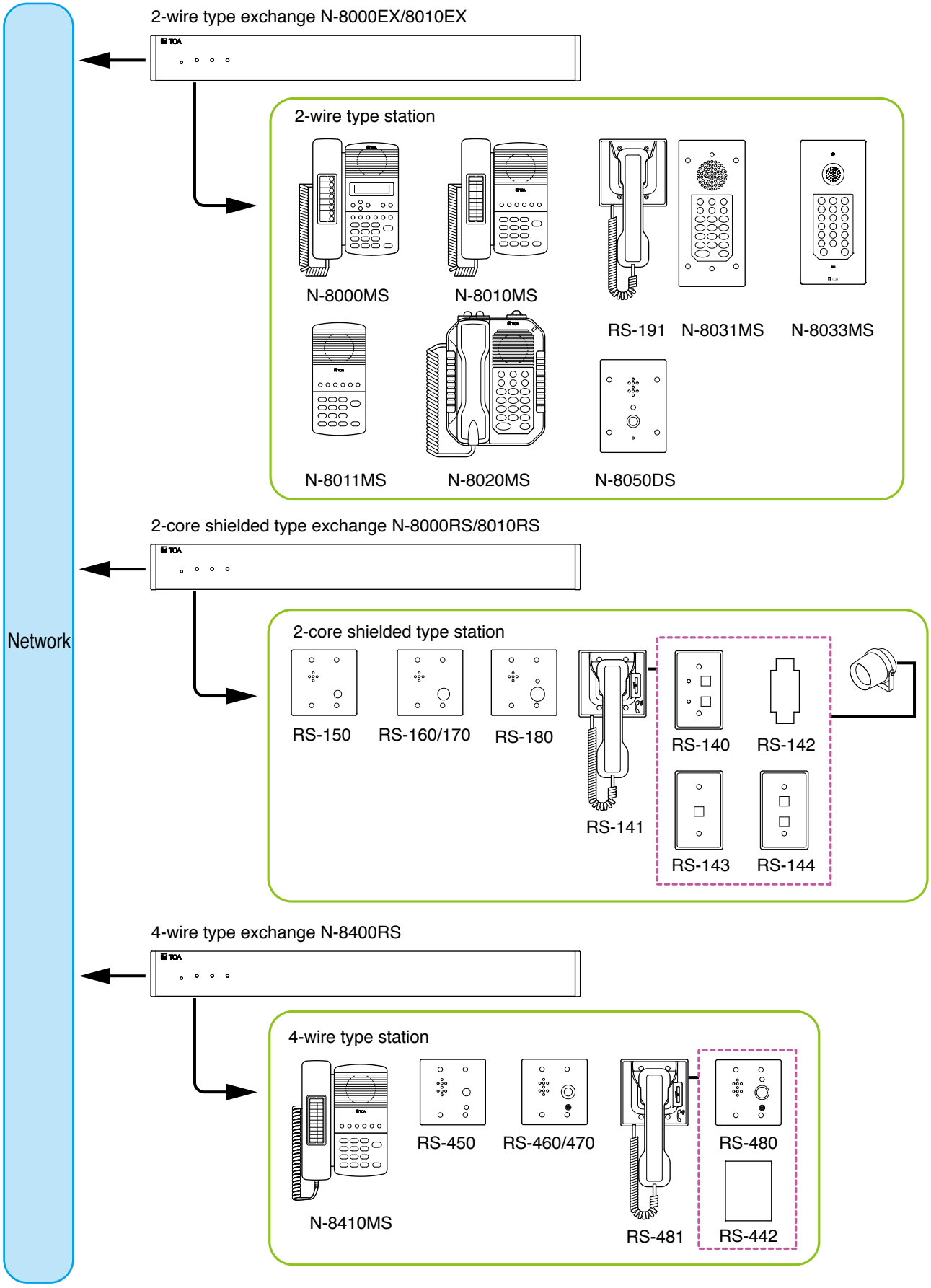
Number of Units Connectable to LAN:	Maximum 192 (a total of Exchanges, IP stations, and various kinds of interface units)
Line Capacity:	Maximum 3072 (192 Exchanges x 16 stations per Exchange)
Speech Link Capacity:	Maximum 768 (192 N-8000EX Exchanges)
Single exchange	
N-8000EX:	4 links
N-8010EX:	1 link
N-8400RS:	1 link
Unit to unit	
N-8000EX:	8 links
N-8010EX:	2 links
N-8000RS:	2 links
N-8010RS:	1 link
N-8400RS:	2 links
N-8000MI:	2 links Speech (through the PBX or tie-line): Maximum 2 links Audio input: Maximum 2 links Audio output: Maximum 2 links **Note** The above links can be simultaneously used. (Refer to the table on p. 1-13.)
SX-200IP:	2 links
Paging	
Paging zones:	Maximum 192
Paging outputs:	Maximum 384 (When 192 N-8000EX Exchanges or Multi interface units are connected)
N-8000EX:	2 outputs
N-8000MI:	2 outputs
N-8000AF:	1 output
Simultaneous access capacity for paging links:	
N-8000EX:	Multicast paging: Maximum 4 links Unicast paging: 1 link
N-8010EX:	Multicast paging: Maximum 2 links Unicast paging: 1 link
N-8000MI:	Multicast paging: Maximum 2 links Unicast paging: 1 link
N-8000AF:	Multicast paging: Maximum 1 link Unicast paging: 1 link
N-8500MS:	Multicast paging: 1 link Unicast paging: 1 link
N-8510MS:	Multicast paging: 1 link Unicast paging: 1 link
N-8600MS:	Multicast paging: 1 link Unicast paging: 1 link
N-8610RM:	Multicast paging: 1 link Unicast paging: 1 link
N-8000AL:	Multicast paging: 1 link Unicast paging: 1 link
N-8000CO:	Multicast paging: 1 link Unicast paging: 1 link
N-8400RS:	Multicast paging: Maximum 2 links Unicast paging: 1 link
SX-200IP:	Multicast zone broadcast: 2 links Unicast zone broadcast: 2 links
Paging destinations via network:	Multicast paging: Maximum 191 Unicast paging: Maximum 16 (N-8000AL/8000AF/8000CO: Maximum8)
Zone broadcast to SX-2000 system:	Maximum 16 basses per system Maximum 128 basses (8 systems)

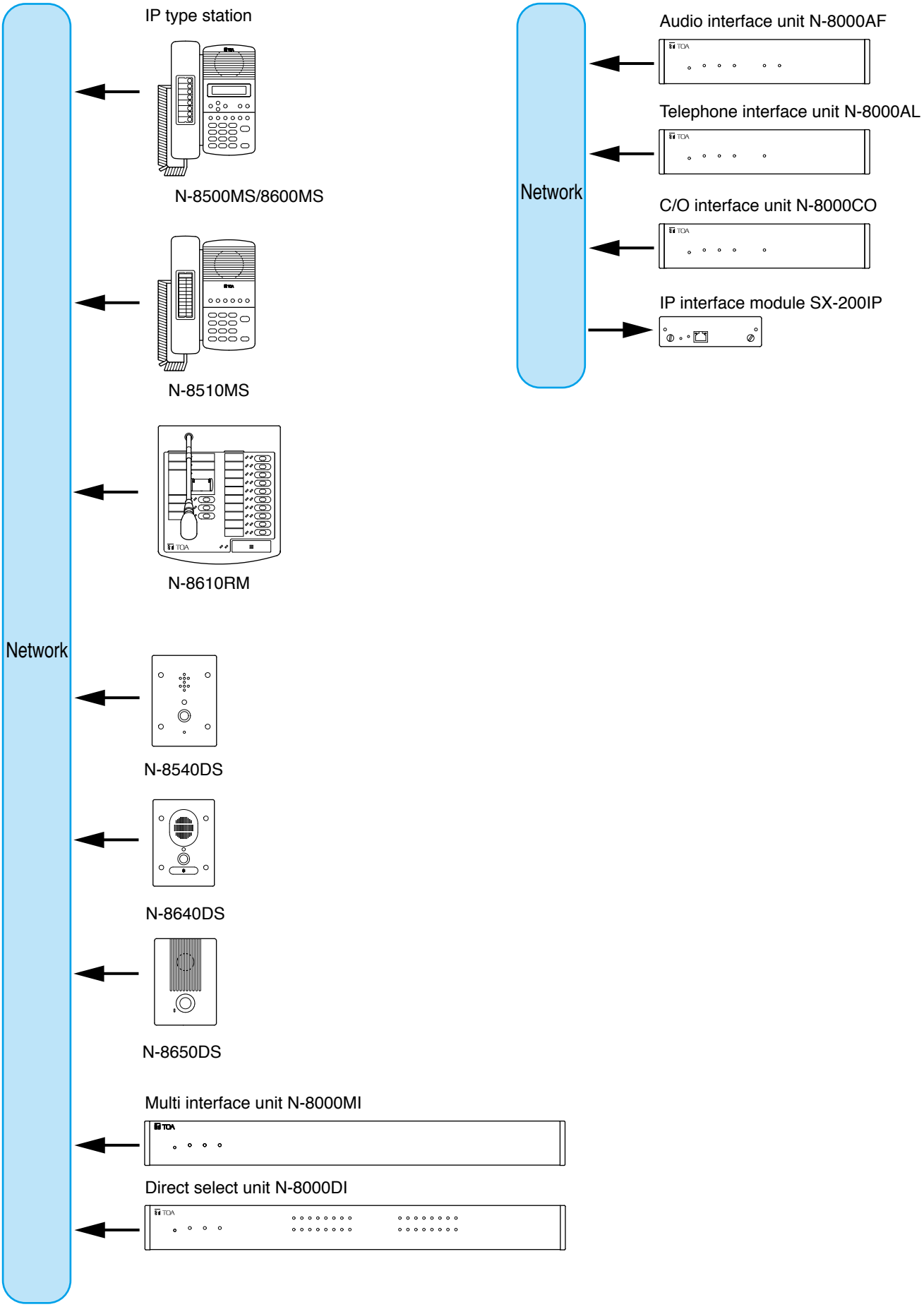
BGM:	Maximum 8 channels (Number of channels selectable at the station)
PBX Interface:	Maximum 384 (When 192 Multi interface units are connected)
Tie-line Interface:	Maximum 384 (When 192 Multi interface units are connected)
C/O Interface:	Maximum 192 (When 192 C/O interface units are connected)
Telephone Interface:	Maximum 384 (When 192 Telephone interface units are connected)
External Contact Output:	
N-8000MI:	Maximum 3072 (When 192 Multi interface units are connected)
N-8000DI:	Maximum 6144 (When 192 Direct select units are connected)
N-8000AF:	Maximum 1536 (When 192 Audio interface units are connected)
External Contact Input:	
N-8000MI:	Maximum 3072 (When 192 Multi interface units are connected)
N-8000DI:	Maximum 6144 (When 192 Direct select units are connected)
N-8000AF:	Maximum 1536 (When 192 Audio interface units are connected)
System Settings:	Personal computer setting using a dedicated software program (over LAN)
(Network Related)	
Voice Delay Time:	80 or 320 ms, selectable
Connection Delay Time:	Maximum 1 second (When Multicast paging is made to 191 zones)
Usage Bandwidth:	Maximum 2.08 Mbps (one way)/When Unicast paging is made to 16 zones
	Maximum 130 kbps (two-way)/one call

5. SYSTEM CONFIGURATION

5.1. System Configuration Example

This system consists of the following equipment.




Network
IP type station
N-8500MS/8600MS
N-8510MS
N-8610RM
N-8540DS
N-8640DS
N-8650DS
Multi interface unit N-8000MI
Direct select unit N-8000DI
Network
Audio interface unit N-8000AF
Telephone interface unit N-8000AL
C/O interface unit N-8000CO
IP interface module SX-200IP

5.1.1. Exchange

[2-wire type exchange]
N-8000EX: IP Intercom Exchange
N-8010EX: IP Intercom Exchange

[2-core shielded type exchange]
N-8000RS: Substation Interface Unit
N-8010RS: Substation Interface Unit

[4-wire type exchange]
N-8400RS: Substation Interface Unit

5.1.2. Stations

[IP stations]
N-8500MS: IP Multifunctional Master Station
N-8510MS: IP Standard Master Station
N-8600MS: IP Multifunctional Master Station
N-8610RM: IP Remote Microphone Station
N-8540DS: IP Door Station
N-8640DS: IP Door Station
N-8650DS: IP Door Station

[2-wire type stations]
N-8000MS: Multifunctional Master Station
N-8010MS: Standard Master Station
N-8011MS: Standard Hands-Free Master Station
N-8020MS: Industrial-Use Master Station
N-8031MS: Flush-Mount Master Station
N-8033MS: Flush-Mount Master Station
RS-191: Option Handset
N-8050DS: Door Station

[2-core shielded type stations]
RS-150: Substation
RS-160: Substation
RS-170: Substation
RS-180: Substation
RS-140: Switch Panel
RS-141: Option Handset for RS-140/142/143/144
RS-142: Switch Board
RS-143: Switch Panel
RS-144: Switch Panel

[4-wire type stations]
N-8410MS: Analog Standard Master Station
RS-442: Switch Board
RS-450: Substation
RS-460: Substation
RS-470: Substation
RS-480: Substation
RS-481: Option Handset for RS-480

5.1.3. Peripheral components

N-8000MI: Multi Interface Unit
N-8000DI: Direct Select Unit
N-8000AF: Audio Interface Unit
N-8000CO: C/O Interface Unit
N-8000AL: Telephone Interface Unit
SX-200IP: IP Interface Module

5.1.4. Others

YC-150: Back Box for the N-8050DS/8540DS/8640DS/8650DS
YC-241 Back Box for the N-8031MS
YC-251: Wall-Mount Box for the N-8031MS
YC-280: Wall Mounting Bracket for the N-8000MS/8010MS/8020MS/8410MS/8500MS/8510MS/8600MS
YC-290: Wall Mounting Bracket for the N-8011MS
YC-302: 2-Gang Electrical Box
YC-801: Flush-Mount Box for the RS-140/143/144
YC-802: Wall-Mount Box for the RS-140/143/144
YC-822: Wall-Mount Box
YC-823: Wall-Mount Box
YC-841: Wall-Mount Box for the N-8033MS
YC-850: Interface Unit Bracket (For N-8000RS/8010RS/8400RS/8000DI/8000AF/8000CO/8000AL)
YS-13A: Wall-Mount Box for the N-8050DS/8540DS/8640DS/8650DS
AD-1210P: AC Adapter for the N-8500MS/8510MS/8600MS/8540DS/8640DS/8650DS
AD-1215P: AC Adapter for the N-8500MS/8510MS/8600MS/8540DS/8640DS/8650DS
E-7000TB: 40-Station Terminal Board
CR-273: Equipment Rack
CR-413: Equipment Rack

5.2. Component Description

5.2.1. Exchange

[2-wire type exchange]

- **N-8000EX IP Intercom Exchange**

  The Exchange permits connection of up to sixteen 2-wire type stations and features two outputs for public address paging. The speech links consist of 4 internal links and 8 external links. The exchange is equipped with a networking interface, allowing connection with IP stations, various kinds of interface units, and other IP intercom exchanges. The Exchange can be mounted in an EIA standard rack (1U), to a wall or installed on a desk.

- **N-8010EX IP Intercom Exchange**

  The Exchange permits connection of up to sixteen 2-wire type stations.
  The speech links consist of 1 internal link and 2 external links.
  The exchange is equipped with a networking interface, allowing connection with IP stations, various kinds of interface units, and other IP intercom exchanges.
  The Exchange can be mounted in an EIA standard rack (1U), to a wall or installed on a desk.

[2-core shielded type exchange]

- **N-8000RS IP Intercom Substation Interface Unit**

  The Exchange permits connection of up to sixteen 2-core shielded type stations.
  The speech links consist of 2 external links.
  The exchange is equipped with a networking interface, allowing connection with IP stations, various kinds of interface units, and other IP intercom exchanges.
  The Exchange can be mounted in an EIA standard rack (1U), to a wall or installed on a desk.

- **N-8010RS IP Intercom Substation Interface Unit**

  The Exchange permits connection of up to sixteen 2-core shielded type stations.
  The speech link consists of 1 external link.
  The exchange is equipped with a networking interface, allowing connection with IP stations, various kinds of interface units, and other IP intercom exchanges.
  The Exchange can be mounted in an EIA standard rack (1U), to a wall or installed on a desk.

[4-wire type exchange]

- **N-8400RS IP Intercom Substation Interface Unit**

  The Exchange permits connection of up to sixteen 4-wire type stations.
  The speech links consist of 1 internal link and 2 external links.
  The exchange is equipped with a networking interface, allowing connection with IP stations, multi interface units, and other IP intercom exchanges.
  The Exchange can be mounted in an EIA standard rack (1U), to a wall or installed on a desk.

<table>
<tr><th>Kind of Exchange</th><th>Model No.</th><th>Communication methods</th><th>Internal Link</th><th>External Link</th></tr>
<tr><td rowspan="2">2-wire type exchange</td><td>N-8000EX</td><td>Audio: Digital PCM</td><td>4</td><td>8</td></tr>
<tr><td>N-8010EX</td><td>Control: Multiplex system</td><td>1</td><td>2</td></tr>
<tr><td rowspan="2">2-core shielded type exchange</td><td>N-8000RS</td><td>Audio: Analog base band</td><td rowspan="2">Impossible</td><td>2</td></tr>
<tr><td>N-8010RS</td><td>Control: Current loop system</td><td>1</td></tr>
<tr><td>4-wire type exchange</td><td>N-8400RS</td><td>Audio: Analog base band
Control: Current loop/pilot tone system</td><td>1</td><td>2</td></tr>
</table>

5.2.2. Stations

[IP station]

Type of Stations	Specification													
	Speech Method			Installation Method				LCD Display	Auto-dialing	External speaker	Control output	Control input	PC cascade-connection	Power
	Handset	Hands-free	Headset	Desk top	Wall hanging	Flush-mounting	Wall surface mounting							
N-8500MS: IP Multifunctional Master Station	√	√	√	√*1	√*2	—	—	√	√	√	—	—	√	√*3
N-8510MS: Standard Master Station	√	√	—	√*1	√*2	—	—	—	—	—	—	√	—	√*3
N-8600MS: IP Multifunctional Master Station	√	√	√	√*1	√*2	—	—	√	√	√	—	—	—	√*3
N-8610RM: IP Remote Microphone Station	—	√	—	√	√*4	—	—	—	—	—	—	—	—	√*3
N-8540DS: IP Door Station	—	√	—	—	—	√*5	√*6	—	—	—	√	—	—	√*3
N-8640DS: IP Door Station	—	√	—	—	—	√*5	√*6	—	—	√	√	√	—	√*3
N-8650DS: IP Door Station	—	√	—	—	—	√*5	√*6	—	—	√	√	√	—	√*3

*1 The front operation panel can be inclined 16° from the desk surface by attaching the YC-280 Wall Mounting Bracket to its bottom surface.
*2 A dedicated YC-280 Wall Mounting Bracket is required.
*3 A PoE (Power over Ethernet) switching hub compliant with IEEE802.3af or optional AD-1210P/1215P AC Adapter is required.
*4 A dedicated WB-RM200 Wall Mount Bracket is required.
*5 A dedicated YC-150 Back Box is required.
*6 A dedicated YS-13A Wall-Mount Box is required.

[2-wire type station]

Type of Stations	Specification											
	Speech Method			Installation Method				LCD Display	Auto-dialing	External speaker	Control output	External dial input
	Handset	Hands-free	Headset	Desk top	Wall hanging	Flush-mounting	Wall surface mounting					
N-8000MS: Multifunctional Master Station	√	√	√	√*1	√*3	—	—	√	√	√	—	—
N-8010MS: Standard Master Station	√	√	—	√*1	√*3	—	—	—	—	—	—	—
N-8011MS: Standard Hands-Free Master Station	—	√	—	√*2	√*4	—	—	—	—	—	—	—
N-8020MS: Industrial-Use Master Station	√	√	—	√*1	√*3	—	—	—	—	√	√	—
N-8031MS: Flush-Mount Master Station	—*5	√	—	—	—	√*6	√*8	—	—	—	—	√
N-8033MS: Flush-Mount Master Station	—	√	—	—	—	√*10	√*10	—	—	—	—	√
N-8050DS: Door Station	—	√	—	—	—	√*7	√*9	—	—	—	√	—

*1 The front operation panel can be inclined 16° from the desk surface by attaching the YC-280 Wall Mounting Bracket to its bottom surface.
*2 The front operation panel can be inclined 16° from the desk surface by attaching the YC-290 Wall Mounting Bracket to its bottom surface.
*3 A dedicated YC-280 Wall Mounting Bracket is required.
*4 A dedicated YC-290 Wall Mounting Bracket is required.
*5 Permits handset conversation when used in conversation with the RS-191 Option Handset
*6 A dedicated YC-241 Back Box is required.
*7 A dedicated YC-150 Back Box is required.
*8 A dedicated YC-251 Wall-Mount Box is required.
*9 A dedicated YS-13A Wall-Mount Box is required.
*10 A dedicated YC-841 Wall-Mount Box is required.

[2-core shielded station]

Type of Stations	Specification					
	Speech Method		Installation Method		External speaker	Control output
	Handset	Hands-free	Flush-mounting	Wall surface mounting		
RS-150: Sub Station	—	√	√*1	√*2	—	—
RS-160: Sub Station	—	√	√*1	√*2	—	—
RS-170: Sub Station	—	√	√*1	√*2, *3	—	—
RS-180: Sub Station	—	√	√*1	√*2, *3	—	√
RS-140: Switch Panel	√*4	√*5	√*6	√*7	√*5	—
RS-143: Switch Panel	√*4	√*5	√*6	√*7	√*5	—
RS-144: Switch Panel	√*4	√*5	√*6	√*7	√*5	—

*1 A dedicated YC-302 2-Gang Electrical Box is required.
*2 A dedicated YC-822 Wall-Mount Box is required.
*3 A dedicated YC-823 Wall-Mount Box is required.
*4 Permits handset conversation when used in conversation with the RS-141 Option Handset
*5 Connection to an already installed 25 V line speaker allows it to be used for conversation applications (as it can be made to function both as a microphone and a speaker).
*6 A dedicated YC-801 Flush-Mount Box is required.
*7 A dedicated YC-802 Wall-Mount Box is required.

[4-wire type station]

Type of Stations	Specification						
	Speech Method		Installation Method				Control output
	Handset	Hands-free	Desk top	Wall hanging	Flush-mounting	Wall surface mounting	
N-8410MS: Analog Standard Master Station	√	√	√*1	√*2	—	—	—
RS-450: Sub Station	—	√	—	—	√*3	√*4	—
RS-460: Sub Station	—	√	—	—	√*3	√*4	—
RS-470: Sub Station	—	√	—	—	√*3	√*4, *5	—
RS-480: Sub Station	√*6	√	—	—	√*3	√*4, *5	—

*1 The front operation panel can be inclined 16° from the desk surface by attaching the YC-280 Wall Mounting Bracket to its bottom surface.
*2 A dedicated YC-280 Wall Mounting Bracket is required.
*3 A dedicated YC-302 2-Gang Electrical Box is required.
*4 A dedicated YC-822 Wall-Mount Box is required.
*5 A dedicated YC-823 Wall-Mount Box is required.
*6 Permits handset conversation when used in conversation with the RS-481 Option Handset

5.2.3. Peripheral components

[N-8000MI Multi Interface Unit]

Having 2 channels each for audio input and output, and 16 contacts each for control input and output, the N-8000MI performs the following interface functions*.

- Tie-line interface for connection with the EXES-2000 and EXES-6000 systems.
- PBX interface for connection with the PBX via the analog E&M interface.
- PA paging interface for connection with PA equipment
- External input broadcast interface for connection with a music player (chime unit) or paging microphone irrespective of with or without remote control function.
- Interface function that enables external broadcast by connecting a paging microphone or a playing device without a Remote Control function.
- Interface to control an indicator or external equipment such as a CCTV's switcher using relay contacts.
- Interface function that enables Calling Station Display and Remote Dialing functions for designated Master Stations using contact input and output.
- Interface function that uses contact output to diagnose system line and network statuses and transmits the diagnosed result.

The N-8000MI also features Network interface for connection with IP stations, IP intercom exchanges, and various kinds of interface units.
The N-8000MI interface is a rack-mounted model (1U size), but can be used for desktop and wall-mount applications as well.

* The interface functions can be combined in the following 9 patterns.

Interface function	Combination pattern								
	1	2	3	4	5	6	7	8	9
PBX 1	√	√	√	—	—	—	—	—	—
PBX 2	√	—	—	√	√	—	—	—	—
Tie-line 1	—	—	—	√	—	√	√	—	—
Tie-line 2	—	√	—	—	—	√	—	√	—
Audio output 1	—	—	—	—	√	—	—	√	√
Audio output 2	—	—	√	—	—	—	√	—	√
Audio input 1	—	—	—	—	√	—	—	√	√
Audio input 2	—	—	√	—	—	—	√	—	√
Contact IN/OUT	√	√	√	√	√	√	√	√	√

[N-8000AF Audio Interface Unit]

Having 1 channel for audio input and output, and 8 contacts each for control input and output, and 1 contact for time sync input , the N-8000AF performs the following interface functions.

- PA paging interface for connection with PA equipment
- External input broadcast interface for connection with a music player (chime unit) or paging microphone irrespective of with or without remote control function.
- Interface function that enables external broadcast by connecting a paging microphone or a playing device without a Remote Control function.
- The Time Signal function enables the N-8000AF to activate its built-in timer at preset times to play its built-in sound source or an external playing device by closing the contact output terminal.
- The Interface function records the designated Master Station's conversation on an external recorder by outputting the conversation from the N-8000AF's audio output and transmitting it to the recorder activated when the N-8000AF's contact output terminal is closed.
- NTP Client function synchronizes the clock of the N-8000AF with NTP server when the NTP Client function of the N-8000AF set to the clock master is enabled.

The N-8000AF also features Network interface for connection with IP stations, IP intercom exchanges, and various kinds of interface units.
The N-8000AF is a rack-mounted model (1U size and half-size width), but can be used for desktop and wall-mount applications as well.

[N-8000DI Direct Select Unit]

Having 32 contacts each for control input and output, the N-8000DI performs the following interface functions.

- Interface to control an indicator or external equipment such as a CCTV's switcher using relay contacts.
- Interface function that enables Direct Select, Calling Station Display and Remote Dialing functions for designated Master Stations using contact input and output.
- Interface function that uses contact output to diagnose system line and network statuses and transmits the diagnosed result.

The N-8000DI also features Network interface for connection with IP stations, IP intercom exchanges, and various kinds of interface units.
The N-8000DI is a rack-mounted model (1U size), but can be used for desktop and wall-mount applications as well.

[N-8000CO C/O Interface Unit]

This unit has one analog outside line circuit and connects to the outside line to enable the following functions:

- Direct In Line — Calls the designated Master Station from the analog outside line.
- Direct Inward Dialing — Calls the Master Station from the analog outside line by designating that station through dialing.
- Outside Line Call Transfer — Transfers calls to the analog outside line when the called Master Station is not available or does not respond.
- Outside Line Paging — Makes paging calls from the analog outside line.
- Outside Line Equipment Control — Controls external equipment connected to the N-8000MI or N-8000DI from the analog outside line.

The N-8000CO also features Network interface for connection with IP stations, IP intercom exchanges, and various kinds of interface units.
The N-8000CO is a rack-mounted model (1U size and half-size width), but can be used for desktop and wall-mount applications as well.

[N-8000AL Telephone Interface Unit]

The N-8000AL unit has one outside line connection circuit and connects to analog telephones to enable the following functions:

- Master Station — Permits the connected analog telephone to be used in the same manner as the Master Station.

The N-8000AL also features Network interface for connection with IP stations, IP intercom exchanges, and various kinds of interface units.
The N-8000AL is a rack-mounted model (1U size and half-size width), but can be used for desktop and wall-mount applications as well.

[SX-200IP IP Interface Module]

The SX-200IP is a module to enable broadcasts from the N-8000 system to the SX-2000 system. Incorporated in the SX-2100AI Audio input unit of the SX-2000 system, the SX-200IP allows broadcasts from the N-8600MS Multifunctional master station or N-8610RM IP Remote microphone station to be made to each zone of the SX-2000 system.

5.2.4. Others

[40-Station Terminal Board E-7000TB]

The E-7000TB is a clip type terminal board for connecting station lines to each exchange. Up to 40 lines (twisted pair cables) can be connected. The optional YC-105 clipping tool is required for wiring. The E-7000TB is rack-mountable (3U size).

[Equipment Racks CR-273 and CR-413]

The Exchange, 40-station terminal board, and other equipment components are mounted in these racks.

5.3. Rack Mounting Examples for Exchanges

Note
The Exchange N-8000EX in these examples can be replaced with the N-8010EX/8000RS/8010RS/8400RS.

5.3.1. A 128-line exchange system

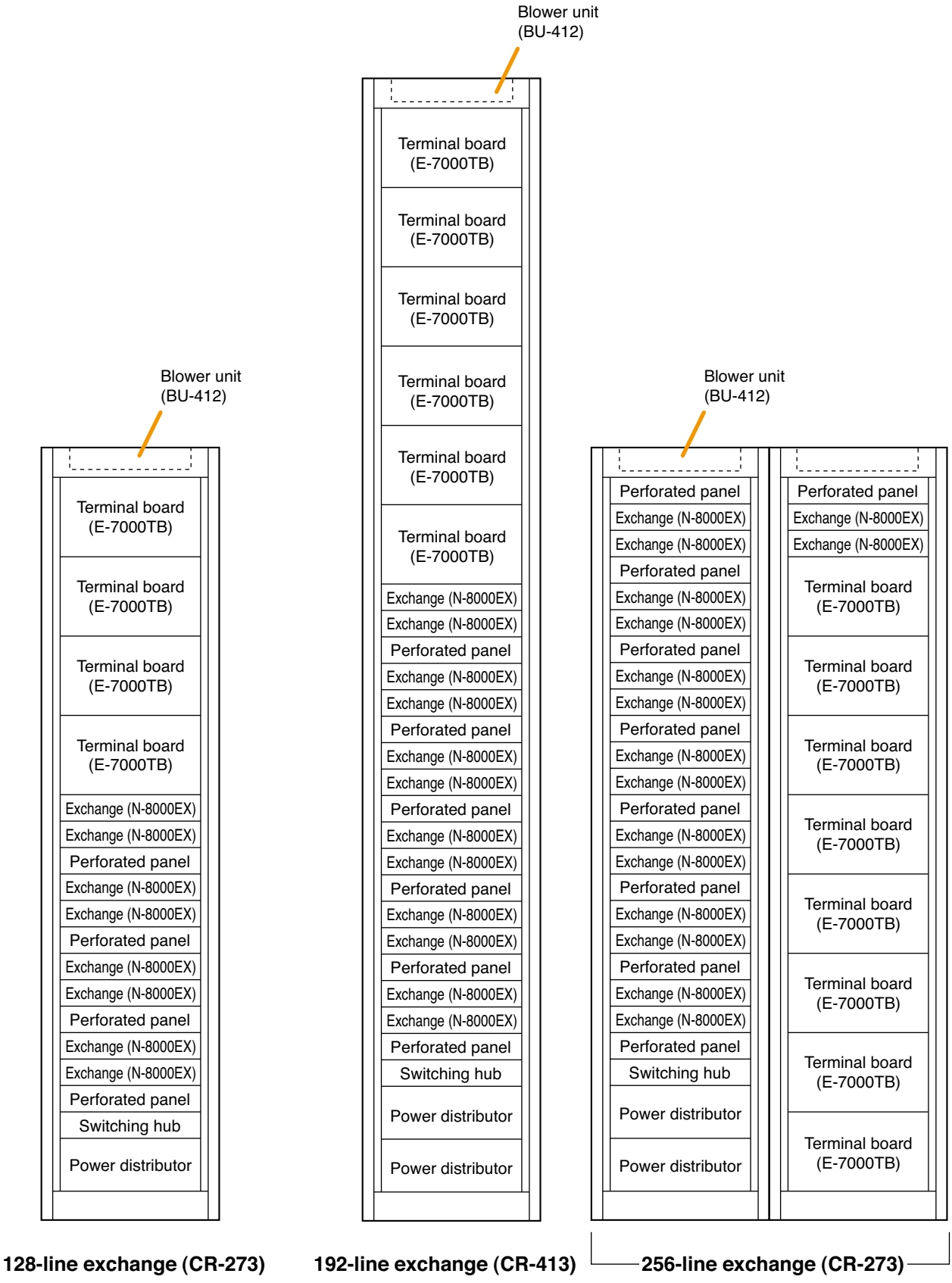
One CR-273 Equipment Rack is used.

5.3.2. A 192-line exchange system

One CR-413 Equipment Rack is used.

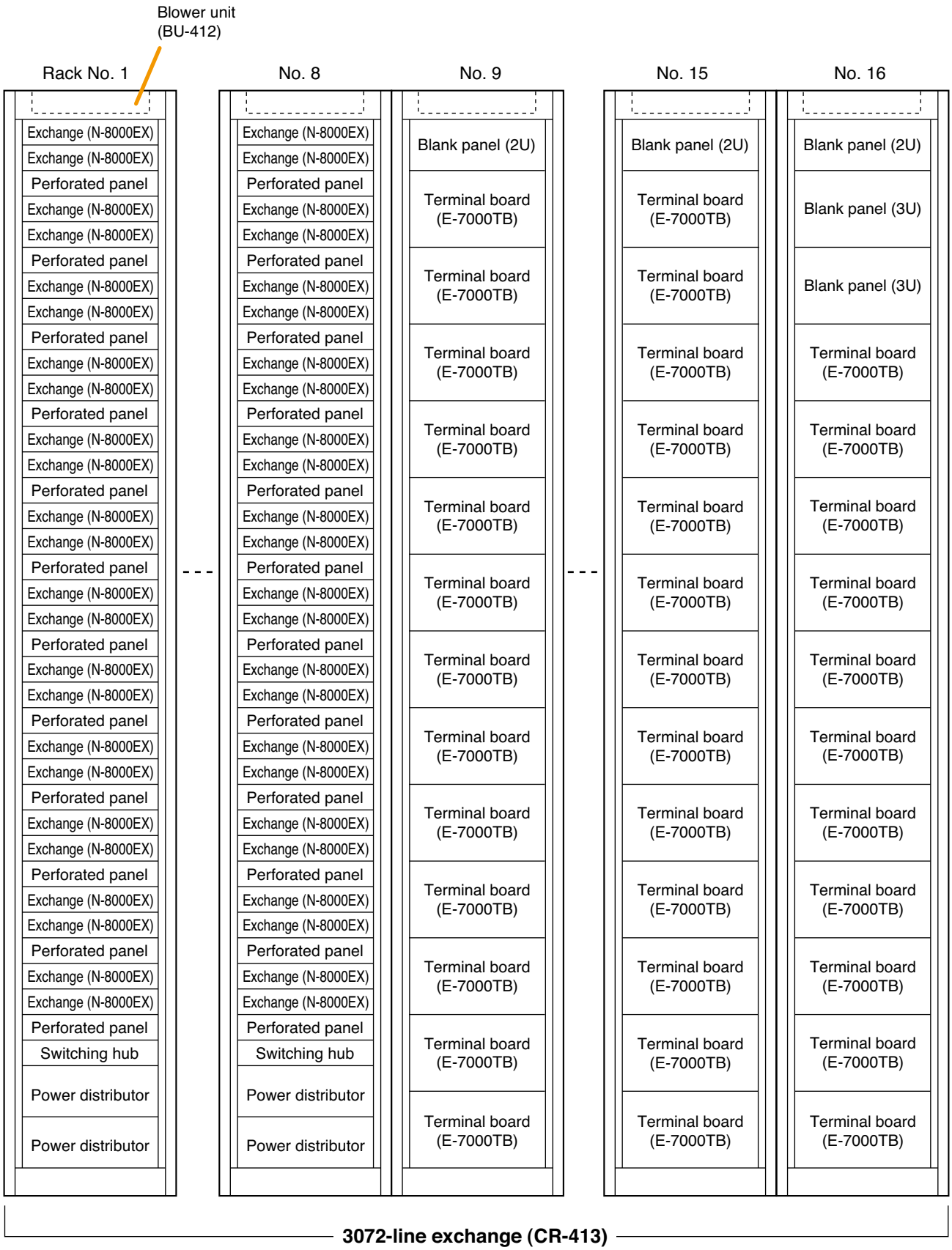
5.3.3. A 256-line exchange system

Two CR-273 Equipment Racks are used.



5.3.4. A 3072-line exchange system

Sixteen CR-413 Equipment Racks are used.

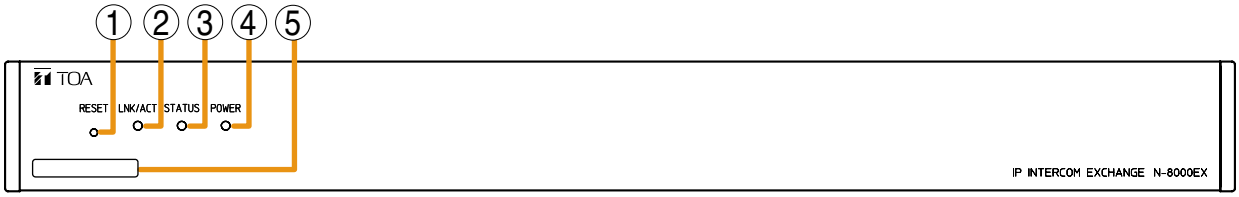


6. NOMENCLATURE AND FUNCTIONS

6.1. IP Intercom Exchanges and Their Connected Equipment

6.1.1. N-8000EX IP Intercom Exchange

[Front]



1. Reset key [RESET]
Pressing this key reactivates the exchange.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

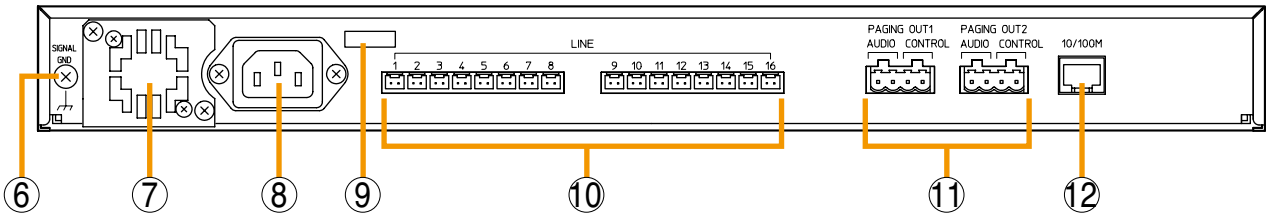
3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory), and flashes to indicate such exchange malfunctions as cooling fan failure. (Refer to p. 8-14.)

4. Power indicator [POWER] (green)
Lights when power is supplied to the exchange.

5. MAC address
This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

[Rear]



6. Functional earth terminal [SIGNAL GND]
Ground this terminal.
Note: This terminal is not for protective earth.

7. Cooling fan

> **⚠ CAUTION**
> Do not block the fan exhaust vent. Doing so may cause heat to build up inside the unit and result in fire.

8. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

9. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-4.)

10. Line connection terminals [LINE]
Connect the station to each terminal using a mini-clamp connector. (Refer to p. 3-83, "Mini-clamp connector connection.")

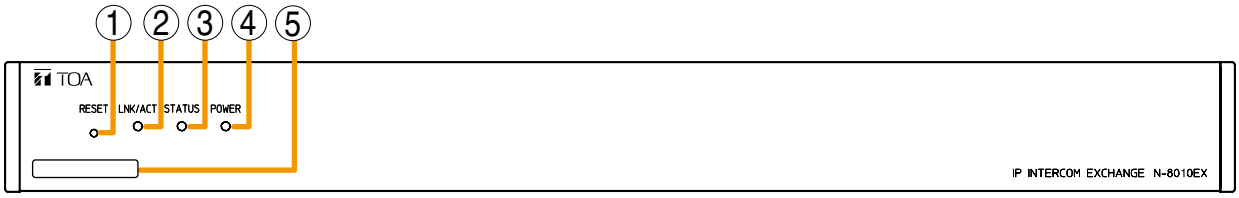
11. Paging output terminals [PAGING OUT 1/2, AUDIO/CONTROL]
Includes audio outputs (0 dB*, 600 Ω, balanced) and contact outputs (no-voltage make, 24 V DC, 0.5 A MAX).
Each control output remains closed during audio signal output.
Connect using a removable terminal plug. (Refer to p. 3-83, "Terminal plug connection.")

12. Network connection terminal [10/100M]
Connects a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

* 0 dB = 1 V

6.1.2. N-8010EX IP Intercom Exchange

[Front]



1. Reset key [RESET]
Pressing this key reactivates the exchange.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

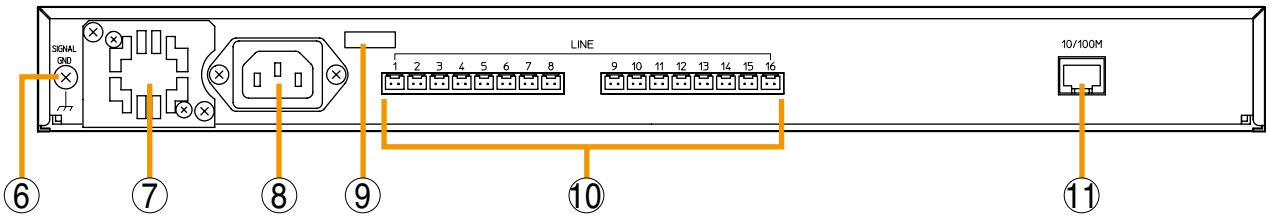
3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory), and flashes to indicate such exchange malfunctions as cooling fan failure. (Refer to p. 8-14.)

4. Power indicator [POWER] (green)
Lights when power is supplied to the exchange.

5. MAC address
This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

[Rear]



6. Functional earth terminal [SIGNAL GND]
Ground this terminal.
Note: This terminal is not for protective earth.

7. Cooling fan

> **⚠ CAUTION**
> Do not block the fan exhaust vent. Doing so may cause heat to build up inside the unit and result in fire.

8. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

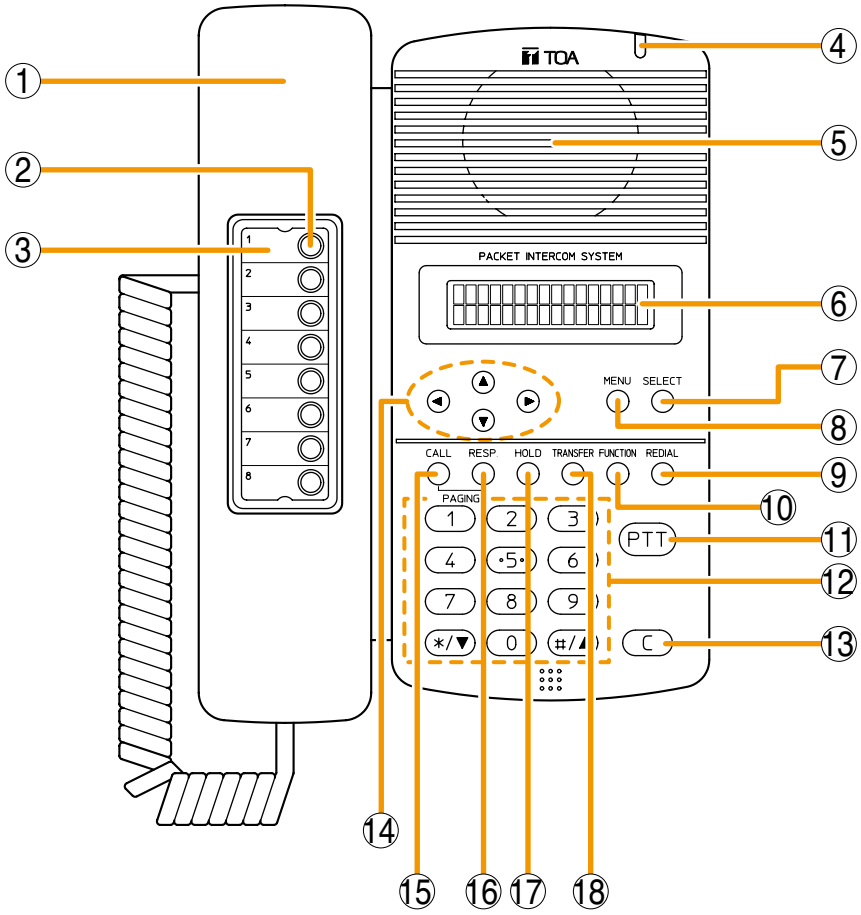
9. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-4.)

10. Line connection terminals [LINE]
Connect the station to each terminal using a mini-clamp connector. (Refer to p. 3-83, "Mini-clamp connector connection.")

11. Network connection terminal [10/100M]
Connects a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

6.1.3. N-8000MS Multifunctional Master Station

[Top]



1. Handset
Lift the handset for handset conversation. Lifting the handset disconnects both the hands-free microphone and the speaker.

2. Auto-dial key
Used to call or register the party to be called. (Refer to p. 2-11.)

3. Auto-dial directory
Writes the auto-dial registration contents to this directory.

4. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

5. Speaker
Outputs call tones and used for hands-free conversations.

6. Liquid crystal display
Displays the dialed number or the number of a call received in 2 lines of 16 digits. Pressing the Menu key (8) displays the menu screen.

7. Selection key [SELECT]
Used for menu item selection or input value confirmation.

8. Menu key [MENU]
Used for auto-dial registration (refer to p. 2-11) or system settings. (Refer to Chapter 7.)

9. Redial key [REDIAL]
Permits the last called number to be dialed. (Refer to p. 2-8.)

10. Function key [FUNCTION]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

11. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

12. Dial keys
Use these keys to make a call or set a function.

13. Clear key [C]
Terminates the conversation.

14. Arrow keys [▲][▼][◄][►]
Use these keys to perform auto-dial registration (refer to p. 2-11) or system settings (refer to Chapter 7).

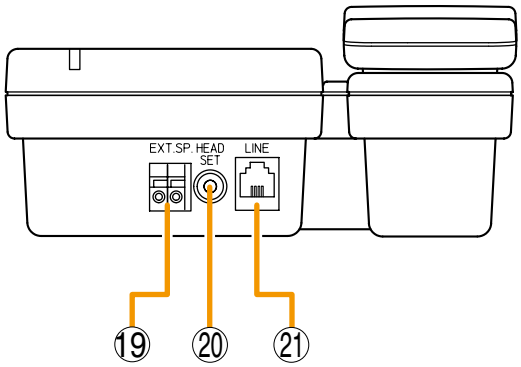
15. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

16. Paging response key [RESP.]
Responds to a paging.
(Refer to p. 2-31.)

17. Hold key [HOLD]
Places the conversation on hold.
(Refer to p. 2-14.)

18. Transfer key [TRANSFER]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

[Rear]

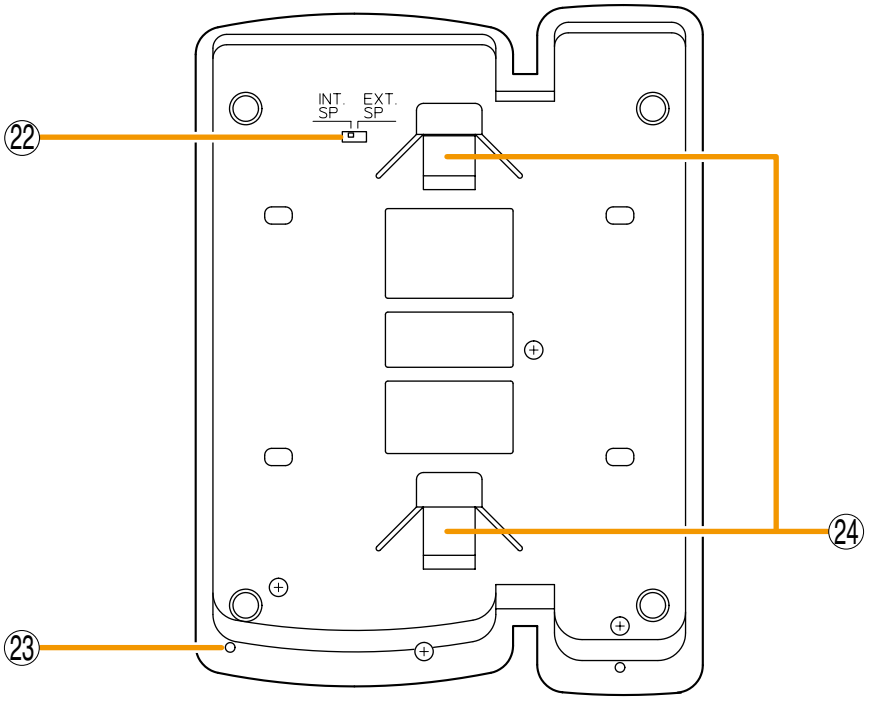


19. External speaker terminal [EXT.SP.]
An external speaker (8 Ω, 0.6 W) can be connected to this terminal. (Refer to p. 3-57.)
Shift the Speaker selector switch (22) located on the bottom surface of the unit to the EXT.SP position when using the external speaker.

20. Headset terminal [HEADSET]
Connects to a headset. Connection of the headset disables the speaker.

21. Line connection terminal [LINE]
Connects to the exchange. (RJ-11 modular jack)

[Bottom]



22. Speaker selector switch [INT.SP/EXT.SP]
Used to select either an internal (INT.SP) or an external (EXT.SP) speaker.

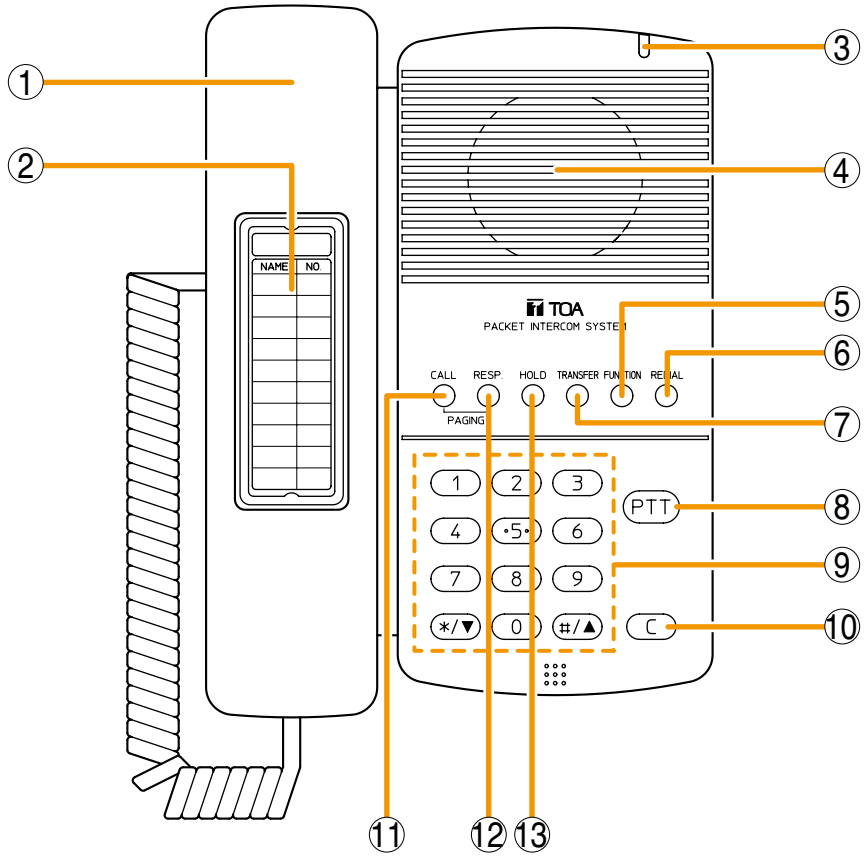
23. Microphone
Used for hands-free conversation.

Note
Avoid placing obstacles close to the microphone that might block sound and prevent conversations.

24. Wall bracket mounting slots
Hang the mounting bracket hooks to these slots when using the YC-280 Wall Mounting Bracket. (Refer to p. 3-19, p. 3-23.)

6.1.4. N-8010MS Standard Master Station

[Top]



1. Handset
Lift the handset for handset conversation. Lifting the handset disconnects both the hands-free microphone and the speaker.

2. Dial directory
Writes the dial registration of the party to be called to this directory.

3. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

4. Speaker
Outputs call tones and used for hands-free conversations.

5. Function key [FUNCTION]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

6. Redial key [REDIAL]
Permits the last called number to be dialed. (Refer to p. 2-8.)

7. Transfer key [TRANSFER]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

8. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

9. Dial keys
Use these keys to make a call or set a function.

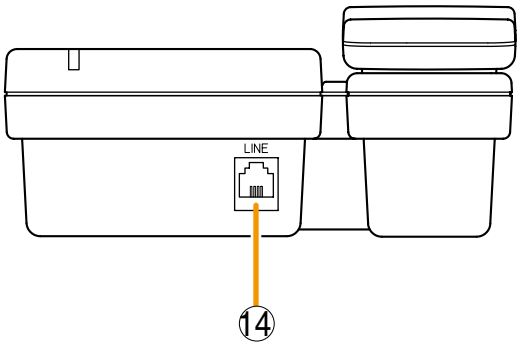
10. Clear key [C]
Terminates the conversation.

11. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

12. Paging response key [RESP.]
Responds to a paging.
(Refer to p. 2-31.)

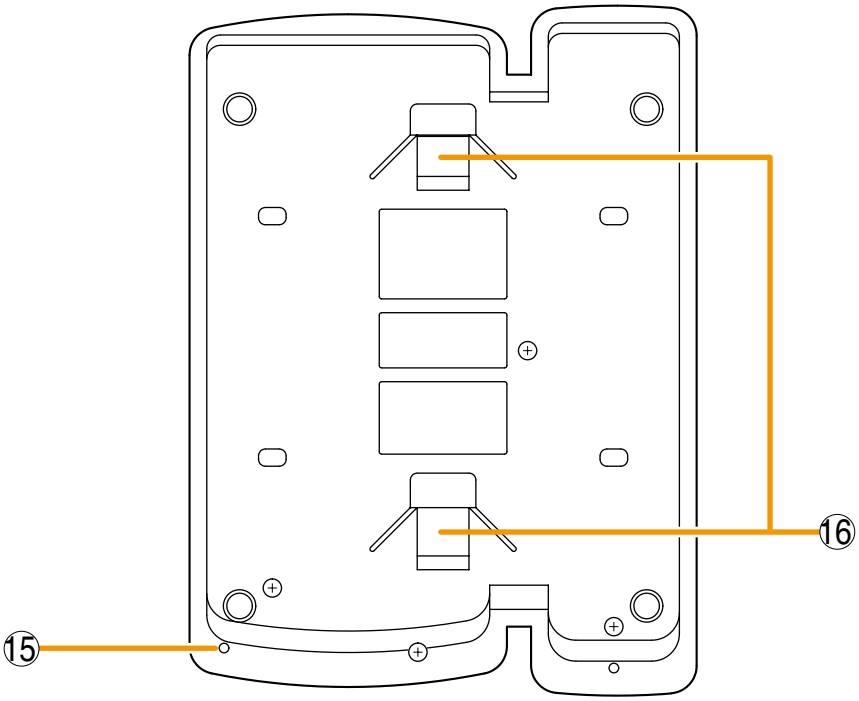
13. Hold key [HOLD]
Places the conversation on hold.
(Refer to p. 2-14.)

[Rear]



14. Line connection terminal [LINE]
Connects to the exchange. (RJ-11 modular jack)

[Bottom]



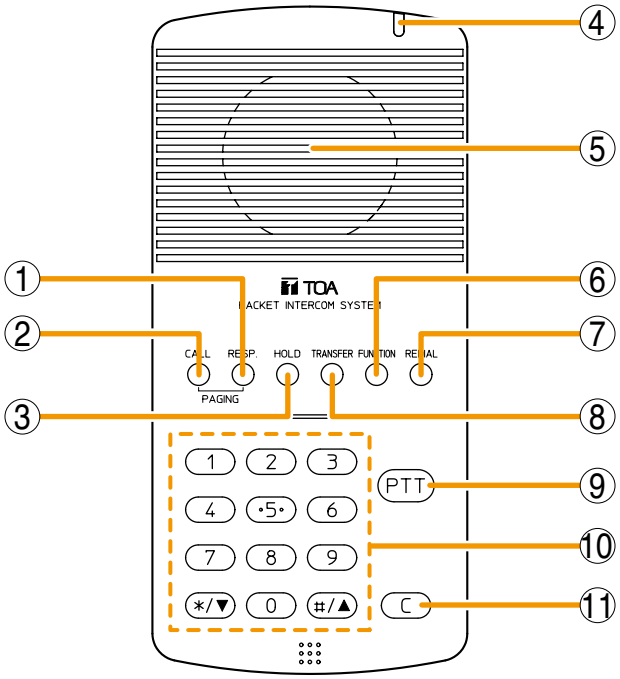
15. Microphone
Used for hands-free conversation.

Note
Avoid placing obstacles close to the microphone that might block sound and prevent conversations.

16. Wall bracket mounting slots
Hang the hooks of the mounting bracket to these slots when using the YC-280 Wall Mounting Bracket. (Refer to p. 3-19, p. 3-23.)

6.1.5. N-8011MS Standard Hands-free Master Station

[Top]



1. **Paging response key [RESP.]**
   Responds to a paging. (Refer to p. 2-31.)

2. **Paging key [CALL]**
   Makes a paging. (Refer to p. 2-25.)

3. **Hold key [HOLD]**
   Places the conversation on hold.
   (Refer to p. 2-14.)

4. **Status indicator (red)**
   Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

5. **Speaker**
   Outputs call tones and used for hands-free conversations.

6. **Function key [FUNCTION]**
   Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

7. **Redial key [REDIAL]**
   Permits the last called number to be dialed. (Refer to p. 2-8.)

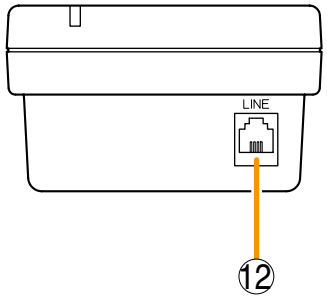
8. **Transfer key [TRANSFER]**
   Used to transfer the current conversation to another station. (Refer to p. 2-15.)

9. **Push-to-talk key [PTT]**
   Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

10. **Dial keys**
    Use these keys to make a call or set a function.

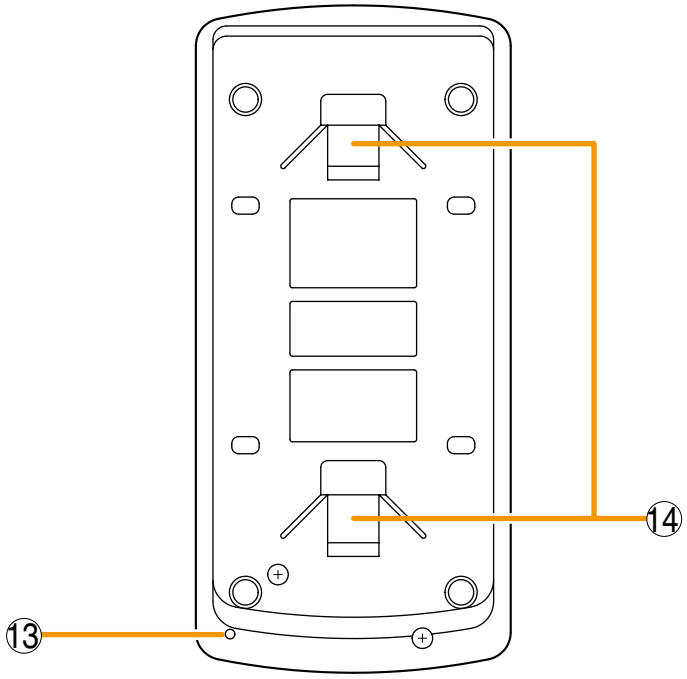
11. **Clear key [C]**
    Terminates the conversation.

[Rear]



12. Line connection terminal [LINE]
Connects to the exchange. (RJ-11 modular jack)

[Bottom]



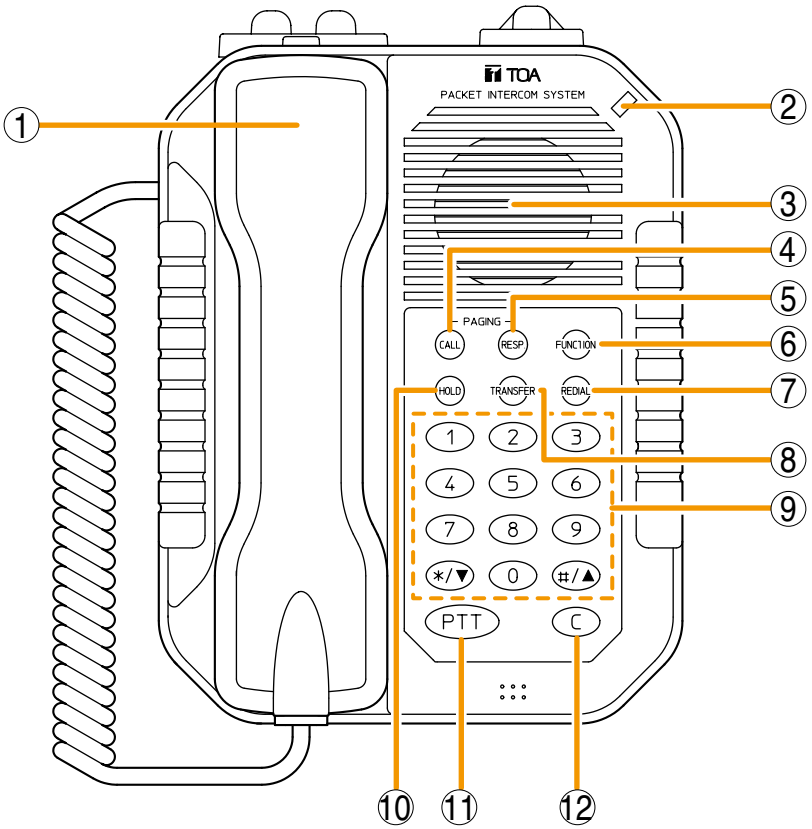
13. Microphone
Used for hands-free conversation.

Note
Avoid placing obstacles close to the microphone that might block sound and prevent conversations.

14. Wall bracket mounting slots
Hang the mounting bracket hooks to these slots when using the YC-290 Wall mounting bracket. (Refer to p. 3-21, p. 3-22.)

6.1.6. N-8020MS Industrial-Use Master Station

[Top]



1. Handset
Lift the handset for handset conversation. Lifting the handset disconnects both the hands-free microphone and the speaker.

2. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

3. Speaker
Outputs call tones and used for hands-free conversations.

4. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

5. Paging response key [RESP.]
Responds to a paging. (Refer to p. 2-31.)

6. Function key [FUNCTION]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

7. Redial key [REDIAL]
Permits the last called number to be dialed. (Refer to p. 2-8.)

8. Transfer key [TRANSFER]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

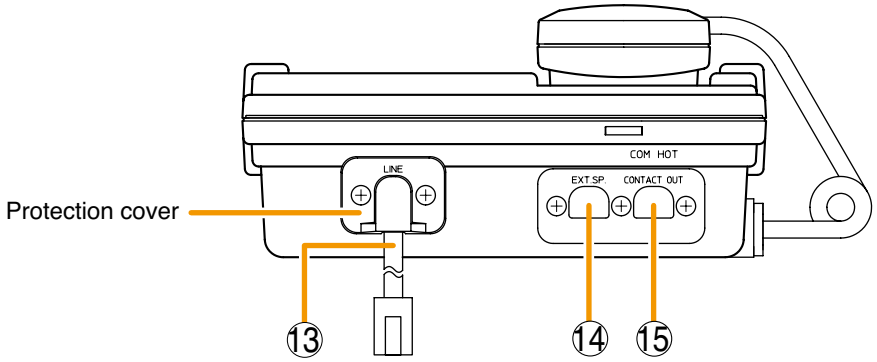
9. Dial keys
Use these keys to make a call or set a function.

10. Hold key [HOLD]
Places the conversation on hold.
(Refer to p. 2-14.)

11. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

12. Clear key [C]
Terminates the conversation.

[Rear]



13. Line connection cable [LINE]
Connects to the exchange. (3 m-length cable with RJ-11 modular plug)
Note: Do not remove the protection cover.

14. External speaker terminal [EXT.SP.]
An external speaker (8 Ω, 0.6 W) can be connected to this terminal. When connecting, replace a protection cap with a supplied rubber bushing. (Refer to p. 3-57.)
Shift the Speaker selector switch (16) located on the bottom surface of the unit to the EXT.SP position when using the external speaker.

15. Contact output terminal [CONTACT OUT]
Permits connection of a device to indicate the calling station.
This terminal closes only while a call is being made or received. (Output capacity: 30 V DC and 50 mA.)
When connecting, replace a protection cap with a supplied rubber bushing. (Refer to p. 3-57.)

[Bottom]

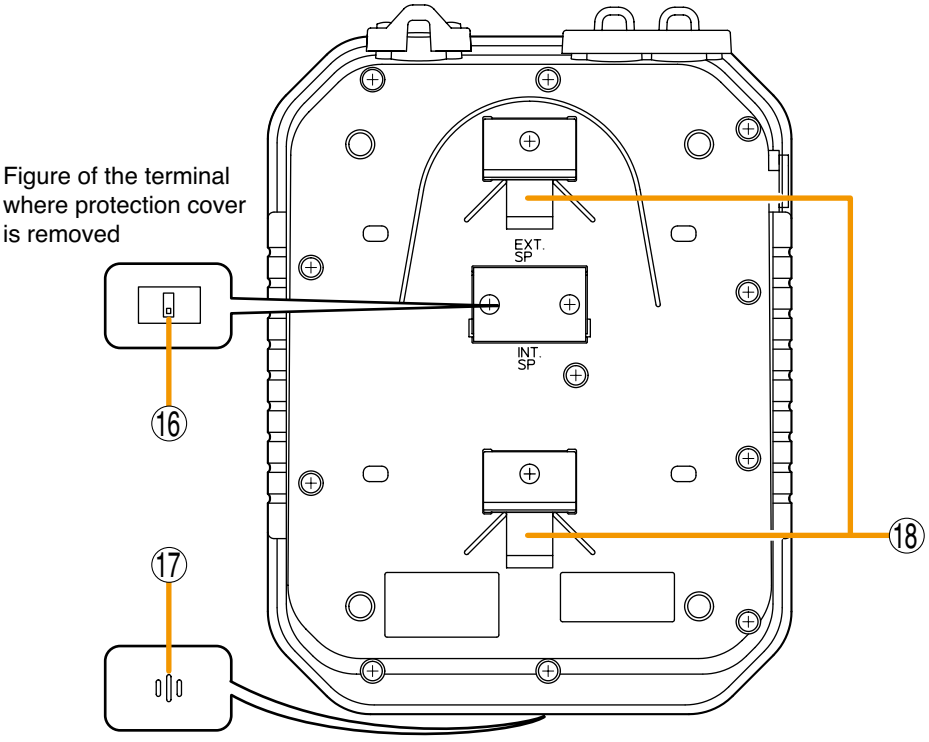


Figure viewed from front center

16. Speaker selector switch [INT.SP/EXT.SP]
The internal switch is exposed if the protection cover is removed.
Used to select either an internal (INT.SP) or an external (EXT.SP) speaker. After shifting the selector switch, fit the protection cover back into place.

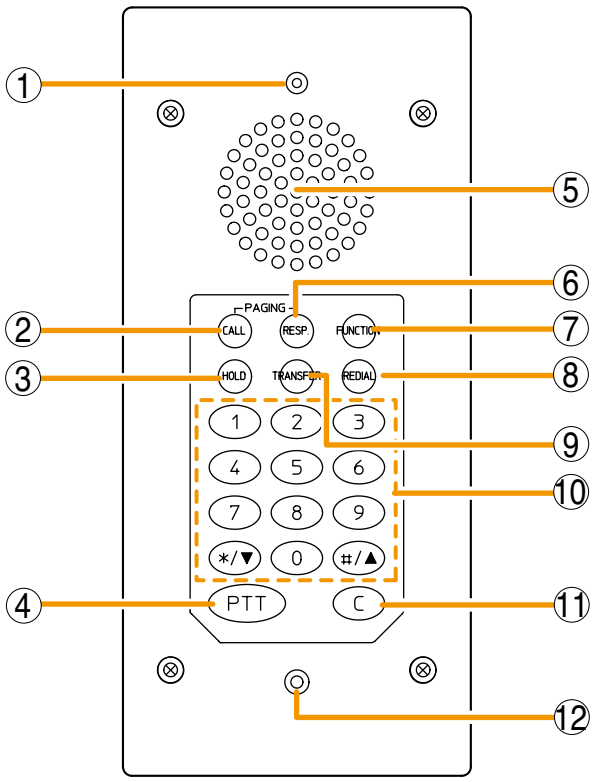
17. Microphone
Used for hands-free conversation.

Note
Avoid placing obstacles close to the microphone that might block sound and prevent conversations.

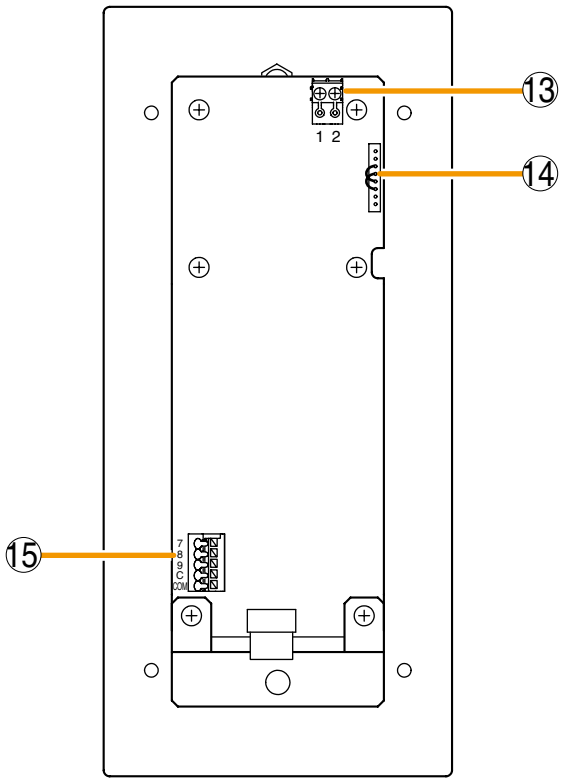
18. Wall bracket mounting slots
Hang the mounting bracket hooks to these slots when using the YC-280 Wall mounting bracket. (Refer to p. 3-19, p. 3-23.)

6.1.7. N-8031MS Flush-Mount Master Station

[Front]



[Rear]



1. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

2. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

3. Hold key [HOLD]
Places the conversation on hold. (Refer to p. 2-14.)

4. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key.
(Refer to p. 2-7.)

5. Speaker
Outputs call tones and used for hands-free conversations.

6. Paging response key. [RESP.]
Responds to a paging. (Refer to p. 2-31.)

7. Function key [FUNCTION]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

8. Redial key [REDIAL]
Permits the last called number to be dialed. (Refer to p. 2-8.)

9. Transfer key [TRANSFER]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

10. Dial keys
Use these keys to make a call or set a function.

11. Clear key [C]
Terminates the conversation.

12. Microphone
Used for hands-free conversation.

13. Line connection terminals [1, 2]
Connect to the exchange. (Pin header)

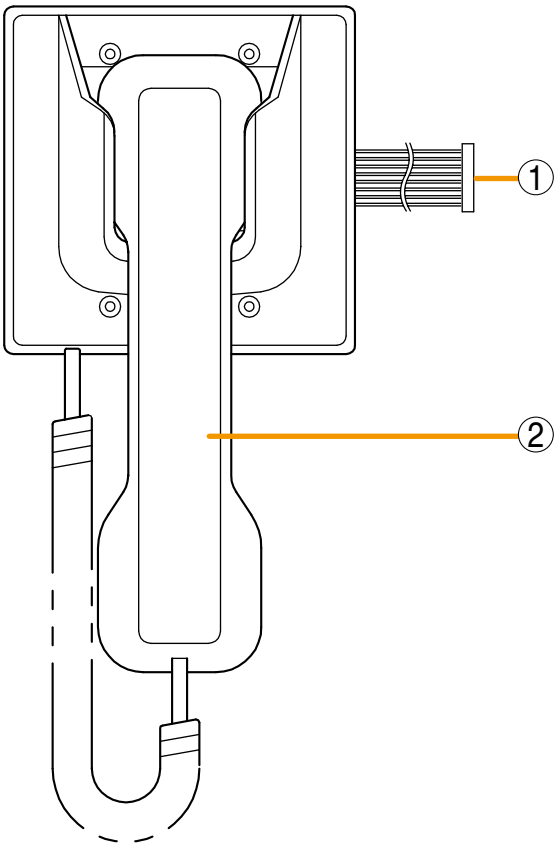
Note
The removable terminal plug (2P) is factory-attached. (Refer to p. 3-56.)

14. Handset connection terminals [CN302]
A dedicated RS-191 Option Handset can be connected. (Refer to p. 3-58.)

15. External dial input terminals [CN306]
An external switch such as a footswitch can be connected. (Refer to p. 3-59.)
One-touch dial function needs be programmed when using the external switch. (Refer to p. 2-12.)

6.1.8. RS-191 Indoor Option Handset

[Front]

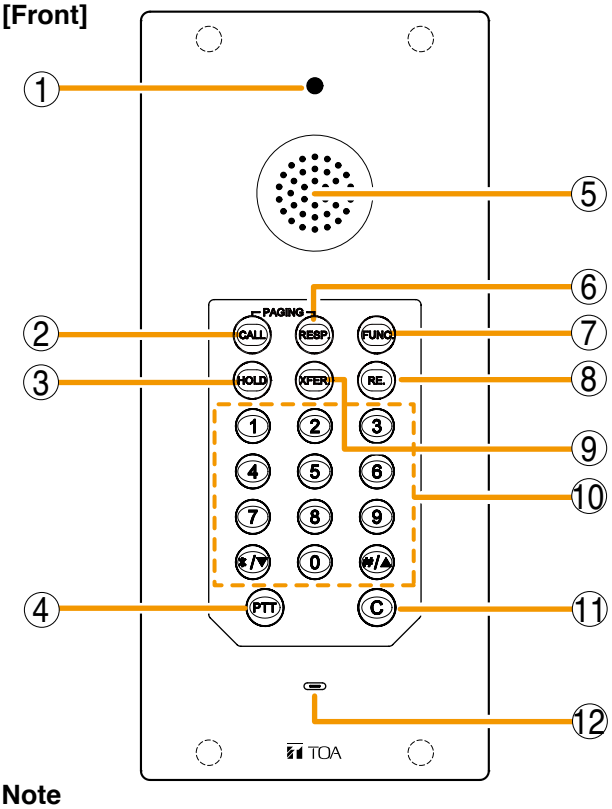


1. Handset Cable
Connects to the N-8031MS station's handset connection terminal.

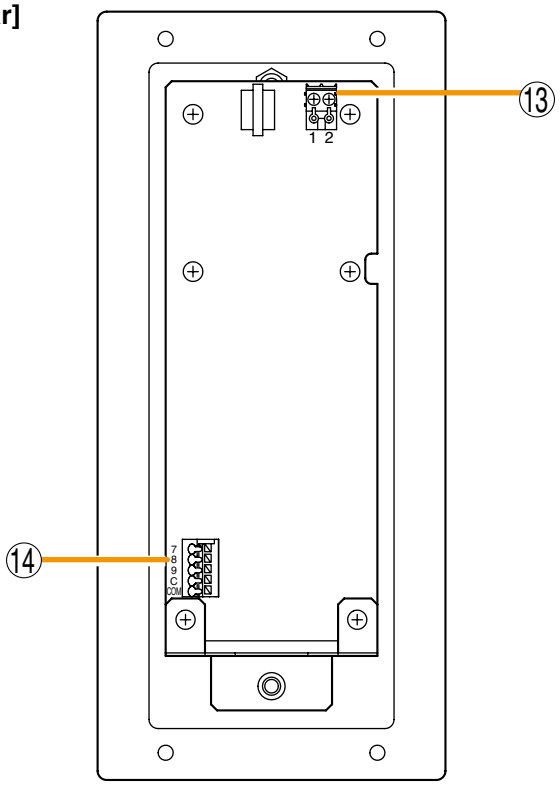
2. Handset
Used to make handset calls from the N-8031MS station. While this handset is used, the N-8031MS station's hands-free microphone and speaker are cut off.

6.1.9. N-8033MS Flush-Mount Master Station

[Front]



[Rear]



Note

The front protective sheet is a wear-and-tear item. It is highly recommended to replace it every 100,000 times of operations (approx. 3 years) for any key.
Part code: 115-51-304-00
For replacement, please contact your nearest TOA dealer.

1. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

2. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

3. Hold key [HOLD]
Places the conversation on hold. (Refer to p. 2-14.)

4. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

5. Speaker
Outputs call tones and used for hands-free conversations.

6. Paging response key. [RESP.]
Responds to a paging. (Refer to p. 2-31.)

7. Function key [FUNC.]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

8. Redial key [RE.]
Permits the last called number to be dialed. (Refer to p. 2-8.)

9. Transfer key [XFER.]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

10. Dial keys
Use these keys to make a call or set a function.

11. Clear key [C]
Terminates the conversation.

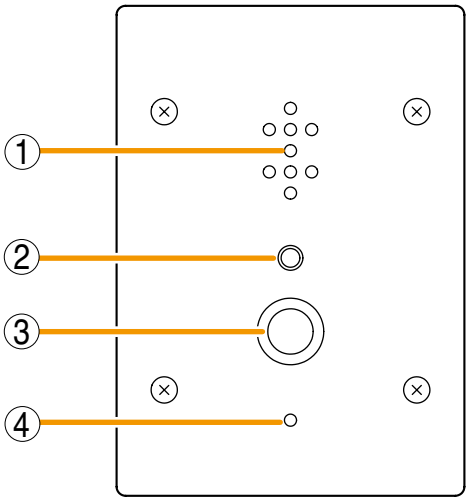
12. Microphone
Used for hands-free conversation.

13. Line connection terminals [1, 2]
Connect to the exchange. (Pin header)
Note
The removable terminal plug (2P) is factory-attached. (Refer to p. 3-56.)

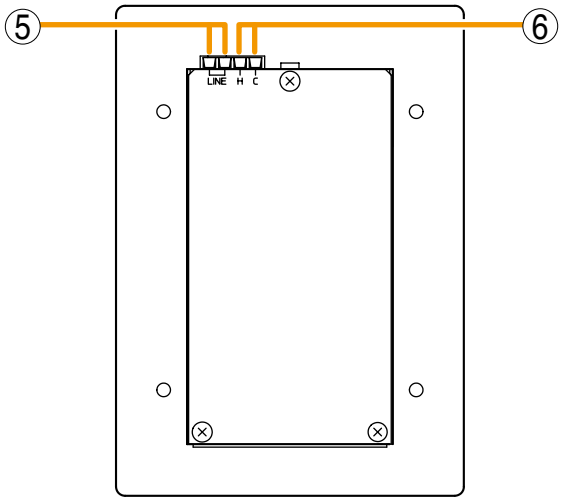
14. External dial input terminals [CN306]
An external switch such as a footswitch can be connected. (Refer to p. 3-59.)
One-touch dial function needs be programmed when using the external switch. (Refer to p. 2-12.)

6.1.10. N-8050DS Door Station

[Front]



[Rear]



1. Speaker
Outputs call tones and used for hands-free conversations.

2. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

3. Call button
Used to call the preprogrammed master station.

4. Microphone
Used for hands-free conversation.

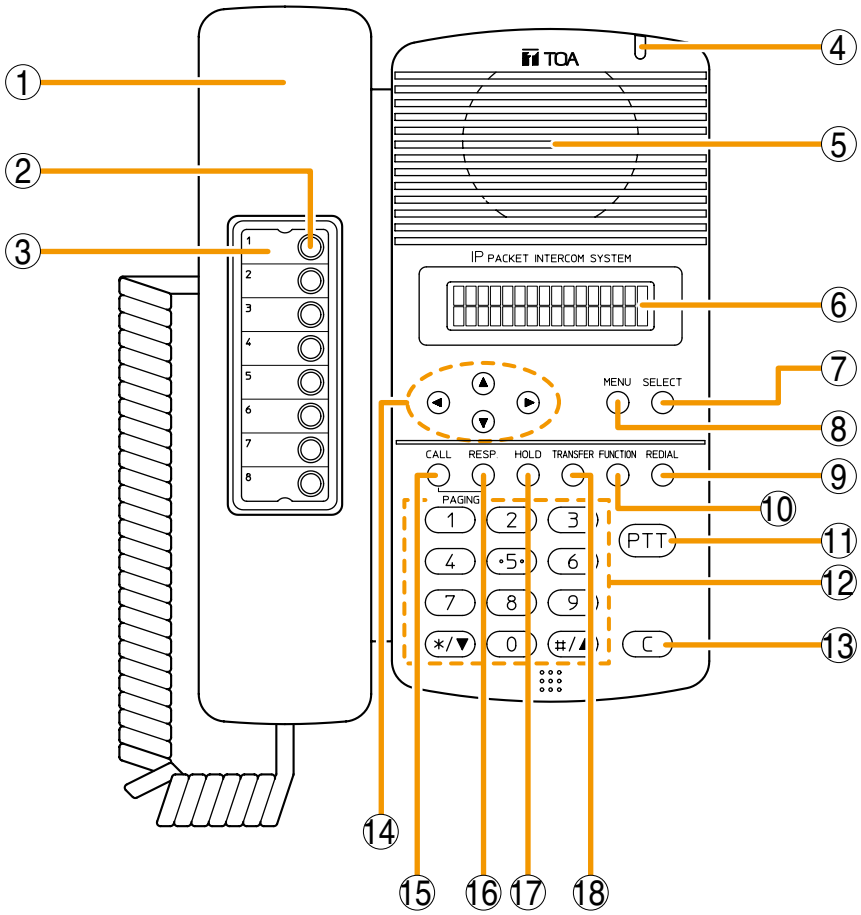
5. Line connection terminal [LINE]
Connects to the exchange. (Terminal block)
(Refer to p. 3-56.)

6. Contact output terminals [H, C]
External equipment such as an electronic lock can be connected.
(Output capacity: 30 V DC and 50 mA)
(Refer to p. 2-74, p. 2-185, p. 3-59.)

6.2. IP Station

6.2.1. N-8500MS IP Multifunctional Master Station

[Top]



1. Handset
Lift the handset for handset conversation. Lifting the handset disconnects both the hands-free microphone and the speaker.

2. Auto-dial key
Used to call or register the party to be called. (Refer to p. 2-11.)

3. Auto-dial directory
Writes the auto-dial registration contents to this directory.

4. Status indicator (red)
Flashes when a call or paging announcement is received, continuously lights during conversation, and is off while in standby mode. The indicator also continuously lights while data is written to an internal storage memory (FlashMemory), and flashes if there is a failure.
(Refer to p. 8-14.)

5. Speaker
Outputs call tones and used for hands-free conversations.

6. Liquid crystal display
Displays the dialed number or the number of a call received in 2 lines of 16 digits. Pressing the Menu key (8) displays the menu screen.

7. Selection key [SELECT]
Used for menu item selection or input value confirmation.

8. Menu key [MENU]
Used for auto-dial registration (refer to p. 2-11) or system settings. (Refer to Chapter 7.)

9. Redial key [REDIAL]
Permits the last called number to be dialed. (Refer to p. 2-8.)

10. Function key [FUNCTION]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

11. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

12. Dial keys
Use these keys to make a call or set a function.

13. Clear key [C]
Terminates the conversation.

14.Arrow keys [▲][▼][◄][►]
Use these keys to perform auto-dial registration (refer to p. 2-11) or system settings (refer to Chapter 7).

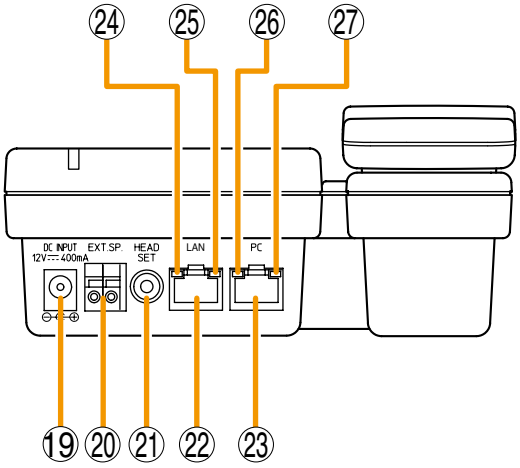
15. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

16. Paging response key [RESP.]
Responds to a paging.
(Refer to p. 2-31.)

17. Hold key [HOLD]
Places the conversation on hold.
(Refer to p. 2-14.)

18. Transfer key [TRANSFER]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

[Rear]



19. AC adapter terminal [DC INPUT]
Connect the AC adapter* to this terminal.

* Use the AD-1210P/1215P (optional) or its equivalent.

20. External speaker terminal [EXT.SP.]
An external speaker (8 Ω, 0.6 W) can be connected to this terminal. (Refer to p. 3-75.)
Shift the Speaker selector switch (29) located on the bottom surface of the unit to the EXT.SP position when using the external speaker.

21. Headset terminal [HEADSET]
Connects to a headset. Connection of the headset disables the speaker.

22. Network connection terminal [LAN]
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub eliminates the need for an AC adapter.
(Ethernet RJ-45 jack)

23. PC connection terminal [PC]
A PC can be cascaded with the station.
(Not compatible with PoE function)
(Ethernet RJ-45 jack)

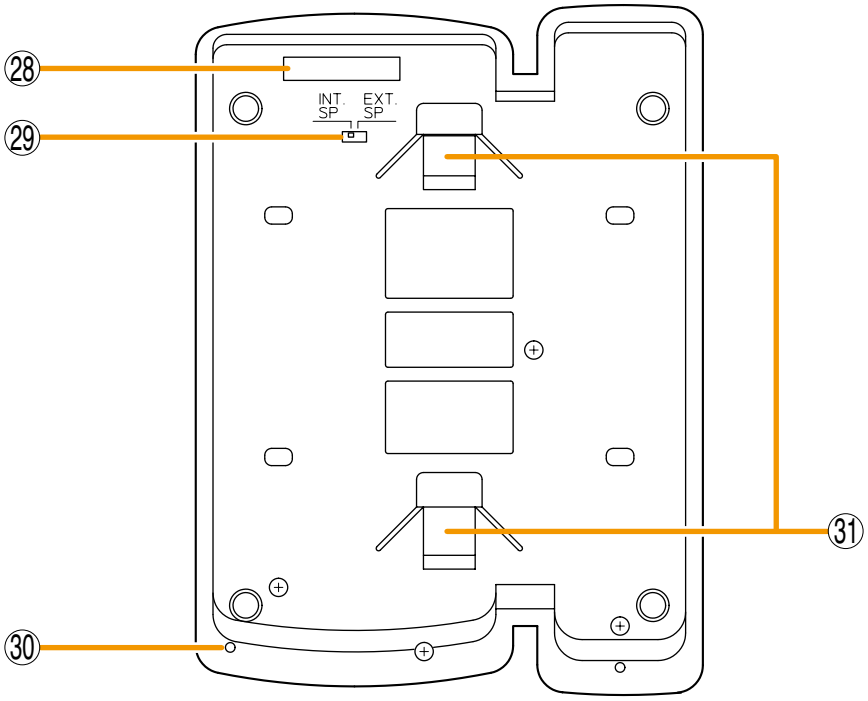
24. ACT indicator (green)
Lights while transmitting or receiving data.

25. FD indicator (yellow)
Lights when the network is in full duplex communications.

26. ACT indicator (green)
Lights while the connected PC is transmitting or receiving data.

27. FD indicator (yellow)
Lights when a PC is connected.

[Bottom]



28. MAC address
This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

29. Speaker selector switch [INT.SP/EXT.SP]
Used to select either an internal (INT.SP) or an external (EXT.SP) speaker.

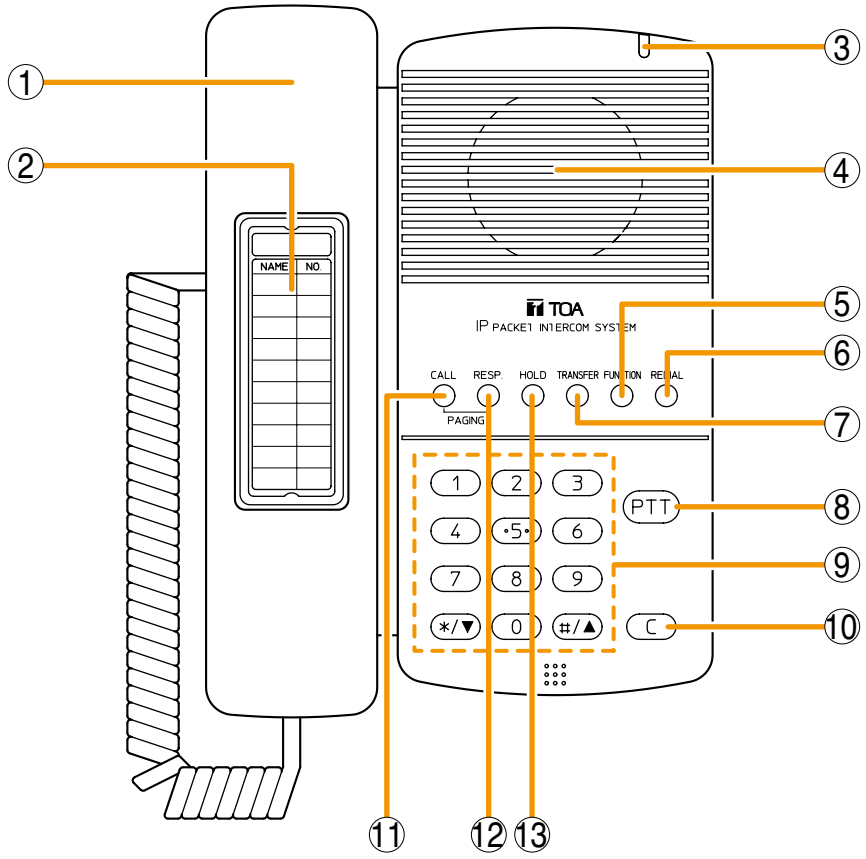
30. Microphone
Used for hands-free conversation.

Note
Avoid placing obstacles close to the microphone that might block sound and prevent conversations.

31. Wall bracket mounting slots
Hang the mounting bracket hooks to these slots when using the YC-280 Wall Mounting Bracket. (Refer to p. 3-19, p. 3-23.)

6.2.2. N-8510MS IP Standard Master Station

[Top]



1. Handset
Lift the handset for handset conversation. Lifting the handset disconnects both the hands-free microphone and the speaker.

2. Dial directory
Writes the dial registration of the party to be called to this directory.

3. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

4. Speaker
Outputs call tones and used for hands-free conversations.

5. Function key [FUNCTION]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

6. Redial key [REDIAL]
Permits the last called number to be dialed. (Refer to p. 2-8.)

7. Transfer key [TRANSFER]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

8. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

9. Dial keys
Use these keys to make a call or set a function.

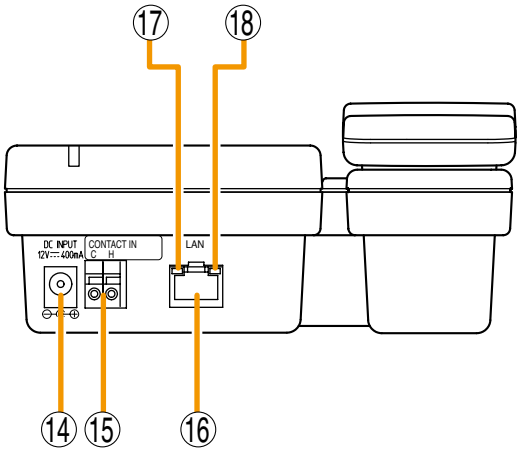
10. Clear key [C]
Terminates the conversation.

11. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

12. Paging response key [RESP.]
Responds to a paging.
(Refer to p. 2-31.)

13. Hold key [HOLD]
Places the conversation on hold.
(Refer to p. 2-14.)

[Rear]



14. AC adapter terminal [DC INPUT]
Connect the AC adapter* to this terminal.

* Use the AD-1210P/1215P (optional) or its equivalent.

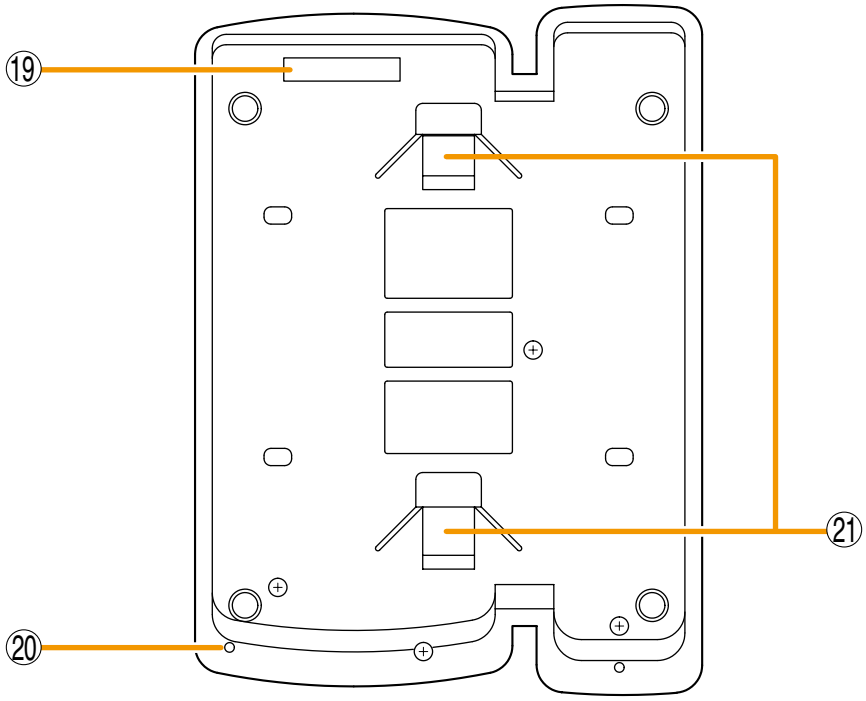
15. Message start terminal [CONTACT INPUT]
The message is broadcast by connecting this terminal to external equipment (such as a switch or a sensor) and closing this terminal by means of a make contact signal.

16. Network connection terminal [LAN]
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub eliminates the need for an AC adapter.
(Ethernet RJ-45 jack)

17. ACT indicator (green)
Lights while transmitting or receiving data.

18. FD indicator (yellow)
Lights when the network is in full duplex communications.

[Bottom]



19. MAC address

This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

20. Microphone

Used for hands-free conversation.

Note

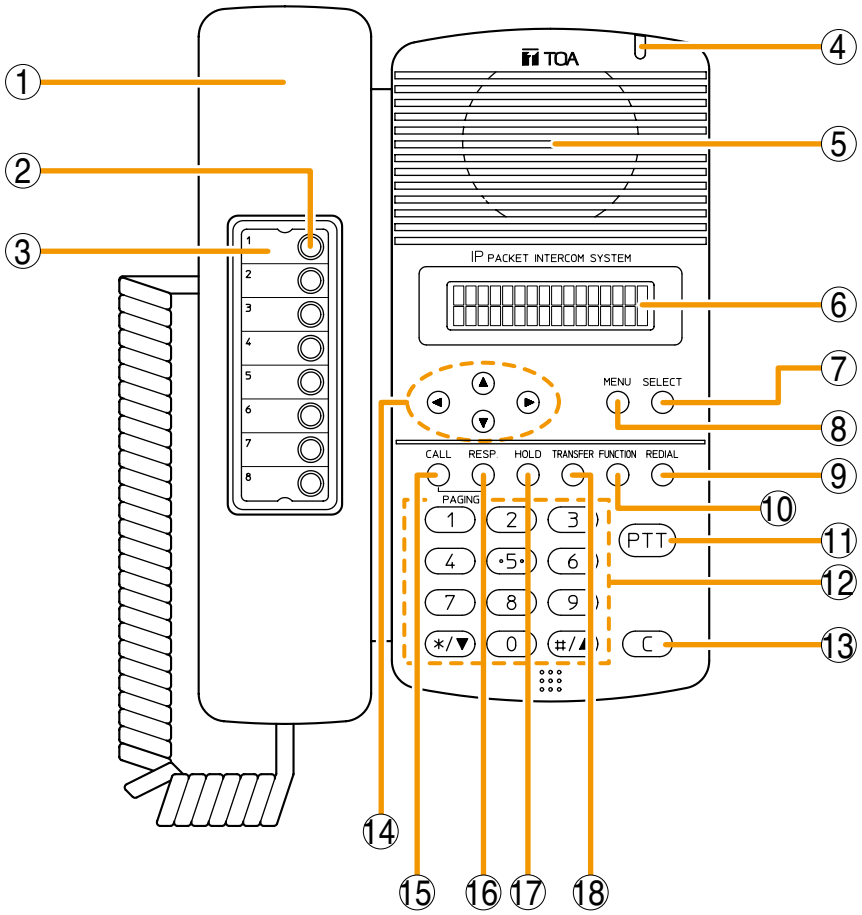
Avoid placing obstacles close to the microphone that might block sound and prevent conversations.

21. Wall bracket mounting slots

Hang the mounting bracket hooks to these slots when using the YC-280 Wall Mounting Bracket. (Refer to p. 3-19, p. 3-23.)

6.2.3. N-8600MS IP Multifunctional Master Station

[Top]



1. Handset
Lift the handset for handset conversation. Lifting the handset disconnects both the hands-free microphone and the speaker.

2. Auto-dial key
Used to call or register the party to be called. (Refer to p. 2-11.)

3. Auto-dial directory
Writes the auto-dial registration contents to this directory.

4. Status indicator (red)
Flashes when a call or paging announcement is received, continuously lights during conversation, and is off while in standby mode. The indicator also continuously lights while data is written to an internal storage memory (FlashMemory), and flashes if there is a failure.
(Refer to p. 8-14.)

5. Speaker
Outputs call tones and used for hands-free conversations.

6. Liquid crystal display
Displays the dialed number or the number of a call received in 2 lines of 16 digits. Pressing the Menu key (8) displays the menu screen.

7. Selection key [SELECT]
Used for menu item selection or input value confirmation.

8. Menu key [MENU]
Used for auto-dial registration (refer to p. 2-11) or system settings. (Refer to Chapter 7.)

9. Redial key [REDIAL]
Permits the last called number to be dialed. (Refer to p. 2-8.)

10. Function key [FUNCTION]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

11. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

12. Dial keys
Use these keys to make a call or set a function.

13. Clear key [C]
Terminates the conversation.

14.Arrow keys [▲][▼][◄][►]
Use these keys to perform auto-dial registration (refer to p. 2-11) or system settings (refer to Chapter 7).

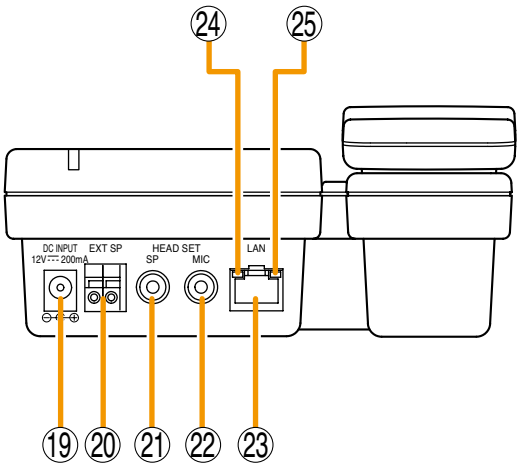
15. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

16. Paging response key [RESP.]
Responds to a paging.
(Refer to p. 2-31.)

17. Hold key [HOLD]
Places the conversation on hold.
(Refer to p. 2-14.)

18. Transfer key [TRANSFER]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

[Rear]



19. AC adapter terminal [DC INPUT]
Connect the AC adapter* to this terminal.

* Use the AD-1210P/1215P (optional) or its equivalent.

20. External speaker terminal [EXT SP]
An external speaker (8 Ω, 0.6 W) can be connected to this terminal. (Refer to p. 3-77.)
Shift the Speaker selector switch (27) located on the bottom surface of the unit to the EXT.SP position when using the external speaker.

21. Headset speaker terminal [HEAD SET SP]
Connects to a headset speaker.
When connected, the built-in station speaker is disabled.

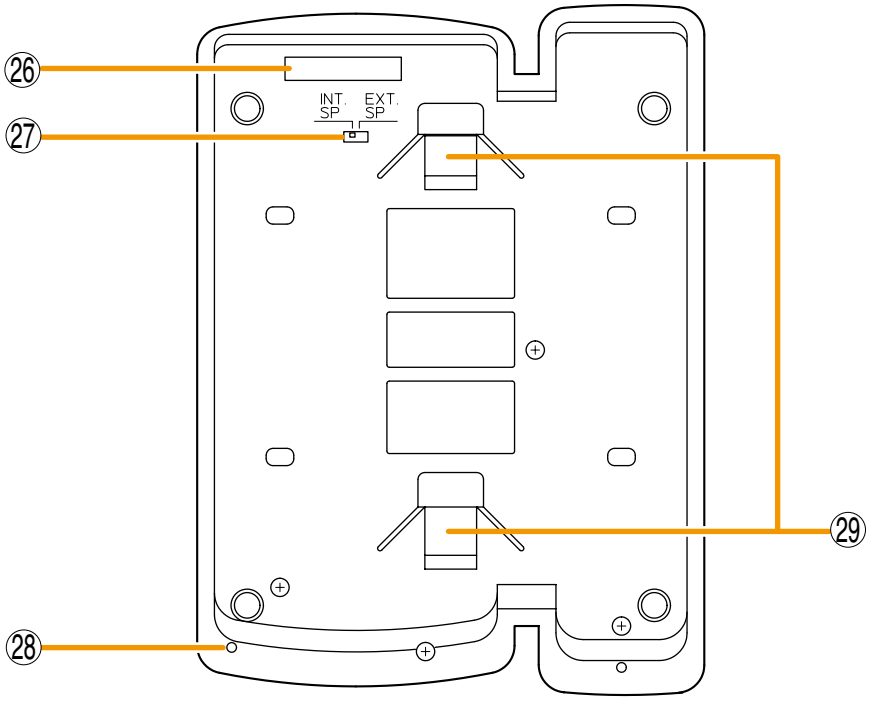
22. Headset microphone [HEAD SET MIC]
Connects to a headset microphone.

23. Network connection terminal [LAN]
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub eliminates the need for an AC adapter.
(Ethernet RJ-45 jack)

24. LNK/ACT indicator (green)
Lights when the station is connected to a network and flashes while transmitting or receiving data.

25. FD indicator (yellow)
Lights when the network is in full duplex communications.

[Bottom]



26. MAC address

This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

27. Speaker selector switch [INT.SP/EXT.SP]

Used to select either an internal (INT.SP) or an external (EXT.SP) speaker.

28. Microphone

Used for hands-free conversation.

Note

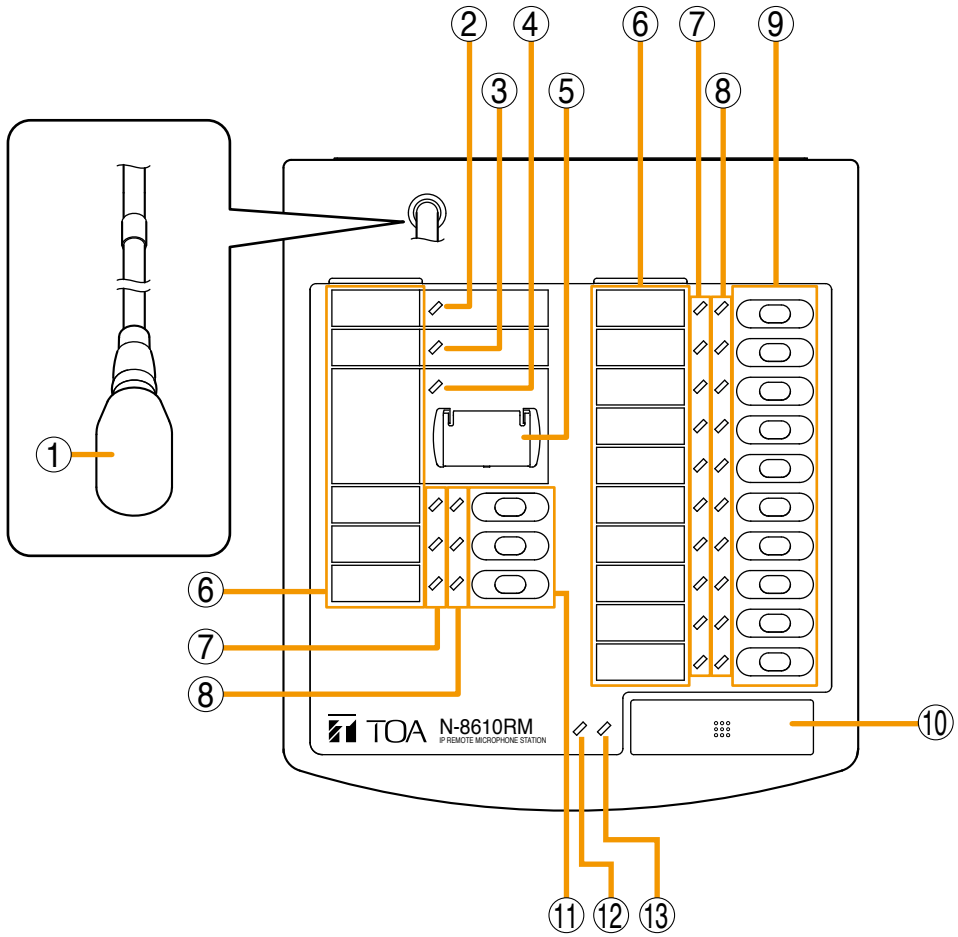
Avoid placing obstacles close to the microphone that might block sound and prevent conversations.

29. Wall bracket mounting slots

Hang the mounting bracket hooks to these slots when using the YC-280 Wall Mounting Bracket. (Refer to p. 3-19, p. 3-23.)

6.2.4. N-8610RM IP Remote Microphone Station

[Top]



1. Microphone
Used for conversation and voice announcements.

2. Power indicator (green)
Lights when the power is turned on.

3. Status indicator (red)
Flashes when a call is received, continuously lights during conversation or when a paging announcement is received, and is off while in standby mode.
The indicator also continuously lights while data is written to an internal storage memory (FlashMemory), and flashes if there is a failure.

4. Status indicator (orange/green)
Light, flash, or go off depending on the current operation state of function key (covered key).

5. Function key (covered)
Pressing a specific function key executes the function that has been assigned to that key by the N-8000 Setting Software.
Assignment of functions to specific keys is done using the N-8000 Setting Software.

6. Indication label insert slots
Labels can be printed using the SX-2000 Setting Software.
For details, refer to the instruction manual of the SX-2000 Setting Software.

7. Status indicator (orange/green)
Light, flash, or go off depending on the current operation state of function key.

8. Selection indicators (green)
Light, flash, or go off depending on the current selection state of function key.

9. Function keys (R1 – R10)
Positioned in top-down order (R1, R2 ... R10). Pressing a specific function key executes the function that has been assigned to that key by the N-8000 Setting Software.
Assignment of functions to specific keys is done using the N-8000 Setting Software.

10. Talk key

Press this key to broadcast a voice announcement and conversation.

If the Talk key is set to "PTT" ("press-to-talk") mode, then it must be pressed continuously for the duration of the broadcast. If the Talk key is set to "Lock" mode, then it must be pressed once to turn the microphone on at the beginning of a broadcast, then pressed again to turn the microphone off once the broadcast is finished. The microphone can also be set to sound a chime at the beginning and/or end of each broadcast. The Talk key mode ("PTT" or "Lock") and the chime function are set using the N-8000 Setting Software.

11. Function keys (L1 – L3)

Positioned in top-down order (L1, L2, L3). These keys operate in the same manner as the Function keys (R1 – R10) (No. 9).

12. Broadcast status indicator (orange/green/red)

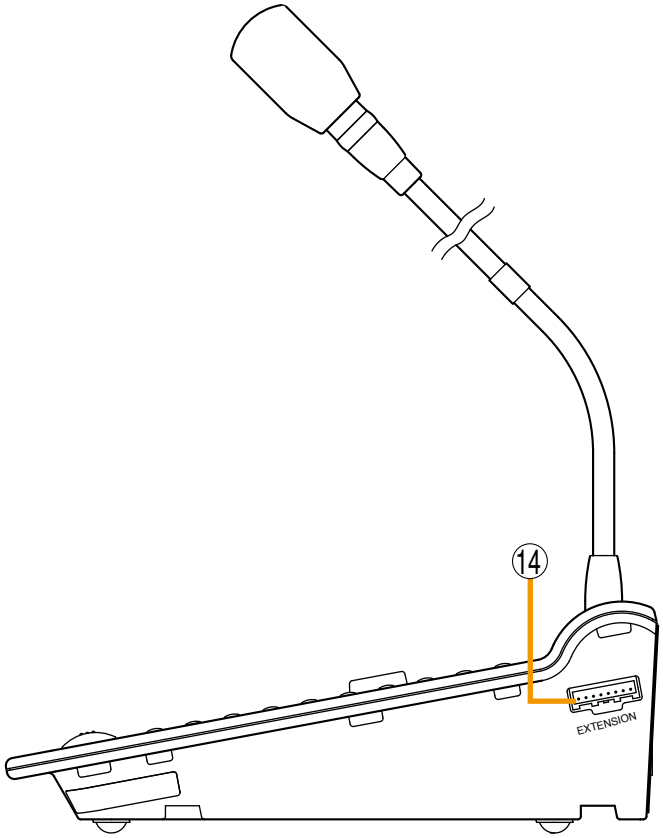
Lights, flashes, or goes off depending on the current operation state of the Talk key.

13. Microphone indicator (green)

Lights or goes off depending on the current operation state of the Talk key.

Flashes while the chime is being activated.

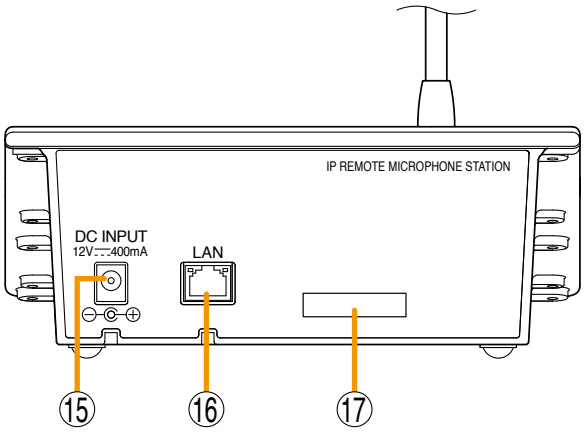
[Side]



14. RM-210 extension connector

This port is used to connect RM-210 extension units.

[Rear]



15. AC adapter terminal [DC INPUT]
Connect the AC adapter*1 to this terminal.

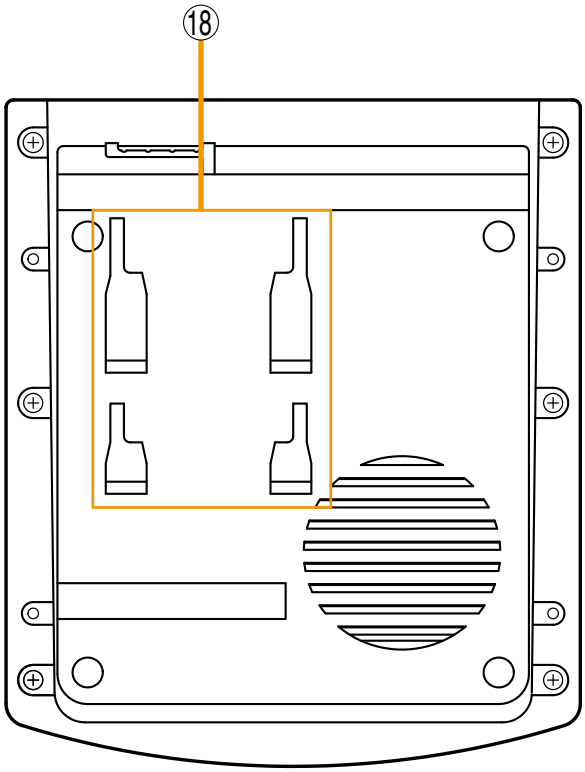
*1 Use the AD-1210P/1215P (optional) or its equivalent.

16. Network connection terminal [LAN]
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub eliminates the need for an AC adapter.
(Ethernet RJ-45 jack)

17. MAC address
This is the MAC address*2 for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

*2 The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

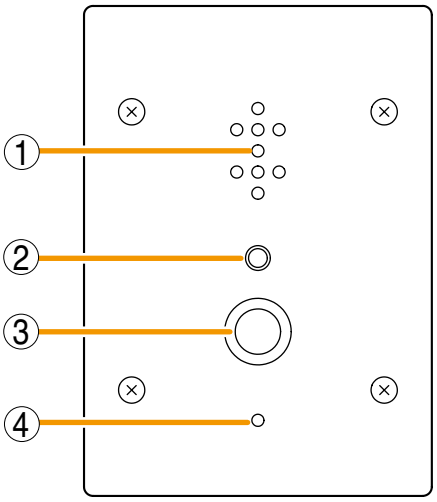
[Bottom]



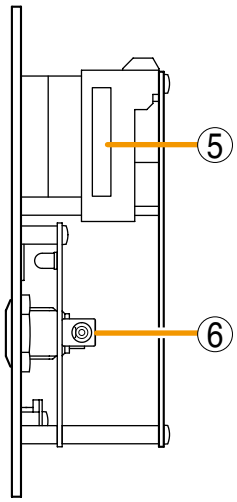
18. Wall bracket mounting slots
Hang the mounting bracket hooks to these slots when using the WB-RM200 Wall Mounting Bracket. (Refer to p. 3-32.)

6.2.5. N-8540DS IP Door Station

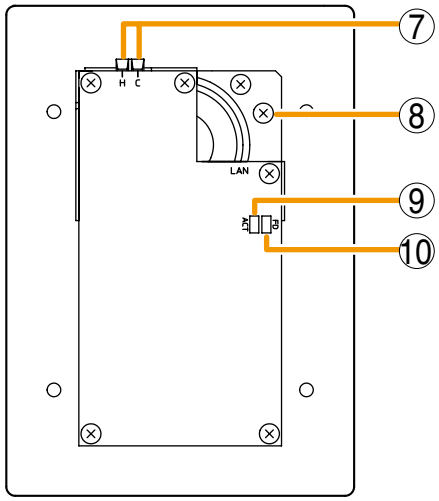
[Front]



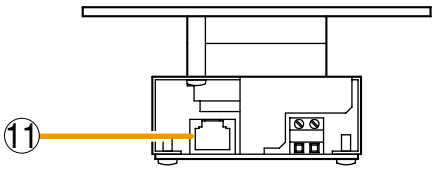
[Side]



[Rear]



[Top]



1. Speaker
Outputs call tones and used for hands-free conversations.

2. Status indicator (red)
Flashes when a call or paging announcement is received, continuously lights during conversation, and is off while in standby mode. The indicator also continuously lights while data is written to an internal storage memory (FlashMemory), and flashes if there is a failure.
(Refer to p. 8-14.)

3. Call button
Used to call the preprogrammed master station.

4. Microphone
Used for hands-free conversation.

5. MAC address
This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

6. AC adapter terminal
Connect the AC adapter* to this terminal.
* Use the AD-1210P/1215P (optional) or its equivalent.

7. Contact output terminals [H, C]
External equipment such as an electronic lock can be connected.
(Output capacity: 30 V DC and 50 mA)
(Refer to p. 2-74, p. 2-185, p. 3-79.)

8. Frame ground terminal (FG)
Ground from this terminal when the switch box is not grounded.

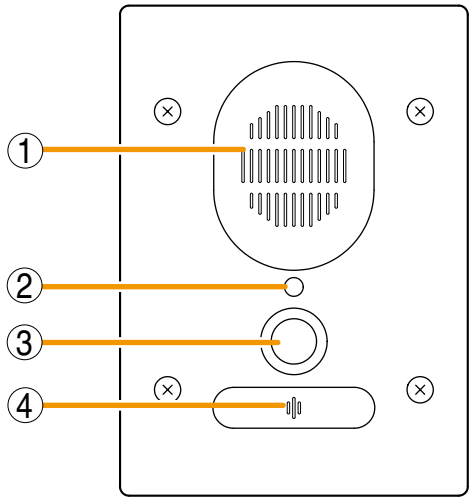
9. ACT indicator (green)
Lights while transmitting or receiving data.

10. FD indicator (yellow)
Lights when the network is in full duplex communications.

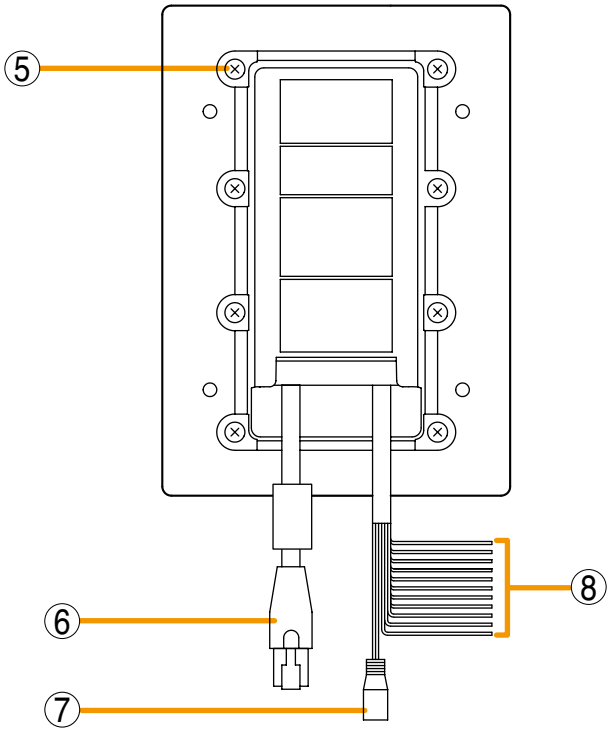
11. Network connection terminal [PC]
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub eliminates the need for an AC adapter.
(Ethernet RJ-45 jack)

6.2.6. N-8640DS IP Door Station

[Front]



[Rear]



1. Speaker
Outputs call tones and used for hands-free conversations.

2. Status indicator (red)
Flashes when a call or paging announcement is received, continuously lights during conversation, and is off while in standby mode. The indicator also continuously lights while data is written to an internal storage memory (FlashMemory), and flashes if there is a failure.
(Refer to p. 8-14.)

3. Call button
Used to call the preprogrammed master station.

4. Microphone
Used for hands-free conversation.

5. Frame ground terminal
Be sure to ground this terminal.

6. Network connection terminal [LAN]
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub eliminates the need for an AC adapter.

7. AC adapter terminal
Connect the AC adapter* to this terminal.

* Use the AD-1210P/1215P (optional) or its equivalent.

8. External connection cables

- **External contact input (HOT: Gray, COM: White)**
  Connects to an external device such as a switch and sensor.
  No-voltage make contact input (Open voltage: 5 V DC, Short-circuit current: 10 mA or less)

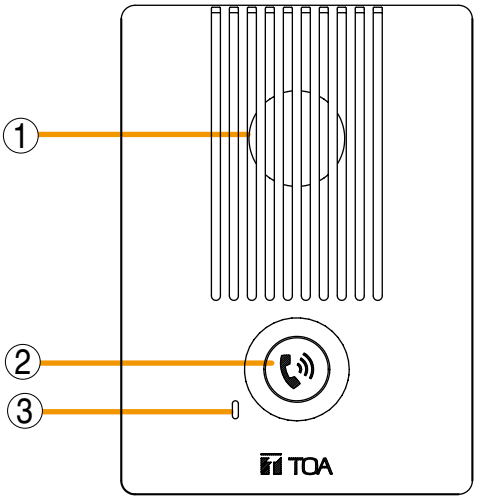
- **External contact output (Blue x 2)**
  Connects to an external device such as an electric lock.
  Relay contact output (Withstand voltage: 30 V DC max., Maximum control current: 500 mA)

- **External contact output (CH 1: Brown, CH 2: Red, CH 3: Orange, CH 4: Yellow, COM: Purple)**
  Connects to an external device such as an indicator.
  Open collector output (Withstand voltage: 30 V DC, Maximum control current: 50 mA)

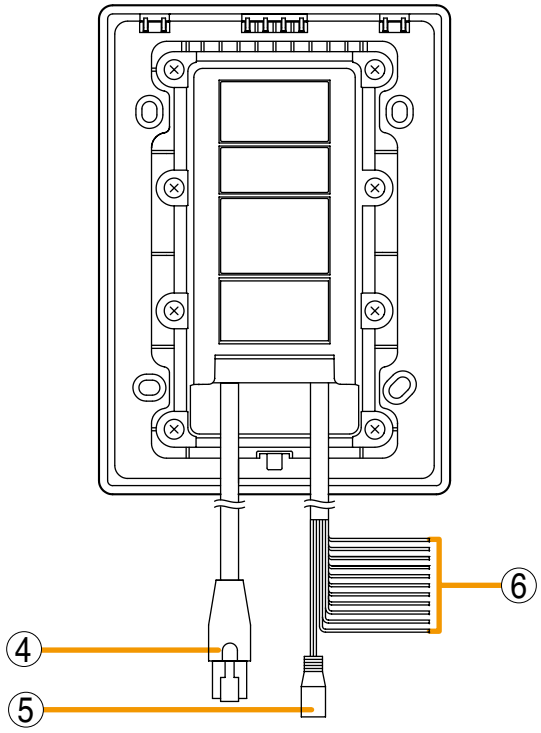
- **External speaker output (Black x 2)**
  Connects to a external speaker (8 Ω, 0.6 W or less).

6.2.7. N-8650DS IP Door Station

[Front]



[Rear]



1. Speaker
Outputs call tones and used for hands-free conversations.

2. Call button/Status indicator (red)
Used to call the preprogrammed master station.
Flashes when a call or paging announcement is received, continuously lights during conversation, and is off while in standby mode. The indicator also continuously lights while data is written to an internal storage memory (FlashMemory), and flashes if there is a failure.
(Refer to p. 8-14.)

3. Microphone
Used for hands-free conversation.

4. Network connection terminal [LAN]
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub eliminates the need for an AC adapter.

5. AC adapter terminal
Connect the AC adapter* to this terminal.

* Use the AD-1210P/1215P (optional) or its equivalent.

6. External connection cables

- **External contact input (HOT: Gray, COM: White)**
  Connects to an external device such as a switch and sensor.
  No-voltage make contact input (Open voltage: 5 V DC, Short-circuit current: 10 mA or less)

- **External contact output (Blue x 2)**
  Connects to an external device such as an electric lock.
  Relay contact output (Withstand voltage: 30 V DC max., Maximum control current: 500 mA)

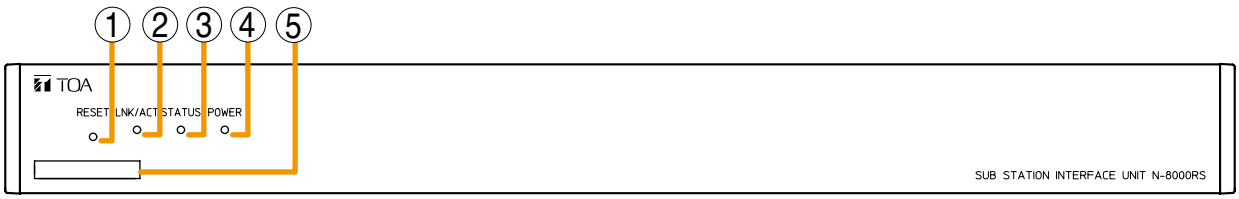
- **External contact output (CH 1: Brown, CH 2: Red, CH 3: Orange, CH 4: Yellow, COM: Purple)**
  Connects to an external device such as an indicator.
  Open collector output (Withstand voltage: 30 V DC, Maximum control current: 50 mA)

- **External speaker output (Black x 2)**
  Connects to a external speaker (8 Ω, 0.6 W or less).

6.3. Substation Interface Units and Their Connected Equipment

6.3.1. N-8000RS/8010RS 2-Core Shielded Substation Interface Unit

[Front]



Note: The figure represents the N-8000RS.

1. Reset key [RESET]
Pressing this key reactivates the unit.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

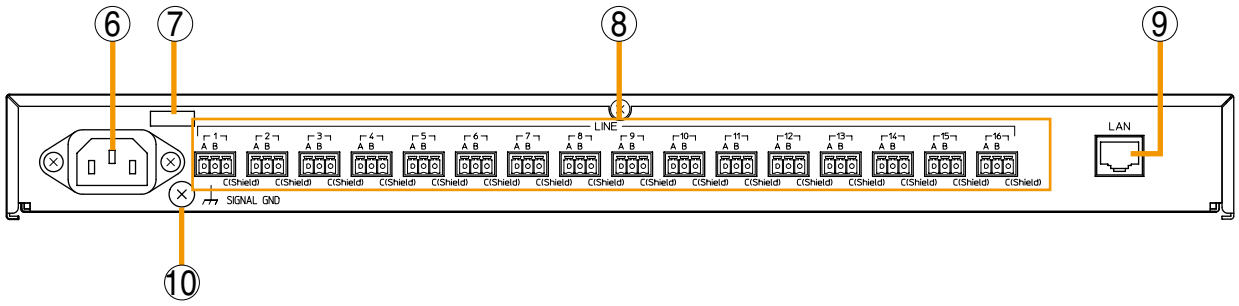
3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory), and flashes to indicate such unit malfunctions as internal cooling fan failure. (Refer to p. 8-14.)

4. Power indicator [POWER] (green)
Lights when power is supplied to the unit.

5. MAC address
This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

[Rear]



6. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

7. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-7.)

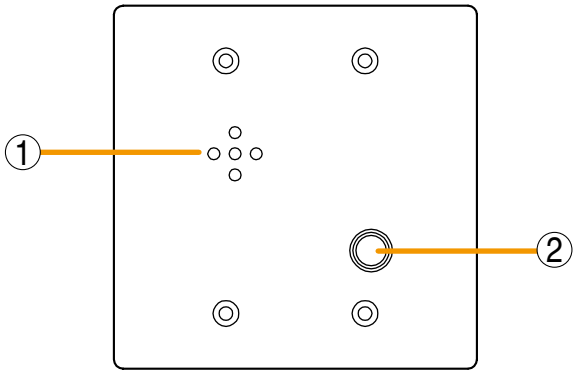
8. Substation connection terminals [LINE 1 – 16]
Use 2-core shielded cable to connect the substation to these terminals.
Use the supplied removable terminal plug for connection. (Refer to p. 3-83, "Terminal plug connection.")

9. Network connection terminal [LAN]
Connects a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

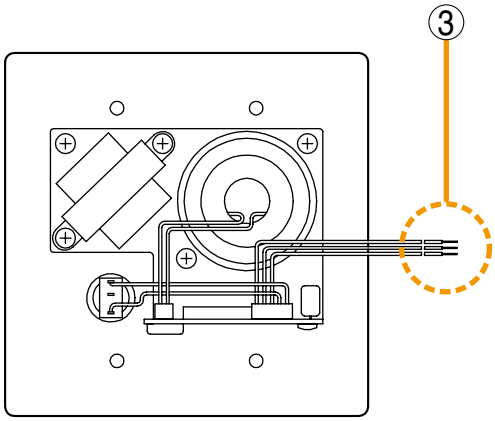
10. Functional earth terminal [SIGNAL GND]
Ground this terminal.
Note: This terminal is not for protective earth.

6.3.2. RS-150 Indoor Substation

[Front]



[Rear]



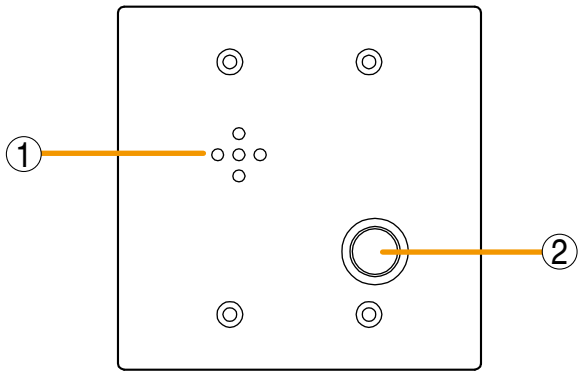
1. Speaker
Outputs call tones and used for hands-free conversations.

2. Call button
Used to call the preprogrammed master station.

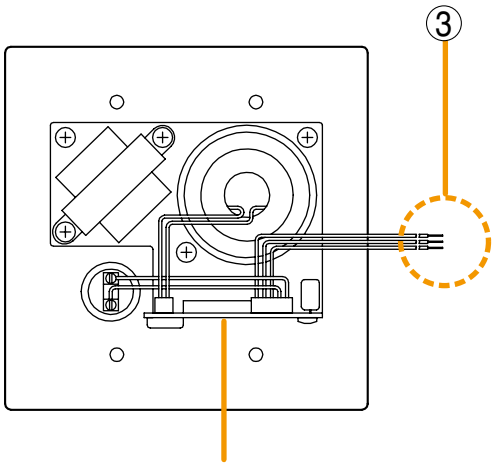
3. Connection cable (orange, brown, black)
Connects to the 2-core shielded substation interface unit.

6.3.3. RS-160 Indoor Vandal-Resistant Substation and RS-170 Outdoor Vandal-Resistant Substation

[Front]



[Rear]



The RS-170 substation has a weather-resistant coating on its printed circuit board.

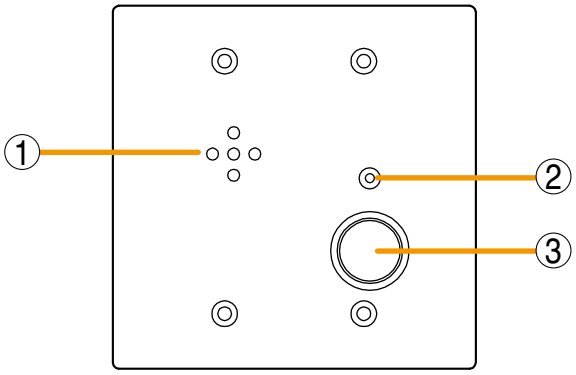
1. Speaker
Outputs call tones and used for hands-free conversations.

2. Call button
Used to call the preprogrammed master station.

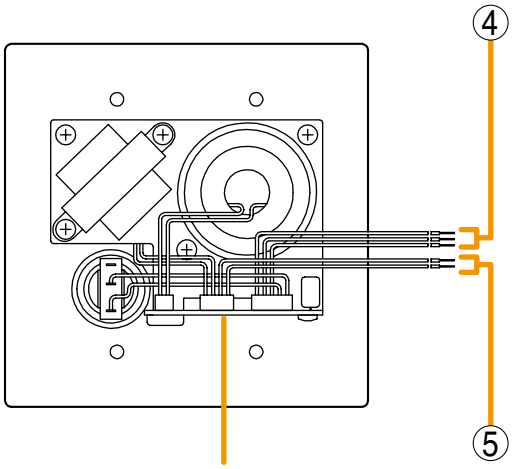
3. Connection cable (orange, brown, black)
Connects to the 2-core shielded substation interface unit.

6.3.4. RS-180 Emergency Substation

[Front]



[Rear]



The RS-180 substation has a weather-resistant coating on its printed circuit board.

1. Speaker
Outputs call tones and used for hands-free conversations.

2. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

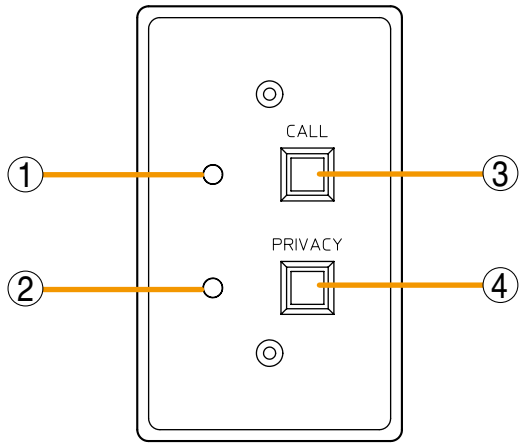
3. Call button
Used to call the preprogrammed master station.

4. Connection cable (orange, brown, black)
Connects to the 2-core shielded substation interface unit.

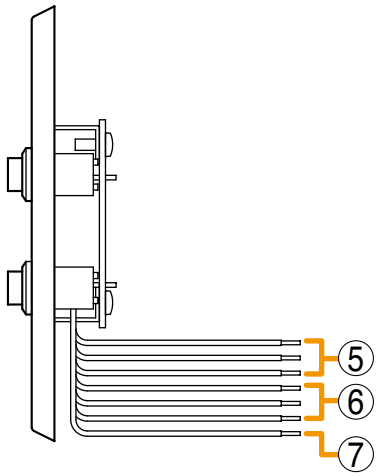
5. Control cable (blue, white)
Connectable to an external equipment such as an indicator.
A closed contact is provided only during conversation.
(Open collector output, Output capacity: 24 V DC, 30 mA)

6.3.5. RS-140 Switch Panel

[Front]



[Side]



1. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

2. Privacy indicator (red)
Lights when the station is in Privacy mode.

3. Call button [CALL]
Used to call the preprogrammed master station.

4. Privacy Button [PRIVACY]
Switches Privacy mode On and Off with each depression of this button.

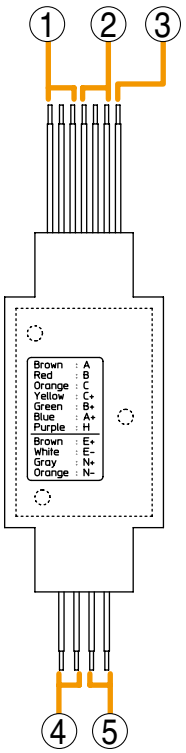
5. Connection cable (brown, red, orange)
Connects to the 2-core shielded substation interface unit.

6. Speaker cable (yellow, green, blue)
Connects to the external speaker.

7. Handset cable (purple)
Connects to the RS-141 Option Handset.

6.3.6. RS-142 Switch Board

[Front]



1. **Connection cables (Brown, Red, Orange)**
   Connects to the 2-core shielded substation interface unit.

2. **Speaker cables (Yellow, Green, Blue)**
   Connects to an external speaker.

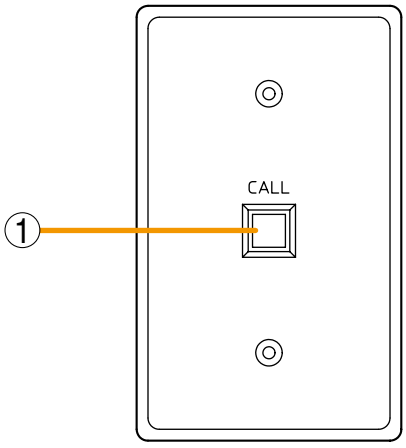
3. **Call button interlock cable (Purple)**
   Connects to the RS-141 Optional handset.

4. **Call button 1 cables (White, Brown)**
   Used to call the preprogrammed master station.

5. **Call button 2 cables (Orange, Gray)**
   Used to call the preprogrammed master station.

6.3.7. RS-143 Switch Panel

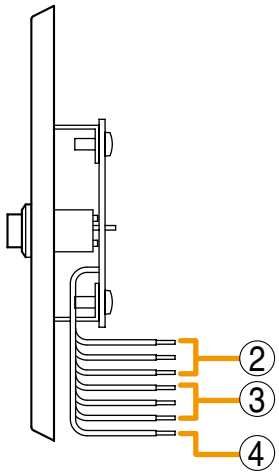
[Front]



1. **Call button [CALL]**
   Used to call the preprogrammed master station.

2. **Connection cables (Brown, Red, Orange)**
   Connects to the 2-core shielded substation interface unit.

[Side]

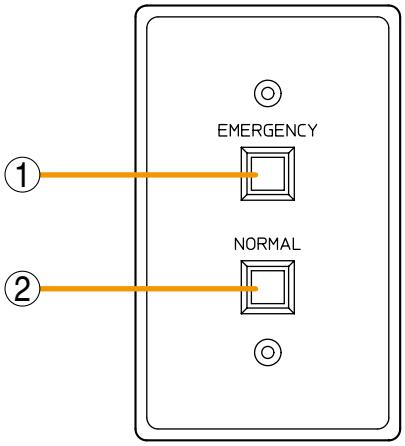


3. **Speaker cables (Yellow, Green, Blue)**
   Connects to an external speaker.

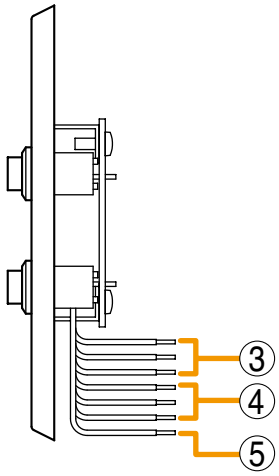
4. **Call button interlock cable (Purple)**
   Connects to the RS-141 Optional handset.

6.3.8. RS-144 Switch Panel

[Front]



[Side]



1. Emergency call button [EMERGENCY]
Used to call the preprogrammed master station.

2. Call button [NORMAL]
Used to call the preprogrammed master station.

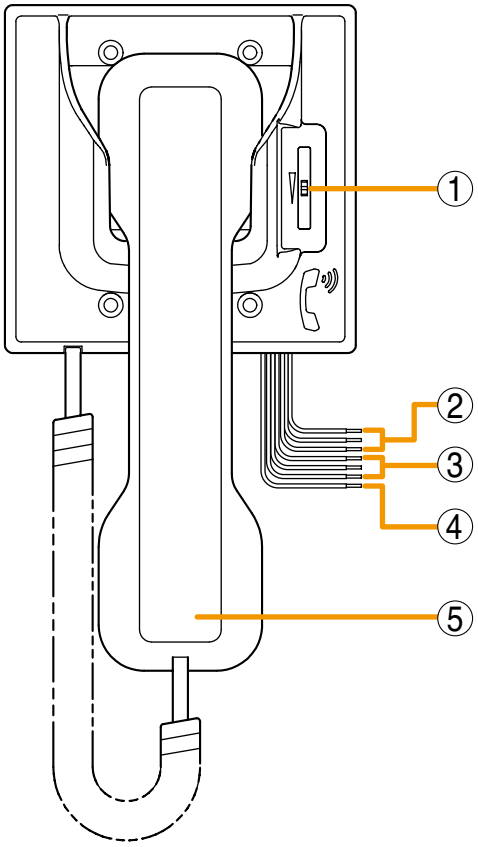
3. Connection cables (Brown, Red, Orange)
Connects to the 2-core shielded substation interface unit.

4. Speaker cables (Yellow, Green, Blue)
Connects to an external speaker.

5. Call button interlock cable (Purple)
Connects to the RS-141 Optional handset.

6.3.9. RS-141 Indoor Option Handset for RS-140/142/143/144

[Front]



1. Volume control
Adjusts the call volume heard at the handset.

2. Connection cable (brown, red, orange)
Connects to the 2-core shielded substation interface unit.

3. Speaker cable (yellow, green, blue)
Connects to the external speaker.

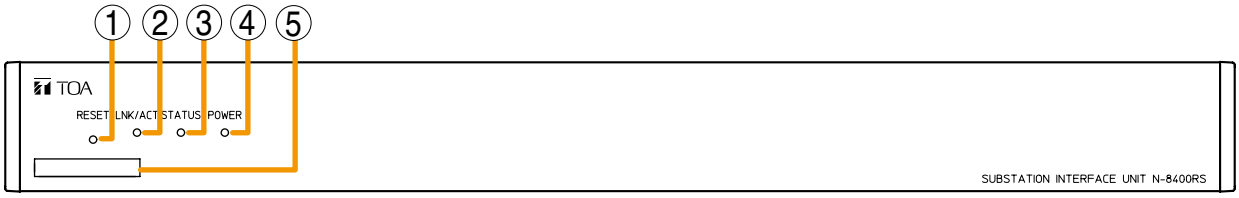
4. Handset cable (purple)
Connects to the RS-140/143/144 Switch Panel or the RS-142 Switch Board.

5. Handset
Used to make handset calls from the RS-140/143/144 Switch Panel or the RS-142 Switch Board. While this handset is used, the RS-140/142/143/144 unit's external speaker is cut off.

Note
Do not lift the handset during paging reception only when the RS-140/143/144 Switch Panel or the RS-142 Switch Board is used in conjunction with the N-8010RS Substation Interface unit.
Paging calls are not heard well through the handset.

6.3.10. N-8400RS 4-Wire Substation Interface Unit

[Front]



1. Reset key [RESET]
Pressing this key reactivates the unit.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

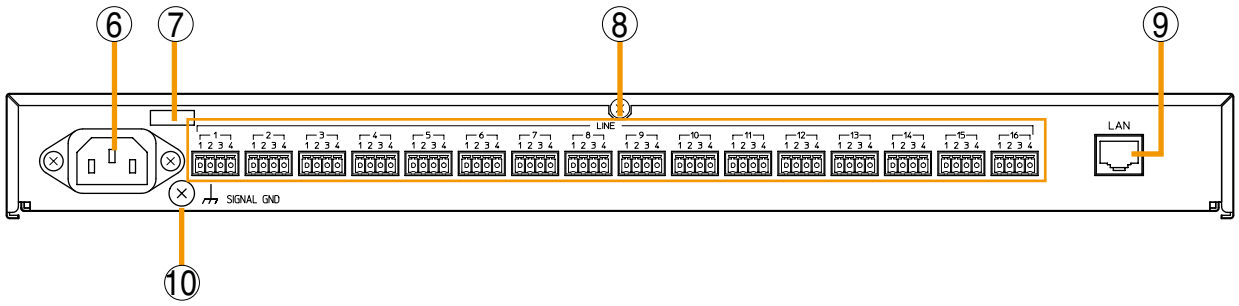
3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory), and flashes to indicate such unit malfunctions as internal cooling fan failure. (Refer to p. 8-14.)

4. Power indicator [POWER] (green)
Lights when power is supplied to the unit.

5. MAC address
This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

[Rear]



6. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

7. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-7.)

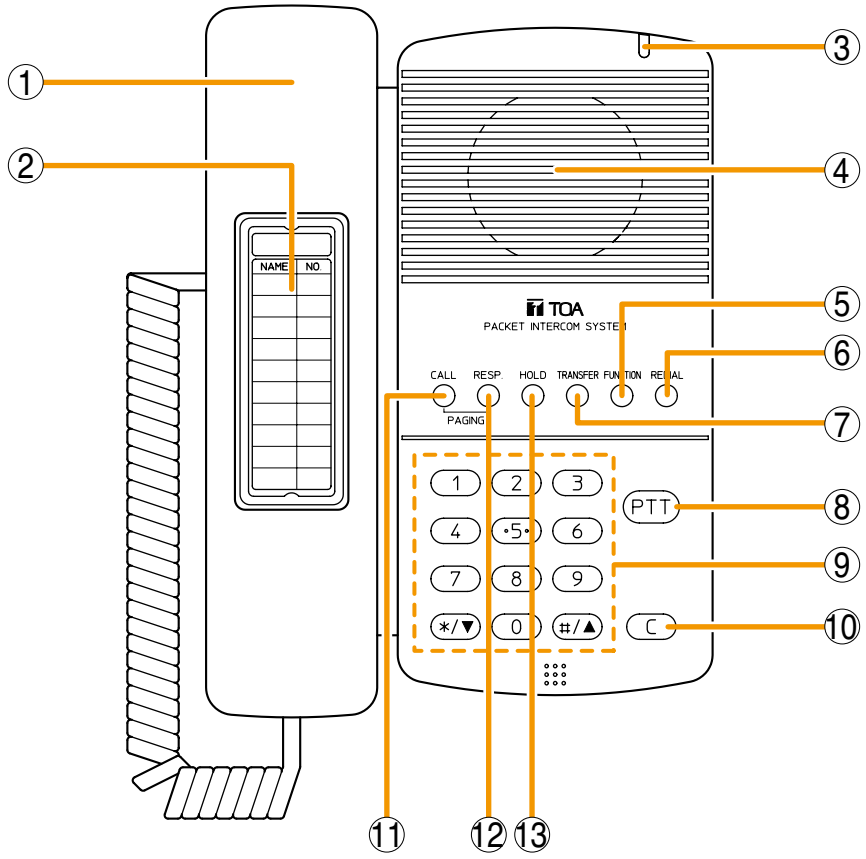
8. Substation connection terminals [LINE 1 – 16]
Connect substations to these terminals using two pairs of twisted pair cables.
Use the supplied removable terminal plug for connection. (Refer to p. 3-83, "Terminal plug connection.")

9. Network connection terminal [LAN]
Connects a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

10. Functional earth terminal [SIGNAL GND]
Ground this terminal.
Note: This terminal is not for protective earth.

6.3.11. N-8410MS Analog Standard Master Station

[Top]



1. Handset
Lift the handset for handset conversation. Lifting the handset disconnects both the hands-free microphone and the speaker.

2. Dial directory
Writes the dial registration of the party to be called to this directory.

3. Status indicator (red)
Continuously lights when a call is received or during conversation, and is unlit while in standby mode. The indicator also continuously lights while receiving a paging announcement.

4. Speaker
Outputs call tones and used for hands-free conversations.

5. Function key [FUNCTION]
Use this key to perform function settings such as assigning call transfer recipients or programming one-touch dialing.

6. Redial key [REDIAL]
Permits the last called number to be dialed. (Refer to p. 2-8.)

7. Transfer key [TRANSFER]
Used to transfer the current conversation to another station. (Refer to p. 2-15.)

8. Push-to-talk key [PTT]
Pressing this key while calling a party by means of a continuous call tone permits a voice call to be made. (Refer to p. 2-9.) Also, pressing this key during a hands-free conversation establishes a one-way conversation from the party who pressed the key. (Refer to p. 2-7.)

9. Dial keys
Use these keys to make a call or set a function.

10. Clear key [C]
Terminates the conversation.

11. Paging key [CALL]
Makes a paging. (Refer to p. 2-25.)

12. Paging response key [RESP.]
Responds to a paging.
(Refer to p. 2-31.)

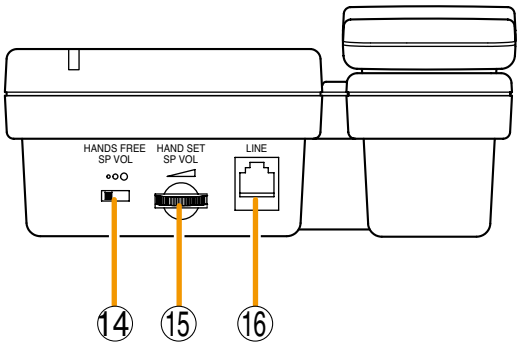
13. Hold key [HOLD]
Places the conversation on hold.
(Refer to p. 2-14.)

[Rear]

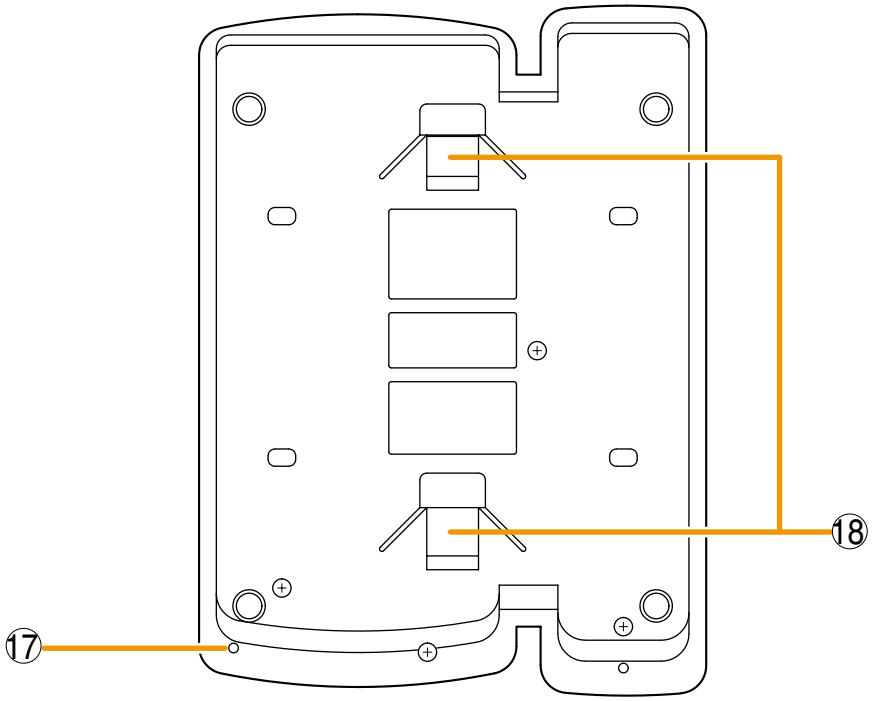
14. Hands-free speaker volume control switch [HANDS FREE SP VOL]
Adjusts the hands-free speaker volume.

15. Handset speaker volume control dial [HAND SET SP VOL]
Adjusts the handset speaker volume.

16. Line connection terminal [LINE]
Connects to the 4-wire substation interface unit. (RJ-11 modular jack)



[Bottom]



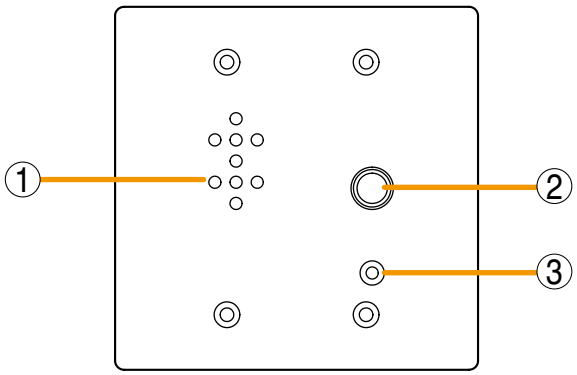
17. Microphone
Used for hands-free conversation.

Note
Avoid placing obstacles close to the microphone that might block sound and prevent conversations.

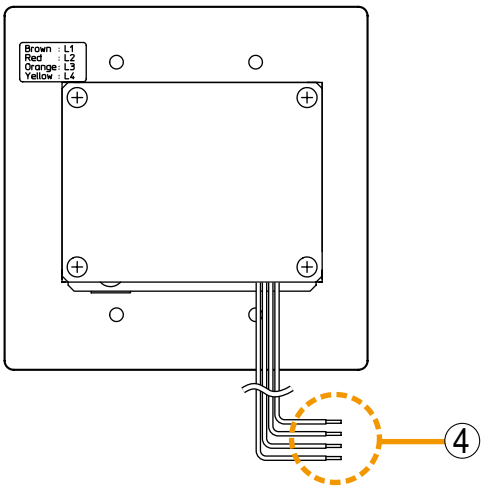
18. Wall bracket mounting slots
Hang the hooks of the mounting bracket to these slots when using the YC-280 Wall Mounting Bracket. (Refer to p. 3-19, p. 3-23.)

6.3.12. RS-450 Indoor Substation

[Front]



[Rear]



1. Speaker
Outputs call tones and used for hands-free conversations.

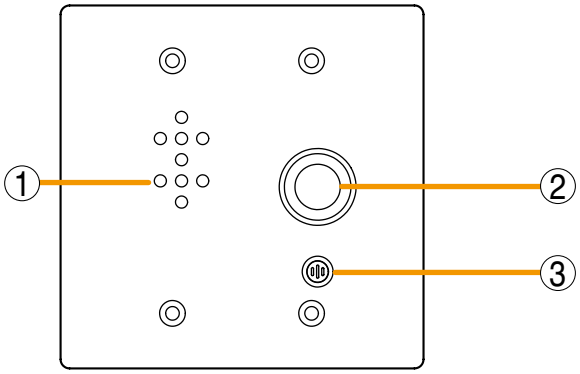
2. Call button
Used to call the preprogrammed master station.

3. Microphone
Used for hands-free conversation.

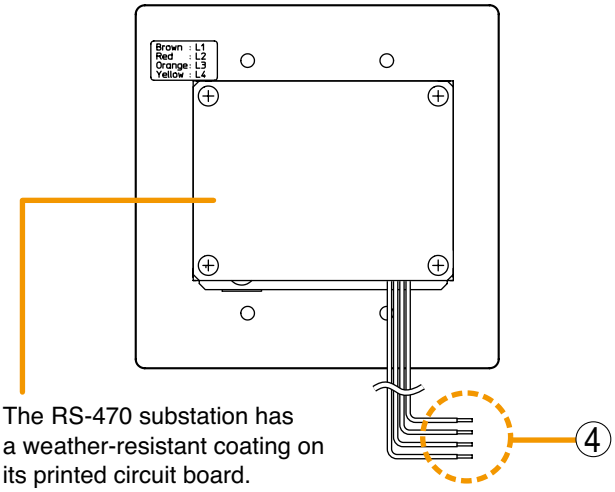
4. Connection cable (brown, red, orange, yellow)
Connects to the 4-wire substation interface unit.

6.3.13. RS-460 Indoor Vandal-Resistant Substation and RS-470 Outdoor Vandal-Resistant Substation

[Front]



[Rear]



The RS-470 substation has a weather-resistant coating on its printed circuit board.

1. Speaker
Outputs call tones and used for hands-free conversations.

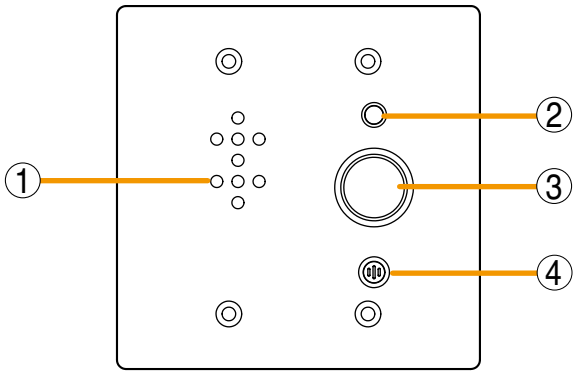
2. Call button
Used to call the preprogrammed master station.

3. Microphone
Used for hands-free conversation.

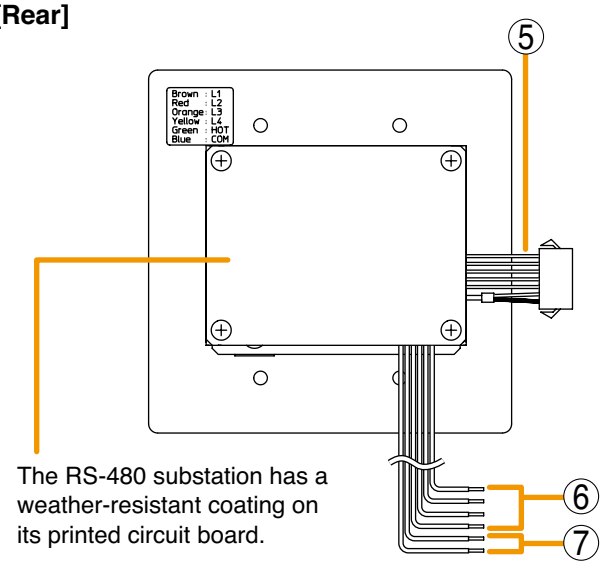
4. Connection cable (brown, red, orange, yellow)
Connects to the 4-wire substation interface unit.

6.3.14. RS-480 4-Wire Multi-Purpose Substation

[Front]



[Rear]



The RS-480 substation has a weather-resistant coating on its printed circuit board.

1. Speaker
Outputs call tones and used for hands-free conversations.

2. Status indicator (red)
Flashes when a call is received, continuously lights during a conversation, and is off while in standby mode. The indicator also continuously lights while receiving a paging announcement.

3. Call button
Used to call the preprogrammed master station.

4. Microphone
Used for hands-free conversation.

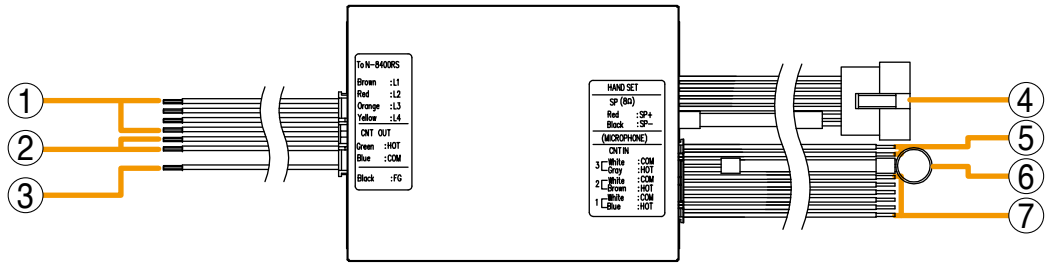
5. Handset cable (purple)
Connects to the RS-481 Option Handset.

6. Connection cable (brown, red, orange, yellow)
Connects to the 4-wire substation interface unit.

7. Control cable (blue, green)
Connectable to an external equipment such as an indicator.
A closed contact is provided only during conversation.
(Open collector output, Output capacity: 24 V DC, 30 mA)

6.3.15. RS-442 4-Wire Switch Board

[Front]



1. Connection cable (brown, red, orange, yellow)
Connects to the 4-wire substation interface unit.

2. Control cable (green, blue)
Connectable to an external indicator.
A closed contact is provided only during conversation.
(Open collector output, Output capacity: 24 V DC, 30 mA)

3. Panel connection cable (black)
Connects to a frame ground.

4. Handset cable
Connects to the RS-481 Option Handset.

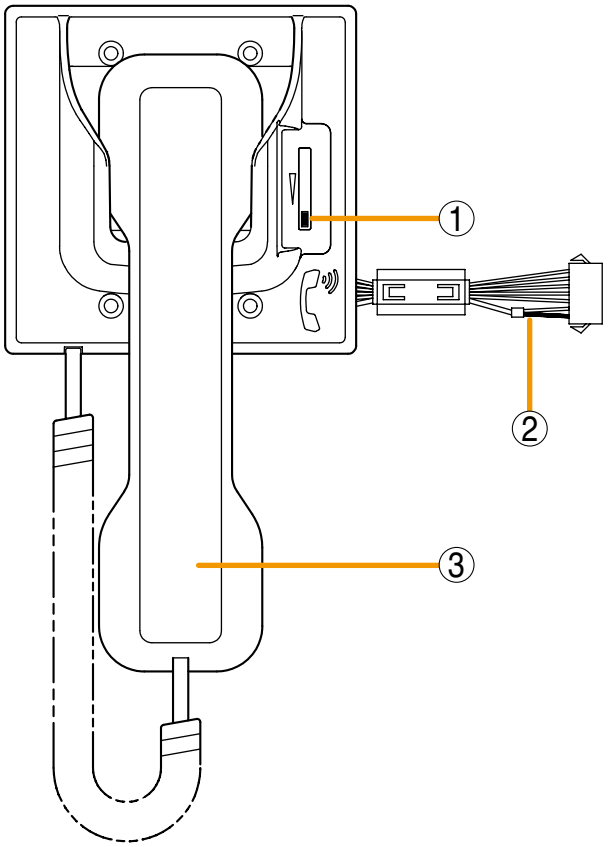
5. Speaker cable (red, black)
Connects to the external speaker.

6. Microphone
Fix the microphone to an operation panel.

7. Call button connection cables (white, gray, white, brown, white, blue)
Used to call the preprogrammed master station.
Up to 3 buttons can be connected, to each of which call destination can be assigned.

6.3.16. RS-481 Indoor Option Handset for RS-480

[Front]



1. Volume control
Adjusts the call volume heard at the handset.

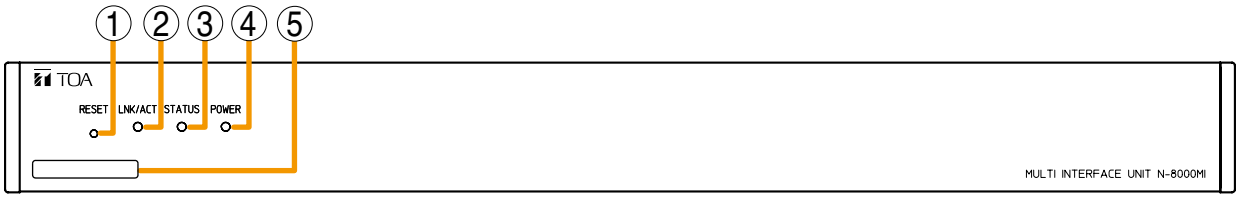
2. Handset cable (purple)
Connects to the RS-480 Substation or the RS-442 Switch Board.

3. Handset
Used to make handset calls from the RS-480 station. While this handset is used, the RS-480 station's hands-free microphone and speaker are cut off.

6.4. Interface Unit

6.4.1. N-8000MI Multi Interface Unit

[Front]



1. Reset key [RESET]
Pressing this key reactivates this unit.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

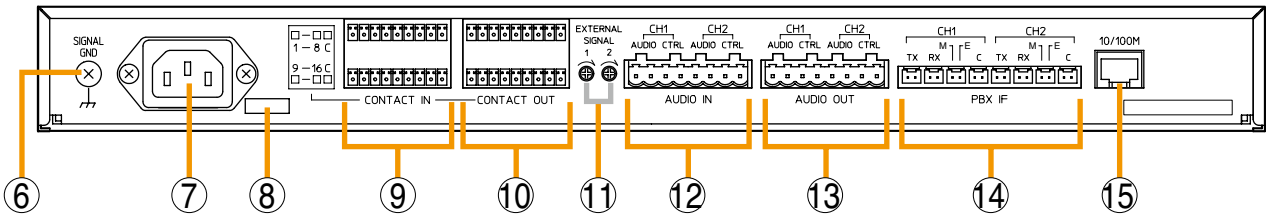
3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory).
Flashes if there is a failure. (Refer to p. 8-14.)

4. Power indicator [POWER] (green)
Lights when power is supplied to the unit.

5. MAC address
This is the MAC address*1 for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

*1 The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

[Rear]



6. Functional earth terminal [SIGNAL GND]
Be sure to ground this terminal unless the unit connects to a PBX.
Note: This terminal is not for protective earth.

7. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

8. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-10.)

9. Contact input terminals [CONTACT IN]
No-voltage make contact inputs.
Short-circuit current: 10 mA, Open-circuit voltage: 12 V
Connect using a removable terminal plug.
(Refer to p. 3-83, "Terminal plug connection.")

10. Contact output terminals [CONTACT OUT]
Relay contact outputs.
Withstand voltage: 24 V DC, Control current: Maximum 0.5 A
Connect using a removable terminal plug.
(Refer to p. 3-83, "Terminal plug connection.")

11. Input volume controls [EXTERNAL SIGNAL 1, 2]
Use these controls to adjust the audio input levels for channels 1 and 2 according to the input sources.

12. Audio input terminal [AUDIO IN]
Includes audio inputs (maximum 0 dB*2, over 10 kΩ, balanced) and contact inputs (no-voltage make contact, short-circuit current: 10 mA, open-circuit voltage: 12 V).
Connect using a removable terminal plug.
(Refer to p. 3-83, "Terminal plug connection.")

13. Audio output terminal [AUDIO OUT]
Includes audio outputs (maximum 0 dB*2, under 600 Ω, balanced) and control outputs (relay contact withstand voltage: 24 V DC, control current: maximum 0.5 A).
Each control output remains closed during audio signal output.
Connect using a removable terminal plug.
(Refer to p. 3-83, "Terminal plug connection.")

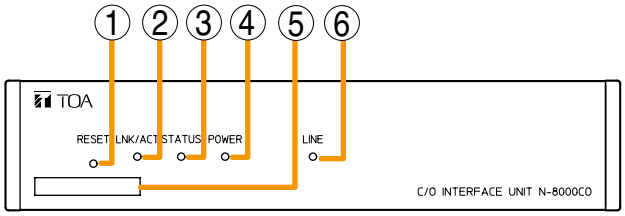
14. PBX interface terminal [PBX IF]
Connects to the Exchange of the EXES-2000 or EXES-6000 system by a tie-line, or the PBX exchange via the analog E&M interface.

15. Network connection terminal [10/100M]
Connects to a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

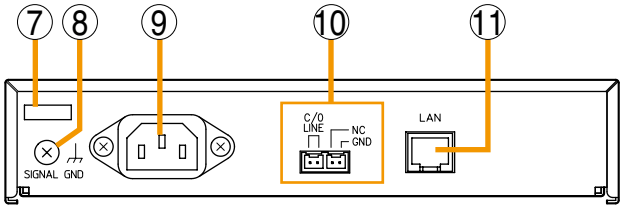
*2 0 dB = 1 V

6.4.2. N-8000CO C/O Interface Unit

[Front]



[Rear]



1. Reset key [RESET]
Pressing this key reactivates this unit.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory).
Flashes if there is a failure. (Refer to p. 8-14.)

4. Power indicator [POWER] (green)
Lights when power is supplied to the unit.

5. MAC address
This is the MAC address*1 for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

*1 The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

6. Outside line indicator [LINE] (green)
Remains lit while accessing the outside line.

7. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-17.)

8. Functional earth terminal [SIGNAL GND]
Ground this terminal.
Note: This terminal is not for protective earth.

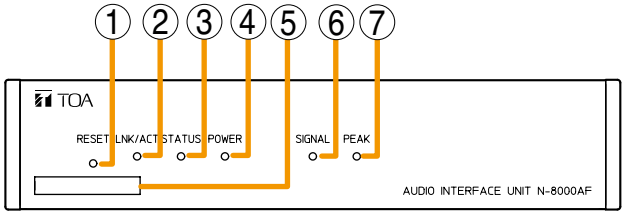
9. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

10. Outside Line Connection Terminal [C/O LINE]
Connect the outside line to this terminal using a mini-clamp connector. (Refer to p. 3-83, "Mini-clamp connector connection.")

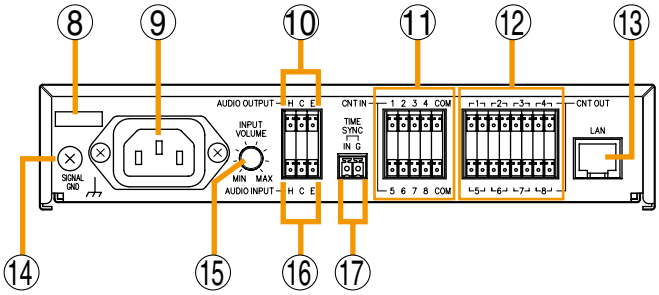
11. Network connection terminal [LAN]
Connects to a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

6.4.3. N-8000AF Audio Interface Unit

[Front]



[Rear]



1. Reset key [RESET]
Pressing this key reactivates this unit.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory).
Flashes if there is a failure. (Refer to p. 8-14.)

4. Power indicator [POWER] (green)
Lights when power is supplied to the unit.

5. MAC address
This is the MAC address*1 for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

*1 The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

6. Signal indicator [SIGNAL] (green)
Lights when audio is input.

7. Peak indicator [PEAK] (red)
Lights when over-input is applied to the audio input.

8. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-17.)

9. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

10. Audio output terminal [AUDIO OUTPUT]
This terminal connects to a recording device, etc. (Refer to p. 3-83, "Terminal plug connection.")
Max. 0 dB*2, 600 Ω or less, balanced

11. Contact input terminals [CNT IN]
No-voltage make contact inputs.
Short-circuit current: under 5 mA, Open-circuit voltage: 24 V
Connect using a removable terminal plug.
(Refer to p. 3-83, "Terminal plug connection.")

12. Contact output terminals [CNT OUT]
Relay contact outputs.
Withstand voltage: 24 V DC, Control current: 2 – 500 mA
Connect using a removable terminal plug.
(Refer to p. 3-83, "Terminal plug connection.")

13. Network connection terminal [LAN]
Connects to a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

14. Functional earth terminal [SIGNAL GND]
Ground this terminal.
Note: This terminal is not for protective earth.

15. Input volume control [INPUT VOLUME]
Adjusts the input signal level. Use this volume control to adjust the signal level to below the point where the Peak Signal Indicator begins to light.

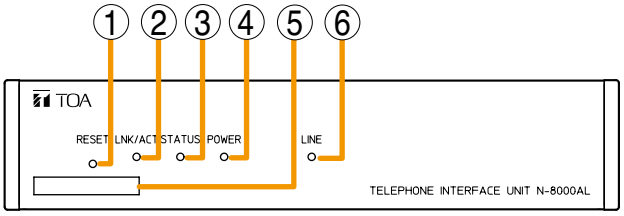
16. Audio input terminal [AUDIO INPUT]
Connect the microphone or other sound source equipment to this terminal.
Max. 0 dB*2, 2 kΩ or more, balanced

17. Time sync input terminal [TIME SYNC]
Connect the Program Timer, etc. to this terminal. Use the removable terminal plug for connection of this terminal.

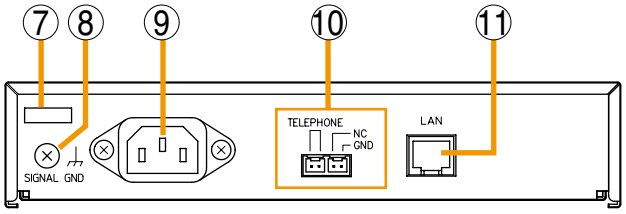
*2 0 dB = 1 V

6.4.4. N-8000AL Telephone Interface Unit

[Front]



[Rear]



1. Reset key [RESET]
Pressing this key reactivates this unit.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory).
Flashes if there is a failure. (Refer to p. 8-14.)

4. Power indicator [POWER] (green)
Lights when power is supplied to the unit.

5. MAC address
This is the MAC address*1 for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

*1 The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

6. Line indicator [LINE] (green)
Lights when the connected telephone is off-hook.

7. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-17.)

8. Functional earth terminal [SIGNAL GND]
Ground this terminal.
Note: This terminal is not for protective earth.

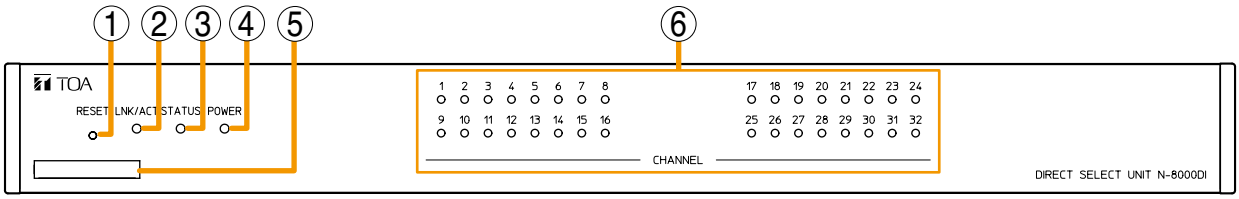
9. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

10. Telephone connection terminal [TELEPHONE]
Connect a telephone to this terminal using a mini-clamp connector. (Refer to p. 3-83, "Mini-clamp connector connection.")

11. Network connection terminal [LAN]
Connects to a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

6.4.5. N-8000DI Direct Select Unit

[Front]



1. Reset key [RESET]
Pressing this key reactivates this unit.

2. LNK/ACT indicator [LNK/ACT] (green)
Lights when connected to a network, and flashes while transmitting or receiving data.

3. Status indicator [STATUS] (red)
Continuously lights while data is written to an internal storage medium (FlashMemory).
Flashes if there is a failure. (Refer to p. 8-14.)

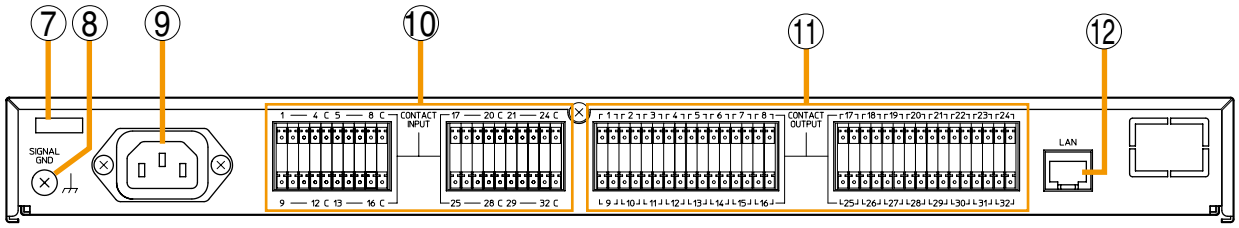
4. Power indicator [POWER] (green)
Lights when power is supplied to the unit.

5. MAC address
This is the MAC address*1 for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

*1 The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

6. Channel status indicator [CHANNEL] (green)
Lights when the contact output is ON.

[Rear]



7. Cord clamp
Pass the power cord through this clamp to ensure that the plug does not pull out when the unit is mounted to a wall. (Refer to p. 3-13.)

8. Functional earth terminal [SIGNAL GND]
Ground this terminal.
Note: This terminal is not for protective earth.

9. AC inlet
Connect the supplied power cord.
Note
If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

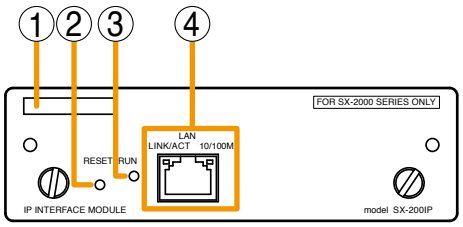
10. Contact input terminals [CONTACT INPUT]
No-voltage make contact inputs.
Short-circuit current: under 5 mA, Open-circuit voltage: 24 V
Connect using a removable terminal plug.
(Refer to p. 3-83, "Terminal plug connection.")

11. Contact output terminals [CONTACT OUTPUT]
Relay contact outputs.
Withstand voltage: 24 V DC, Control current: 2 – 500 mA
Connect using a removable terminal plug.
(Refer to p. 3-83, "Terminal plug connection.")

12. Network connection terminal [LAN]
Connects to a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)

6.4.6. SX-200IP IP Interface Module

[Front]



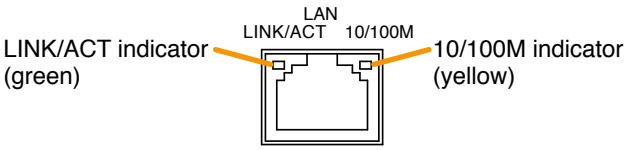
1. MAC address
This is the MAC address* for the unit. Since the relationship of each unit location to its MAC address is established when setting the network attributes, keep track of this relationship for later use.

* The inherent address assigned to each network component, expressed in 12-digit hexadecimal notation.

2. Reset key [RESET]
Pressing this key reactivates this module.

3. Run indicator [RUN]
Flashes during operation. The indicator also continuously lights while data is written to an internal storage memory (FlashMemory).

4. Network connection terminal [LAN]
Connects to a 10BASE-T- or 100BASE-TX-compatible network. (Ethernet RJ-45 jack)



LNK/ACT indicator (green)
Flashes while transmitting or receiving data.

10/100M indicator (yellow)
Lit when connected to a 100BASE-TX network and unlit when connected to a 10BASE-T network.

7. SYSTEM FUNCTION TABLE

7.1. Basic Functions

IP stations or the system consisting of Exchanges and stations makes the following functions available.

7.1.1. Master station's functions

Function		Description	Reference page	
			Operation	Setting
Conversation	Individual call	The desired party can be called by dialing its station number.	p. 2-8	——
	Redialing	Pressing the Redial key automatically redials the last number called. Only the N-8000MS/8500MS/8600MS permits selection from the most recent 10 numbers.	p. 2-8	——
	Recall	The last conversation partner can be recalled by pressing the [#/▲] key regardless of whether the call was made or received. Only the N-8000MS/8500MS/8600MS permits selection from the most recent 10 numbers.	p. 2-9	——
	Voice calling	Holding down the Push-to-talk key while making a call by means of a continuous call tone permits a voice calling to be made to the called station. The voice calling reverts to the original continuous tone call when the Push-to-talk key is released.	p. 2-9	——
	Group call	When a station is assigned to a call group, if the station is called, all stations within that group are simultaneously called by a continuous call tone regardless of their call receiving mode settings. If any one of the stations within the group responds, calls to the other stations stop.	p. 2-10	——
Incoming call selection	Automatic connection	Incoming calls are automatically connected after a brief call tone (1 second) or without a call tone.	p. 2-10	p. 5-65 p. 5-80
	Continuous call	Calls continue with a continuous call tone (or without a call tone) and a status indicator continuously flashes as long as no response is made.	p. 2-10	
Speed dialing	Auto-dialing (N-8000MS/ 8500MS/ 8600MS only)	The dial operation (up to 20-digit numbers) programmed into the station's auto dialer can be performed by one-touch dialing.	p. 2-11	p. 5-68 p. 5-83
	One-touch dialing	Programming the dial operation (up to 32-digit numbers) into the station's [7], [8], [9], [0] or off-hook (with the handset lifted) keys allows calls or other operation to be made by one-touch dialing.	p. 2-12	
	Dial pattern activation (N-8600MS only)	When the dial operation (up to 380-digit numbers) is preprogrammed into the N-8600MS as dial pattern, such programmed call can be made.	p. 2-13	p. 5-77

Function		Description	Reference page	
			Operation	Setting
Hold	Mic off	When it is desirable to hold the line during a conversation, if any dialing key ([0] – [9]) is pressed, the microphone is disabled as long as the key is pressed.	p. 2-14	——
	Call hold	Pressing the Hold key during a conversation places the conversation on hold, transmitting a hold tone to both parties. If the Hold key is pressed again, the hold mode is cancelled, and the original conversation is restored.	p. 2-14	——
Call transfer*		Current conversations can be placed on hold to call a third party by pressing the Transfer key. The original conversation can be subsequently restored or transferred to the third party after conclusion of the second call.	p. 2-15	——
Automatic transfer	Group hunting	Calls to a busy station are automatically transferred to another designated station, if group hunting function is set to the called station.	p. 2-17	p. 5-35 p. 5-62 p. 5-65 p. 5-80
	Absence transfer	When no response is made to a call for a set period of time, the call is automatically transferred to another designated station.	p. 2-19	
	Call forwarding	Calls to stations are automatically transferred to another designated station without sounding a call tone. Programming a station to which a call is to be rerouted instantly sets that station to the Call forwarding mode.	p. 2-20	
	Time-based call forwarding	Calls to stations are automatically transferred to another designated station without sounding a call tone. Even when the station to which a call is being rerouted is programmed, the station is not switched to Call forwarding mode until the set time is reached.	p. 2-21	
Remote response*		Calls to a station can be answered by pressing the Push-to-talk key of another station, provided both stations are assigned to the same group.	p. 2-22	p. 5-125
Executive priority*		If a called station is busy, as indicated by a busy tone, pressing the [9] key transmits a short priority call tone, then forcibly terminates the current conversation, allowing the call to go through. Access to priority call operation or refusal of priority calls can be set individually for each station.	p. 2-24	p. 5-67 p. 5-82
Station speaker volume setting (except N-8410MS)		Pressing the [#/▲] key during conversation increases the volume. Pressing the [∗/▼] key during conversation decreases the volume.	p. 2-5	p. 5-65 p. 5-80

* The stations connected to the N-8010EX Exchange or the N-8400RS Substation Interface Unit have restrictions on use of these functions.

Function		Description	Reference page	
			Operation	Setting
Paging	Zone paging	Calls can be made to one of the preprogrammed zones.	p. 2-25	p. 5-67 p. 5-82 p. 5-121
	Selectable paging	Calls can be made to up to 50 zones of the preprogrammed multiple zones.	p. 2-26	
	Selectable paging to individual zones or the zones set by a zone pattern (N-8600MS only)	Calls can be made by selecting a zone or zone pattern from the preprogrammed areas (zones).	p. 2-27	p. 5-77 p. 5-121
	All-call paging	Calls can be made simultaneously to all of the preprogrammed zones.	p. 2-28	p. 5-67 p. 5-82 p. 5-121
	Emergency paging	Terminates all conversations, paging calls and other operations that are currently in progress within the system, allowing announcements to be simultaneously made to all stations and all units preprogrammed to receive paging calls.	p. 2-29	p. 5-67 p. 5-82
	Message paging	Recorded Messages can be broadcast through either IP Master Station key operation or remote activation of the IP Master Station by control signals from external connected equipment. The contact outputs of the Multi Interface Unit, Direct Select Unit, and Audio Interface Unit can be made to close in synchronization with the activation of the Message paging.	p. 2-76	p. 5-70 p. 5-129
Paging response	Automatic response	Dialing the Paging Response key automatically initiates a response to the paging last received.	p. 2-31	p. 5-36 p. 5-63
	Zone number designation paging	Dialing the number assigned to paging response automatically initiates a response to a next-to-last paging.	p. 2-32	
Broadcast to SX-2000 system (N-8600MS only, only when SX-200IP is used)	Selected zone broadcast	Broadcasts can be made to the SX-2000 system zones.	p. 2-33	p. 5-28 p. 5-72 p. 5-77
	General-purpose broadcast	The General broadcast pattern having been set in the SX-2000 system can be activated.	p. 2-34	
	BGM broadcast	The BGM pattern having been set in the SX-2000 system can be activated.	p. 2-35	
	Control output activation	The control output of the SX-2000 system can be activated.	p. 2-37	
	Multi-operation activation	Multiple operations including the SX-2000 selected zone broadcast, SX-2000 system's control output pattern activation, and N-8000 paging can be performed at the same time.	p. 2-39	p. 5-28 p. 5-72 p. 5-77 p. 5-121
Other functions	Scan monitor	The ambient audio of multiple preprogrammed stations can be monitored in preprogrammed sequence from the station. Designating the stations by operation of the master station also permits them to be monitored in designated sequence.	p. 2-44	p. 5-69 p. 5-84
	Three-party conference	Simultaneous three-party handset conference calls can be held by calling other Master Stations in sequence.	p. 2-46	—

Function		Description	Reference page	
			Operation	Setting
Other functions	Time signal	Schedules can be set, changed or suspended. The Time Signal operates according to programmed schedules.	p. 2-50	p. 5-107
	PBX connection	If the Multi interface unit is connected to the PBX's analog E&M interface, calls or conversations can be mutually made between the N-8000 system's stations and the PBX's extension telephones or paging calls can be initiated from the PBX extension telephone.	p. 2-56	p. 5-45
	Outside line connection	The use of the C/O Line Interface Unit allows the Master Station to make or receive calls to or from the outside line telephone.	p. 2-58	p. 5-90
	Tie-line connection	Using the Multi interface unit for tie-line connection between the N-8000 Series intercom system exchange and other series intercom system exchanges via 4-wire private lines permits calls, conversations, or paging to be mutually made between stations connected to the tie-lined exchanges.	p. 2-67	p. 5-45
	BGM	Connecting playback components to the Multi interface unit permits Background music selectable from up to 8 programs to be heard from each station speaker while in standby mode.	p. 2-69	p. 5-36 p. 5-45 p. 5-63
	External equipment control	Through operation of the station, external equipment can be controlled by transmitting a one-shot make output signal or make/break contact signal to the contact of the designated Multi-Interface, Direct Select unit, or Audio Interface unit, or by transmitting a one-shot make output signal to the contact of the designated door station.	p. 2-71	p. 5-35 p. 5-43 p. 5-49 p. 5-62 p. 5-67 p. 5-82 p. 5-106 p. 5-110 p. 5-114 p. 5-117
	Audio trigger	Activates alarm operation if audio input to the microphone or the preprogrammed N-8050DS Door Station or N-8640DS/8650DS IP Door station meets set conditions.	p. 2-78	p. 5-67 p. 5-81
	Door remote control	Electronic locks or other external devices can be controlled through utilization of the Door Station's contact output. If a Master Station engaged in conversation with a Door Station activates the Remote Door Control function, the Door Station's contact output closes for a specified period of time. Similarly, the contact output of the Multi-Interface Unit, the Direct Select Unit, and the Audio Interface Unit can also be controlled.	p. 2-74	p. 5-35 p. 5-37 p. 5-62 p. 5-64 p. 5-66 p. 5-80 p. 5-97 p. 5-100
	IP door station's speaker output switching control (only when the N-8640DS/ 8650DS is used)	The audio output destination of the N-8640DS/8650DS IP door station engaged in conversations with the master station can be switched to either the internal speaker or the speaker connected to the external speaker terminal by the master station's dial operation. The switched audio output destination reverts to the internal speaker when the conversations terminate or when interrupted by paging with higher priority.	p. 2-81	p. 5-66
	Access code authentication	Usage of the master station can be restricted when the access code authentication (4-digit password) is enabled. If authentication fails, such operations as calling, scan monitor, and paging calls cannot be made. Call response and emergency operations are not subject to access code authentication.	p. 2-82	p. 5-66 p. 5-81

7.1.2. Remote microphone station's functions

Function		Description	Reference page	
			Operation	Setting
Conversation	Individual call	The desired party can be called by pressing the station call key into which the station number to be called is programmed.	p. 2-95	p. 5-76
Incoming call selection	Automatic connection	Incoming calls are automatically connected after a brief call tone (1 second) or without a call tone.	p. 2-96	p. 5-65
	Continuous call	Calls continue with a continuous call tone (or without a call tone) and a status indicator continuously flashes as long as no response is made.		
Speed dialing	One-touch dialing	Programming the dial operation (up to 32-digit numbers) into a station key allows paging or other operation to be performed by one-touch dialing.	p. 2-100	p. 5-68
	Dial pattern activation	When the dial operation (up to 380-digit numbers) is preprogrammed into the Remote microphone station as a dial pattern, such programmed paging can be made.	p. 2-100	p. 5-78
Privacy		The Privacy function refuses station calls and all paging except Emergency paging calls.	p. 2-101	p. 5-75
Paging	Selectable paging	Calls can be made to up to 50 zones of the preprogrammed multiple zones (N-8000 paging zones and paging zone patterns).	p. 2-102	p. 5-67 p. 5-121
Paging response	Automatic response	Dialing the Paging Response key automatically initiates a response to the paging last received.	p. 2-105	p. 5-63
	Zone number designation paging	Dialing the number assigned to paging response automatically initiates a response to the last zone-designated paging.		
Broadcast to SX-2000 system (only when SX-200IP is used)	Selected zone broadcast	Broadcasts can be made to the SX-2000 system zones.	p. 2-106	p. 5-28 p. 5-72 p. 5-77
	General-purpose broadcast	The General broadcast pattern having been set in the SX-2000 system can be activated.	p. 2-110	
	BGM broadcast	The BGM pattern having been set in the SX-2000 system can be activated.	p. 2-111	
	Control output activation	The control output of the SX-2000 system can be activated.	p. 2-111	
	Multi-operation activation	Multiple operations including the SX-2000 selected zone broadcast, SX-2000 system's control output pattern activation, and N-8000 paging can be performed at the same time.	p. 2-112	p. 5-28 p. 5-72 p. 5-77 p. 5-121
Hold	Mic off	When it is desirable to hold the line during a conversation, if any dialing key ([0] – [9]) is pressed, the microphone is disabled as long as the key is pressed.	p. 2-14	—
	Call hold	Pressing the Hold key during a conversation places the conversation on hold, transmitting a hold tone to both parties. If the Hold key is pressed again, the hold mode is cancelled, and the original conversation is restored.	p. 2-14	—

Function		Description	Reference page	
			Operation	Setting
Call Transfer		Current conversations can be placed on hold to call a third party by pressing the Transfer key. The original conversation can be subsequently restored or transferred to the third party after conclusion of the second call.	p. 2-15	—
Automatic transfer	Group hunting	Calls to a busy station are automatically transferred to another designated station, if group hunting function is set to the called station.	p. 2-17	p. 5-62 p. 5-65
	Absence transfer	When no response is made to a call for a set period of time, the call is automatically transferred to another designated station.	p. 2-19	
	Call forwarding	Calls to stations are automatically transferred to another designated station without sounding a call tone. Programming a station to which a call is to be rerouted instantly sets that station to the Call forwarding mode.	p. 2-20	
	Time-based call forwarding	Calls to stations are automatically transferred to another designated station without sounding a call tone. Even when the station to which a call is being rerouted is programmed, the station is not switched to Call forwarding mode until the set time is reached.	p. 2-21	
Remote response		Calls to a station can be answered by pressing the Push-to-talk key of another station, provided both stations are assigned to the same group.	p. 2-22	p. 5-125
Executive priority		If a called station is busy, as indicated by a busy tone, pressing the [9] key transmits a short priority call tone, then forcibly terminates the current conversation, allowing the call to go through. Access to priority call operation or refusal of priority calls can be set individually for each station.	p. 2-24	p. 5-67
Station speaker volume setting		Pressing the [#/▲] key during conversation increases the volume. Pressing the [∗/▼] key during conversation decreases the volume.	p. 2-98	p. 5-65
Microphone indicator		The broadcast status indicator on the left side of the Talk key can be switched to act as a microphone indicator.	p. 2-115	—

7.1.3. Door station's functions

Function	Description	Reference page	
		Operation	Setting
Call	Pressing the call button allows the preprogrammed Master Station or the analog telephone connected to the N-8000AL unit to be called.	p. 2-117	p. 5-68 p. 5-83
Emergency call	Emergency calls can be made by quickly pressing the call button twice in sequence.	p. 2-119	p. 5-67 p. 5-82
Conversation	Since a call received is automatically connected, it is possible to answer the call with no need to perform any response operation.	p. 2-119	—
Audio trigger (N-8050DS/8640DS/8650DS only)	Automatically makes a call when audio is detected under preprogrammed conditions.	p. 2-120	p. 5-67 p. 5-81
Call button restriction (N-8050DS/8640DS/8650DS only)	Pressing the Call button 3 times within 3 seconds performs calling operation. This function will prevent calls by accidental depression of the button.	p. 2-122	p. 5-67 p. 5-82

7.1.4. Substation's and switch panel's functions

Function	Description	Reference page	
		Operation	Setting
Call	Pressing the call button allows the preprogrammed Master Station or the analog telephone connected to the N-8000AL unit to be called.	p. 2-123	p. 5-56
Handset conversation	Allows handset conversations by using the RS-140/143/144 Switch Panel or the RS-142 Switch Board in combination with the RS-141 Handset or the RS-480 Substation or the RS-442 Switch Board in combination with the RS-481 Handset.	p. 2-125	—
Emergency call	Emergency calls can be made by quickly pressing the call button twice in sequence.	p. 2-126	p. 5-57
Conversation	Since a call received is automatically connected, it is possible to answer the call with no need to perform any response operation.	p. 2-128	—
Privacy (RS-140 only)	Pressing the Privacy button (when its indicator is unlit) switches on Privacy mode. No calls can be made or received while the station is in Privacy mode.	p. 2-129	—
Call button restriction (RS-150/160/170/450/460/470/480/442 only)	Pressing the Call button 3 times within 3 seconds performs calling operation. This function will prevent calls by accidental depression of the button.	p. 2-130	p. 5-57

7.1.5. Telephone's functions

Function		Description	Reference page	
			Operation	Setting
Conversation	Individual call	Calls can be made to the desired station by dialing its number.	p. 2-134	——
	Group call	When a station is assigned to a call group, if the station is called, all stations within that group are simultaneously called by a continuous call tone regardless of their call receiving mode settings. If any one of the stations within the group responds, calls to the other stations stop.	p. 2-134	p. 5-99
Call transfer		By hook-flashing (momentarily depressing the hook switch) a third party can be called to switch from a two-party conversation to a three-party conference call, and the third party conversation returned to the original two-party conversation or switched to a conversation between the original conversation partner and the called third party.	p. 2-135	——
Automatic transfer	Group hunting	Calls to a busy station are automatically transferred to another designated station, if group hunting function is set to the called station.	p. 2-137	p. 5-97 p. 5-99
	Absence transfer	When no response is made to a call for a set period of time, the call is automatically transferred to another designated station.	p. 2-139	
	Call forwarding	Calls to stations are automatically transferred to another designated station without sounding a call tone. Programming a station to which a call is to be rerouted instantly sets that station to the Call forwarding mode.	p. 2-140	
	Time-based call forwarding	Calls to stations are automatically transferred to another designated station without sounding a call tone. Even when the station to which a call is being rerouted is programmed, the station is not switched to Call forwarding mode until the set time is reached.	p. 2-141	
Executive priority		If a called station is busy, as indicated by a busy tone, pressing the [9] key transmits a short priority call tone, then forcibly terminates the current conversation, allowing the call to go through. Access to priority call operation or refusal of priority calls can be set individually for each station.	p. 2-142	p. 5-100

Function		Description	Reference page	
			Operation	Setting
Paging	Zone paging	Calls can be made to one of the preprogrammed zones.	p. 2-143	p. 5-100 p. 5-121
	Selectable paging	Calls can be made to up to 50 zones of the preprogrammed multiple zones.	p. 2-144	
	All-call paging	Calls can be made simultaneously to all of the preprogrammed zones.	p. 2-145	
	Emergency paging	Terminates all conversations, paging calls and other operations that are currently in progress within the system, allowing announcements to be simultaneously made to all stations and all units preprogrammed to receive paging calls.	p. 2-146	p. 5-100
Other functions	Scan monitor	The ambient audio of multiple preprogrammed stations can be monitored in preprogrammed sequence from the station. Designating the stations by the telephone operation also permits them to be monitored in designated sequence.	p. 2-148	p. 5-101
	Door remote control	Electronic locks or other external devices can be controlled through utilization of the Door Station's contact output. If a telephone engaged in conversation with a Door Station activates the Remote Door Control function, the Door Station's contact output closes for a specified period of time. Similarly, the contact output of the Multi-Interface Unit, the Direct Select Unit, and the Audio Interface Unit can also be controlled.	p. 2-153	p. 5-35 p. 5-37 p. 5-62 p. 5-64 p. 5-66 p. 5-80 p. 5-97 p. 5-100
	External equipment control	Through operation of the telephone, external equipment can be controlled by transmitting a one-shot make output signal or make/break contact signal to the contact of the designated Multi-Interface, Direct Select unit, or Audio Interface unit, or by transmitting a one-shot make output signal to the contact of the designated door station.	p. 2-150	p. 5-35 p. 5-43 p. 5-49 p. 5-62 p. 5-100 p. 5-106 p. 5-110 p. 5-114 p. 5-117
	IP door station's speaker output switching control (only when the N-8640DS/ 8650DS is used)	The audio output destination of the N-8640DS/8650DS IP door station engaged in conversations with the telephone can be switched to either the internal speaker or the speaker connected to the external speaker terminal by the telephone's dial operation. The switched audio output destination reverts to the internal speaker when the conversations terminate or when the condition changes.	p. 2-155	p. 5-66
	Access code authentication	Usage of the telephone can be restricted when the access code authentication (4-digit password) is enabled. If authentication fails, such operations as calling, scan monitor, and paging calls cannot be made. Call response and emergency operations are not subject to access code authentication.	p. 2-156	p. 5-100

7.1.6. Outside line's functions

Function		Description	Reference page	
			Operation	Setting
Direct in line call		Calls up to four preprogrammed stations simultaneously.	p. 2-159	p. 5-90
Direct inward dialing call		Calls the desired station directly via a designated station.		
Paging	Zone paging	Calls can be made to one of the preprogrammed zones.	p. 2-160	p. 5-89 p. 5-121
	Selectable paging	Calls can be made to up to 50 zones of the preprogrammed multiple zones.	p. 2-162	
	All-call paging	Calls can be made simultaneously to all of the preprogrammed zones.	p. 2-164	
Other functions	Scan monitor	The ambient audio of multiple preprogrammed stations can be monitored in preprogrammed sequence from the outside line. Designating the stations by the outside line operation also permits them to be monitored in designated sequence.	p. 2-165	p. 5-27 p. 5-89 p. 5-92
	External equipment control	Using the outside line's function, external equipment can be controlled by transmitting a one-shot make output signal or make/break contact signal to the contact of the designated Multi-Interface, Direct Select unit, or Audio Interface unit, or by transmitting a one-shot make output signal to the contact of the designated door station.	p. 2-173	p. 5-27 p. 5-35 p. 5-43 p. 5-49 p. 5-62 p. 5-89 p. 5-106 p. 5-110 p. 5-114 p. 5-117
	Time signal	Schedules can be set, changed or suspended. The Time Signal operates according to programmed schedules.	p. 2-167	p. 5-107

7.2. Other Functions

Function	Description	Reference page	
		Operation	Setting
Priority	Response Priority: When the system's call response mode is set to "Selective Response" and a station simultaneously receives multiple calls, priorities can be assigned to calls to be responded to. Call Priority: Priorities can be assigned to calls. If a higher priority station or paging call is made to a station currently in use, that station's conversation or other current operation is forcibly interrupted.	p. 2-177	p. 5-36 p. 5-44 p. 5-63
Time-out	This function terminates or cancels a call if the user forgets to do so. Limits can be set for calling time, conversation time and paging time.	p. 2-178	p. 5-36, p. 5-43 p. 5-54 p. 5-63 p. 5-90 p. 5-98
Recording	Setting the Audio Interface Unit's operation mode to Conversation Recording allows the recording of conversations, conferences, paging calls and scan monitoring of the Master Stations and telephones (used instead of stations). It is also possible to record conversations of the outside line telephones. Such conversations and conferences are recorded on recorders connected to the Audio Interface Unit.	p. 2-178	p. 5-66 p. 5-81 p. 5-89 p. 5-100 p. 5-106
Group blocking	By preprogramming groups of stations that can only call restricted stations, operations for making calls or paging between groups can be restricted.	p. 2-179	p. 5-123
Paging delay output	This function controls the audio output according to the connected external equipment's activation time. Delay time can be inserted into the time duration from paging completion to paging pre-announcement tone output (or paging commencement). The contact that provides output in synchronization with paging activation closes upon paging completion, irrespective of the delay time setting.	p. 2-180	p. 5-36 p. 5-44 p. 5-55 p. 5-63 p. 5-91 p. 5-98 p. 5-107
Paging pre-announcement tone output control	Paging can be initiated without using a paging pre-announcement tone. Use of the pre-announcement tone is selectable.	p. 2-180	p. 5-36 p. 5-55 p. 5-63 p. 5-91 p. 5-98
External input paging	Activating the control input after connecting the Remote microphone or playback components to the N-8000MI/8000AF enables broadcasting to the preprogrammed zone(s).	p. 2-181	p. 5-45 p. 5-106
Paging sync contact output control	The contact output of both the N-8000MI and N-8000AF interface units can be set as the paging output destination. This makes it possible to control connected external equipment in synchronization with paging activation.	p. 2-182	p. 5-122
Calling station indication/ CCTV interlock	Closing the Multi interface unit's, the Direct select unit's, or the Audio interface unit's contact in synchronization with calls received enables calling station indication or CCTV system control.	p. 2-183 p. 2-184	p. 5-37 p. 5-55 p. 5-57 p. 5-64 p. 5-66 p. 5-81 p. 5-89 p. 5-98 p. 5-100

Function	Description	Reference page	
		Operation	Setting
Call/conversation sync contact output	The contact output of the door station is closed depending on their respective operations.	p. 2-185	p. 5-37 p. 5-64
IP door station external control input	When dialing operations (up to 20 digits) have been preprogrammed into the external control input of the N-8640DS/8650DS, such dialing operations can be performed by closing the N-8640DS/8650DS's contact input. Nothing operates even when closing the contact input if no dialing operation is preprogrammed.	p. 2-186	p. 5-67
Remote dial control	When the Multi interface unit's or the Direct select unit's contact input terminal is closed, the specified station is made to automatically perform the set dial operation.	p. 2-187	p. 5-48 p. 5-116
Direct select	This function can be used when the system's call response mode is set to "Selective Response." After designating the Master Station to be controlled and assigning calling stations to the N-8000DI Direct Select Unit's contact input and output channels, the stations calling the designated Master Station are indicated by corresponding lamps or other indicators. Also, operating the desired channel enables calls to be made between the Master Station and its corresponding stations.	p. 2-188	p. 5-116
Contact bridge	Closes the Multi interface unit's or the Direct select unit's output contact terminal when the input contact terminal is closed.	p. 2-189	p. 5-48 p. 5-116
Paging busy input	Notifies the busy status of connected external PA paging equipment.	p. 2-189	p. 5-48
System diagnosis	The Multi interface unit, the Direct select unit, or the Audio interface unit diagnoses the system condition via the network, and provide their results at the contact output terminal as open or closed contact.	p. 2-190	p. 5-49 p. 5-110 p. 5-117
Time signal	Automatically plays the external connected sound source or the N-8000AF Audio interface unit's internal sound source according to the preprogrammed schedule.	p. 2-50	p. 5-106
Time correction	Synchronizes the clocks of all components in the system with the one as a clock master. The Master Clock transmits a sync command to all other system equipment once a day.	p. 2-191	p. 5-27
Automatic daylight saving time correction	Automatically adjusts the time for the period of daylight saving time.	p. 2-191	p. 5-27
NTP client	Synchronizes the clock of the N-8000AF set to the clock master with NTP Server. Cannot be used simultaneously with the Time sync function.	p. 2-192	p. 5-26

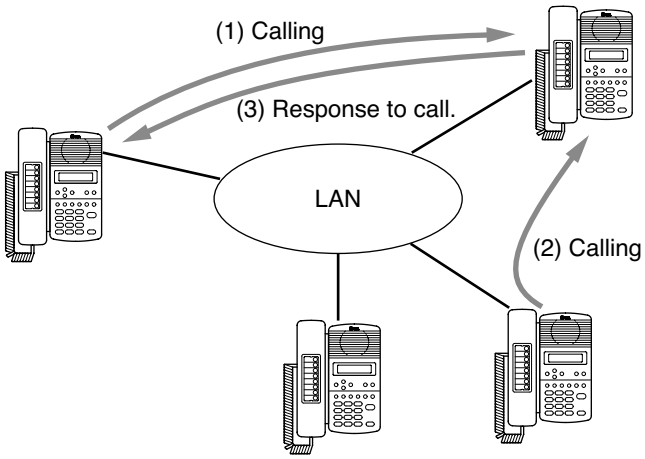
8. TWO CALL RESPONSE METHODS

Two different call response methods are available to the N-8000 system: "Sequential Response" and "Selective Response." The former is used in "Master-to-Master" systems that allow free communication between Master Stations by calling one another, while the latter is used in "Master-to-Sub" systems in which substations installed in different locations call one specified Master Station.

Note
The entire system is set for Sequential Response. A Master Station set for Sequential Response cannot be used in combination with a Master Station set for Selective Response.

8.1. Sequential Response (Master-to-Master System)

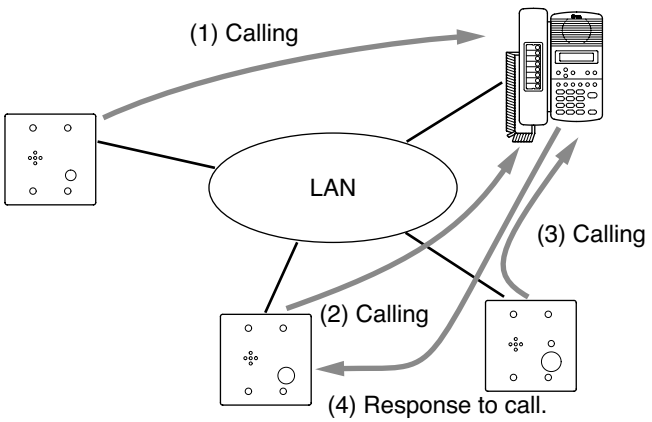
This method is used in systems in which the Master Stations are mainly used and calls are freely made. Its main applications include communication and paging, and received calls are responded to on a first-come-first-served basis. Response can be set to either "Continuously Called Station Response" or "Auto-Respond" modes. Selecting "Auto-Respond" eliminates the need for button operation and allows conversations to be started instantly.



- Only one call is accepted.
- The second call is placed in busy mode.
- Responds to the first call.
  (**Note:** However, the second calling party can break in on the conversation using Emergency Interrupt to request the called party to return the call after conversation completion.)

8.2. Selective Response (Master-to-Sub System)

This method is used in systems in which a Master Station is called from multiple Substations or Door Stations. Its main applications include interphone and nurse call systems, and the Master Station selects which Substation to respond to. Auto-Respond cannot be used in this system.



- The Master Station confirms it has received two or more calls.
- The Master Station selects the call to respond to and begins conversation.

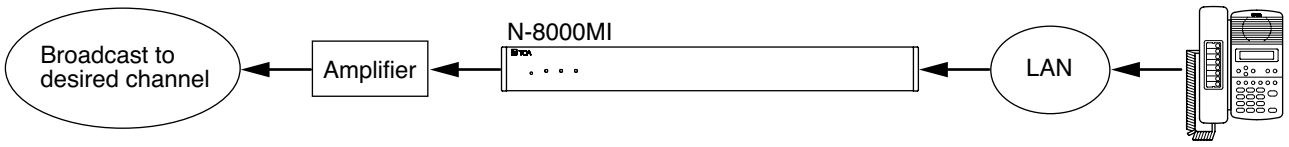
9. PAGING FUNCTION OUTLINES

There are two types of paging: (1) PA paging by way of external PA equipment and (2) Station paging by way of the station's internal speaker. Both types have access to the (1) zone paging function which pages one zone, (2) the selectable paging function which pages multiple selected zones, and (3) the all-call paging function which pages all zones simultaneously.

9.1. Paging Types

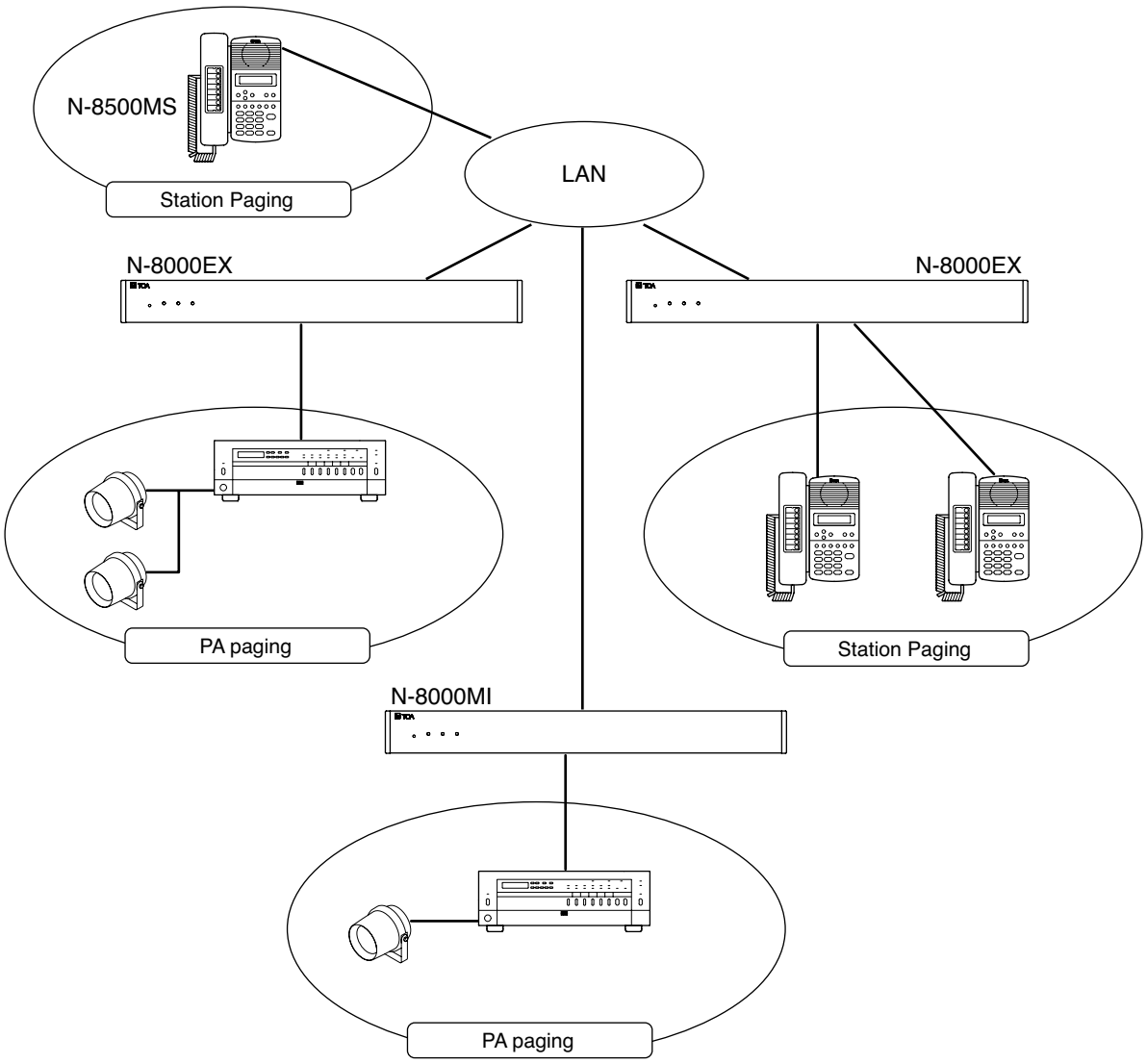
9.1.1. PA paging (Only when the N-8000EX/8000MI/8000AF is used)

Connecting PA equipment to the N-8000EX exchange's or N-8000MI multi interface unit's or N-8000AF audio interface unit's output terminal permits PA paging to be made by dial operation at the station.



9.1.2. Station paging

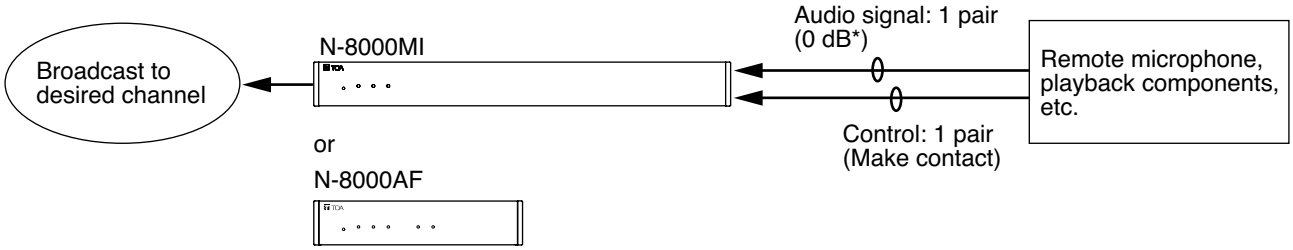
Performing dial operation at a station permits paging to be made to other stations' internal speakers.
When paging is made to stations engaged in conversation, its behavior depends on the following priority modes, either of which can be selected: "Paging priority" that puts the busy stations on hold and allows them to be paged, and "Conversation priority" that allows the paging to go through except the busy stations.
Use the supplied N-8000 Setting Software program to perform the mode setting.



9.1.3. External input paging

Microphone announcements or background music can be broadcast to any desired channel by connecting a Remote microphone or playback components to the N-8000MI/8000AF unit.

Note
External input pagings with priority ON take precedence over paging calls and conversations.



9.2. Paging Functions

9.2.1. Zone paging

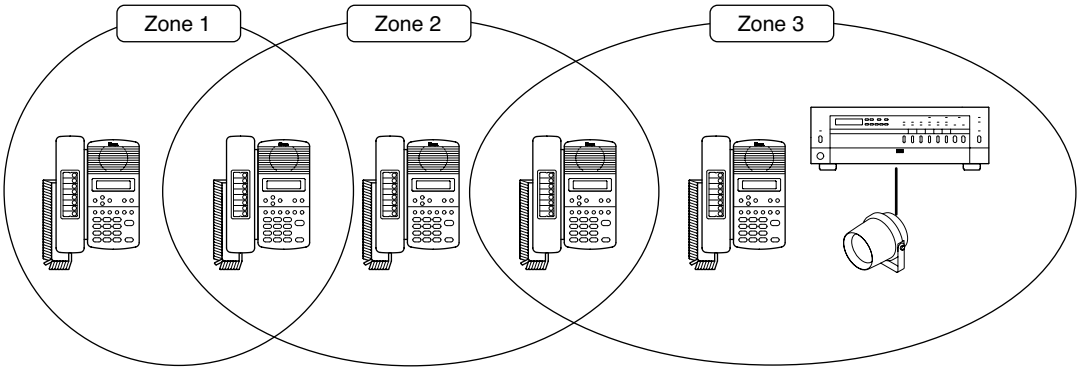
Calls can be made to one of the preprogrammed zones. For PA paging, assign a PA paging output to the zone number. For station paging, assign a station to the zone number. One of the following three settings can be selected: PA paging only, station paging only, or a combination of PA paging and station paging. Use the supplied N-8000 Setting Software program to perform the mode setting. There are no limitations of the number of stations that can be programmed nor the number of PA paging output.

9.2.2. Selectable paging

By performing dial operation at the station, paging can be made to up to 50 zones of the preprogrammed multiple zones.

9.2.3. All-call paging

Calls can be made simultaneously to all of the preprogrammed zones.



9.2.4. Emergency paging

Paging calls can be made to all stations including those for which zone paging settings have not been performed. Further, paging can be initiated from all N-8000MI Multi-Interface Unit, N-8000AF Audio Interface Unit and N-8000EX IP Intercom Exchange audio outputs for which paging output has been set.

9.3. Station Paging Receiving Mode

The station that receives Station Paging operates in either Conversation priority mode or Paging priority mode as described below. However, when the exchange to which the station connects is the N-8010EX, the mode is fixed to the Conversation priority mode.
Use the supplied N-8000 Setting Software for the mode setting.

Note
All stations in a corresponding zone can receive Emergency paging calls, Message pagings or external input broadcasts for which priority has been switched ON, regardless of the stations' reception mode setting. Interrupted functions are not restored.

9.3.1. Conversation priority mode

- When a paging is made, the station in standby mode receives it. If it is engaged in conversation or dialing, it does not receive the paging.
- Even when a station is called while being paged, it continues to receive paging without being placed in called status. In this case, the calling party hears a busy tone.
  When a paging arises on a station being engaged in conversation and still continues after the conversation is over, the station starts receiving the paging on completion of the conversation.

Note
Dialing is possible even while receiving a paging.

9.3.2. Paging priority mode

- When a page is made, the station in standby mode receives it. If paged during a conversation, the paged station receives the page without terminating the current conversation, while a holding tone is transmitted to the conversation partner during a conversation between paging and paged parties if the paging station does not belong to the same paging zone.
- When the station being paged receives a call from another station, the paged station becomes busy and maintains the paging. When the call to the station maintains after paging completion, the station receives the call.

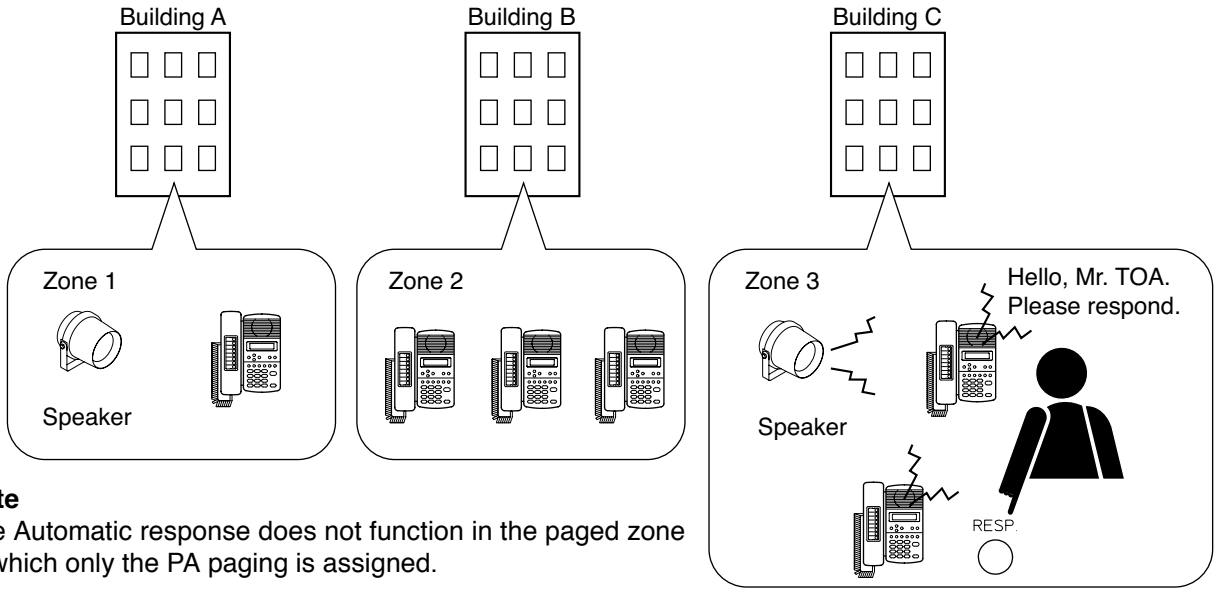
Note
Dialing is impossible while receiving a page. (Paging response cannot be performed at a paging receiving station, either.)

9.4. Responding to Paging

If the paged party responds at a station, the paged party can be put through to the paging party. The following two response modes are available. Use the supplied N-8000 Setting Software program to set either mode.

9.4.1. Automatic response

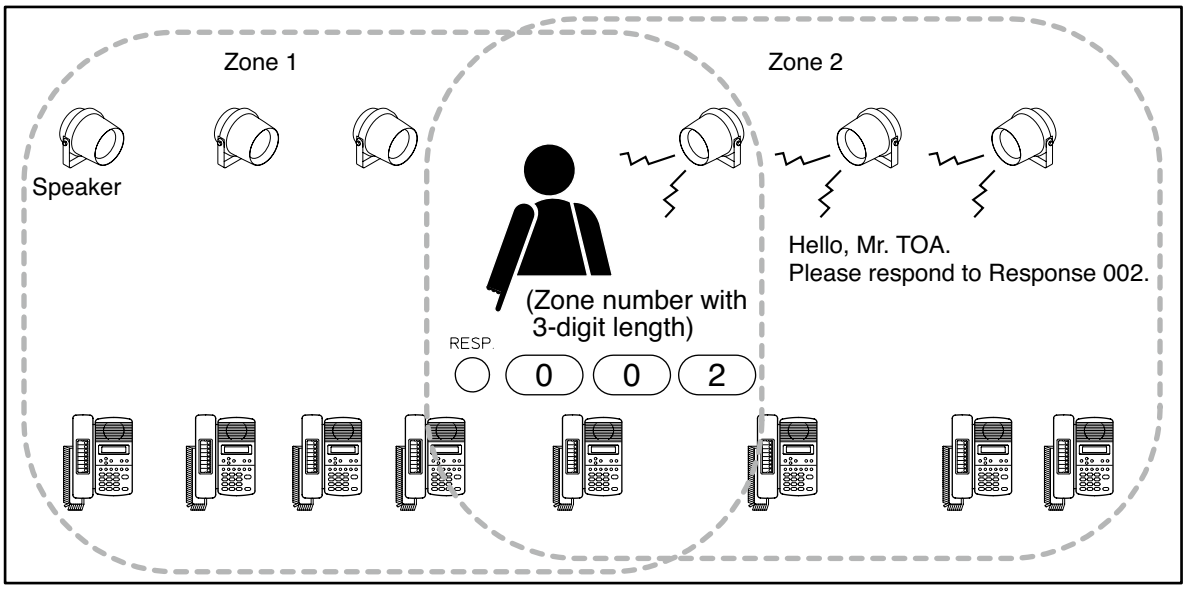
If the paged party dials the number assigned to paging response, the paging party who initiated the paging last is called and put through to the paged party.
To respond to the paging, use the station assigned to the paged zone. Use this mode when each paging zone is independent. When using external PA speakers, their zones must match those of master stations.



Note
The Automatic response does not function in the paged zone to which only the PA paging is assigned.

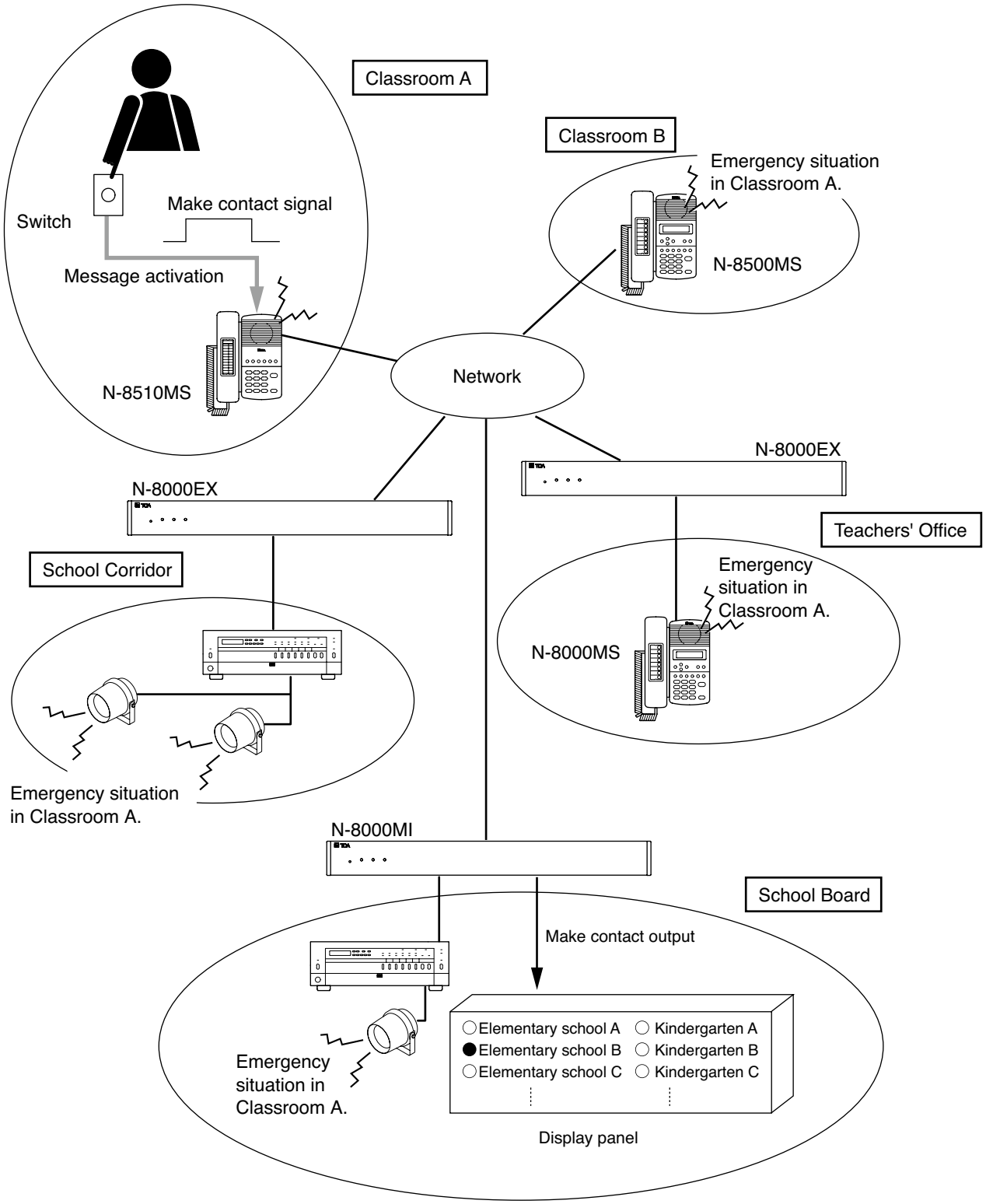
9.4.2. Zone number dialing

When making a paging, the paging party notifies the paging zone to use, and the paged party dials the designated zone number when responding. If the paged party responds dialing the designated zone number, the paging party who made the paging to the designated zone last is called and put through to the paged party. Use this mode in locations where broadcasts from multiple zones can be heard or if only the PA Paging is used. To respond to the paging, use the station assigned to the paged zone. Any station can also respond to the paging as long as it is connected to the same exchange as the station assigned to the paged zone or the PA paging output are connected to.



10. OUTLINE OF THE MESSAGE PAGING FUNCTION

Emergency communication systems can be created using the N-8500MS/8510MS/8600MS IP Master Stations or the N-8610RM IP Remote Microphone Station. Messages preprogrammed into the IP Master Station or the IP Remote Microphone Station can automatically be broadcast through operation of that station's keys or by means of external control input. As with the Paging function, public address devices and/or speaker stations can be selected to receive message outputs. If a message paging is activated, conversations and paging at stations covered by the message paging are all interrupted, allowing the message paging to go through. Surveillance cameras, electronic locks, etc. can also be controlled in synchronization with the message paging activation.



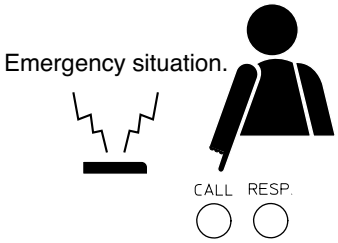
10.1. Message Recording

- Use the N-8000 Setting Software to record the Message on a PC and program it into the IP Master Station or the IP Remote Microphone Station from the PC.
- Messages of up to 20 seconds in length can be recorded and programmed.

PC installed with N-8000 Setting Software.

10.2. Programmed Message Confirmation

Messages programmed into the IP Master Station or the IP Remote Microphone Station can be confirmed at that station. To confirm it, press the Paging Call key when the IP Master Station or the IP Remote Microphone Station is in standby mode, then press the Paging Response key.

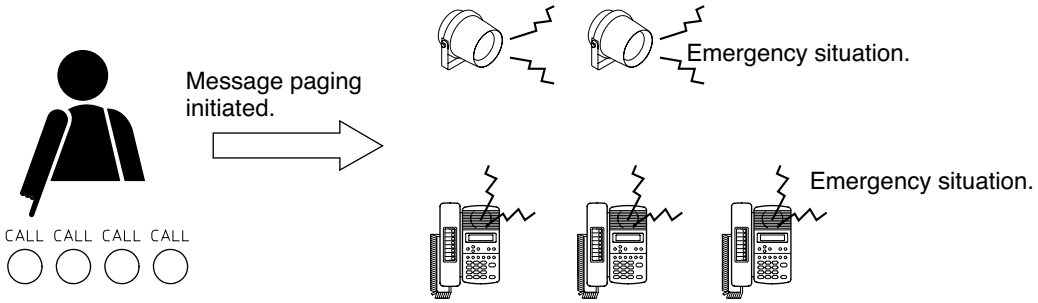


10.3. Initiating Message Pagings

10.3.1. Startup method

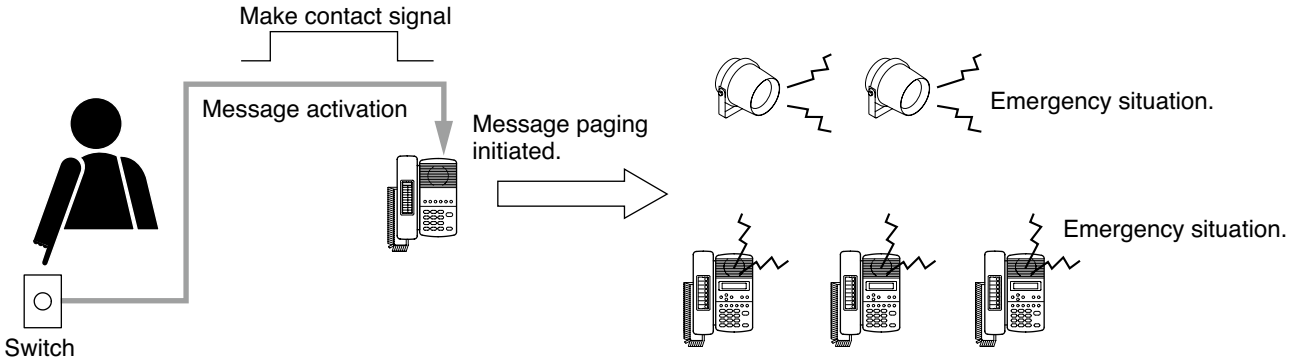
The following two startup methods are available:

(1) Pressing the IP Master Station's or the IP Remote Microphone Station's Paging Call key four times in rapid succession initiates the Message recorded on that station.



Note
The Message paging cannot be initiated when the IP Master Station or the IP Remote Microphone Station to be operated is currently in use. Wait until the station is in Standby mode. An exception to this is priority given to Message pagings initiated at an IP Master Station that is receiving a paging call in the system set for Call Priority mode. (Refer to the next page.)

(2) Only the N-8510MS standard IP Master Station can initiate Message pagings using the make contact signal input if its rear panel-mounted Message Startup terminal is connected to a switch, sensor or other external device. When the N-8510MS Station receives the make contact signal while it is in use, it stops its current operation and initiates the Message paging.



In the case of the N-8510MS Station, set the usable startup method using the N-8000 Setting Software.

10.3.2. Startup conditions

Startup method / Station status	(1) Startup through station operation	(2) Startup by external contact input (N-8510MS only)
Standby	✓	✓
Being called	×	✓
Busy	×	✓
Calling	×	✓
Paging	×	✓
Being paged	When system is set to Call Priority mode: ✓ When system is set to Paging Priority mode: ×	✓

10.4. Message Paging Zones

Pagings can be made over any specified paging zone (example: all-zone paging) set for individual IP Master Stations or IP Remote Microphone Stations. Use the N-8000 Setting Software to set the paging zones.

10.5. Message Paging Termination

To terminate a Message paging, press the Clear key of the IP Master Station or the IP Remote Microphone Station which initiated the paging. The number of times the Message paging repeats can be set to either continuous repetition till the Clear key is pressed for manual termination or to 1 – 10 repetitions for automatic termination when the set limit is reached. Manual termination takes precedence over automatic termination. Use the supplied N-8000 Setting Software to set a limit on the number of times.

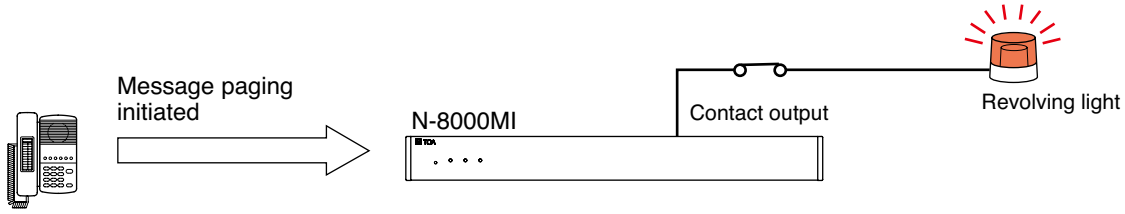
Note
Message paging is not terminated even if the standard IP Master Station's Message activation terminal is opened. To terminate, either press the station's Clear key or set the number of repetitions.

10.6. Message Paging Priority Level

The Message paging takes precedence over normal conversations and paging calls (except Emergency paging). When the station to which the Message is being transmitted is in operation, all such operations are forcibly terminated, allowing the Message paging to go through. Such terminated operations are not restored even after the Message paging is completed.

10.7. Contact Interlock Control

The N-8000MI Multi-Interface Unit's, the N-8000DI Direct Select Unit's, or N-8000AF Audio Interface Unit's contact output terminal can be made to close in synchronization with the initiation of the Message paging. Two methods are available for this: one is to constantly keep the terminal closed during message broadcast and the other is to close the contact by means of a one-shot pulse only when the broadcast begins.



10.8. Muting Message Pagings (N-8510MS only)

Only the master station (N-8510MS only) activating Message pagings can be set not to output Message pagings from its station speaker.
Other operations such as status indicator lighting, repetition of paging, and contact-related controls except Message paging output are the same as those when mute is not activated.
Audio signals are output as normal at the paging receiving stations.
When the operation other than Message paging activation is performed, sound source (like a call tone) corresponding to the operation is output.

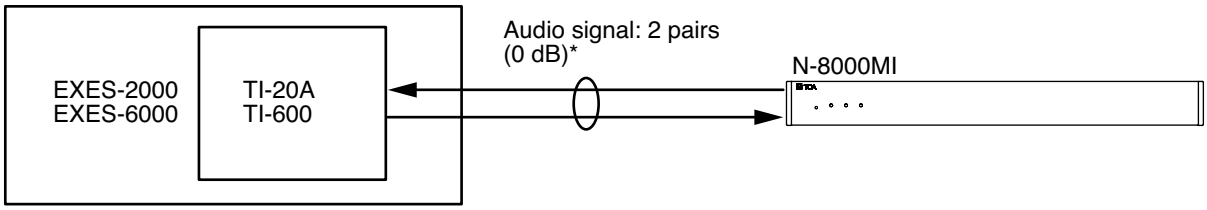
Tip: Use the supplied N-8000 Setting Software program for Message paging mute setting. (See p. 5-70.)

Notes
- Message pagings can be muted at the master station's built-in speaker only but not at its handset speaker.
- While a Message paging is activated, sound sources such as an error tone other than a message, even if produced, will be muted. However, these sounds are not muted unless Message pagings are activated.

11. OTHER FUNCTION OUTLINE

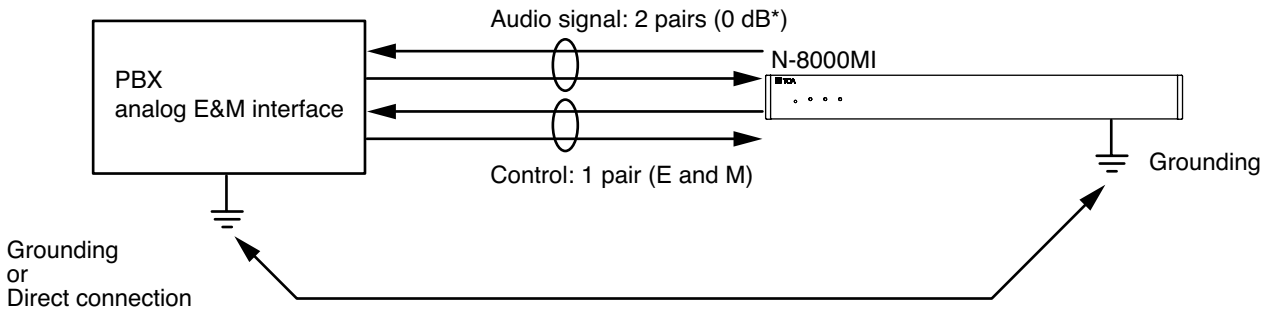
11.1. Tie-line Connection

Conversations or paging can be performed by connecting the N-8000MI unit to the exchange of EXES-2000 or EXES-6000 Series intercom systems. Wiring requires two pairs of cables per line, and the connected exchange must be equipped with a Tie-line unit (TI-20A for the EXES-2000 and TI-600 for the EXES-6000).



11.2. PBX Interface (E and M Interface)

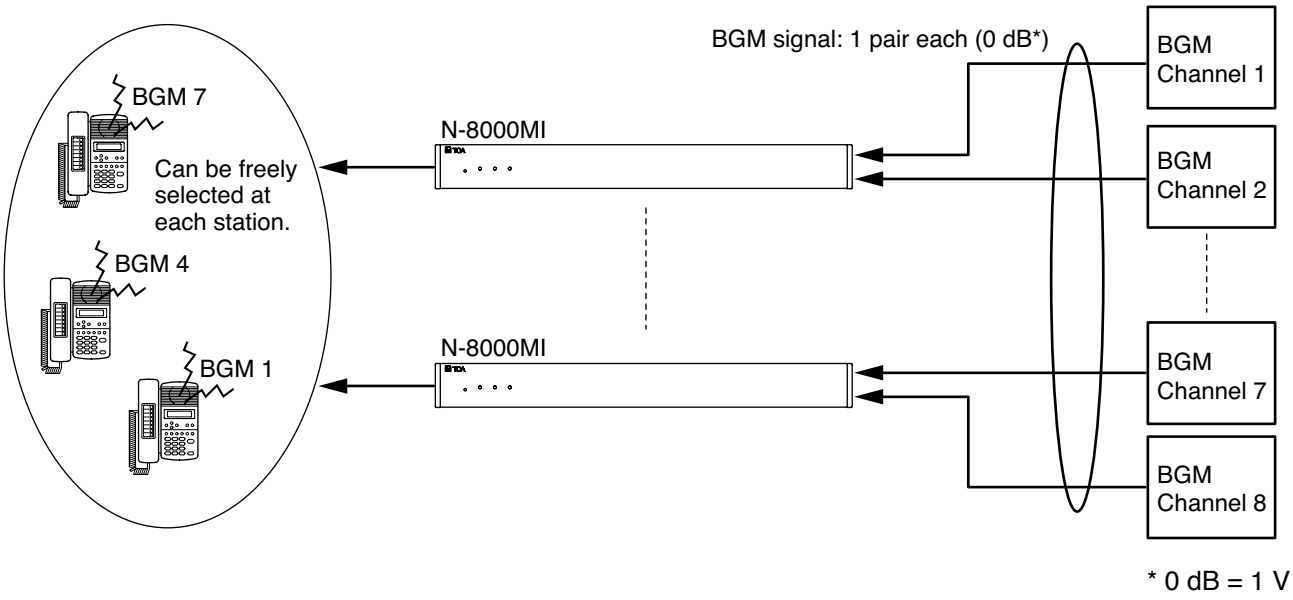
Connecting the N-8000MI unit to a PBX permits conversations to be made between the intercom station and the telephone, or paging calls to be initiated from the telephone. The N-8000MI is connected to a standard PBX analog E&M interface using 3 pairs of cables per line. Since the ground return method is employed for the installation of the system connecting between the trunk and the N-8000MI, use grounding or connect the grounding cable separately.



* 0 dB = 1 V

11.3. BGM

Background music can be transmitted to the station speakers in standby mode by connecting the N-8000MI unit to musical playing equipment. Any BGM program can be selected from 8 channels at each station.



* 0 dB = 1 V

Note

Since BGM is lower than conversations and paging in priority, BGM may be interrupted at a BGM-broadcast station even if the station performs no operation when other station makes a call or paging with all speech links busy. Especially for the N-8010EX, which has a small number of speech links, BGM interruption happens more frequently.

11.4. Contact Input and Output Functions

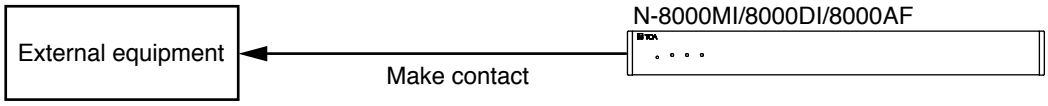
The following functions can be realized by using the N-8000MI's, the N-8000DI's, or N-8000AF's contact input and output. However, the functions that can be realized are different depending on the models as shown in the table below.

Function / Unit	N-8000MI	N-8000DI	N-8000AF
External equipment control	✓	✓	✓
Remote dial control	✓	✓	x
Contact bridge function	✓	✓	x
Paging busy input	✓	x	x
System diagnosis	✓	✓	✓
Direct select	x	✓	x
Calling station indication/ CCTV interlock	✓	✓	✓

✓ : Usable
x : Not usable

11.4.1. External equipment control

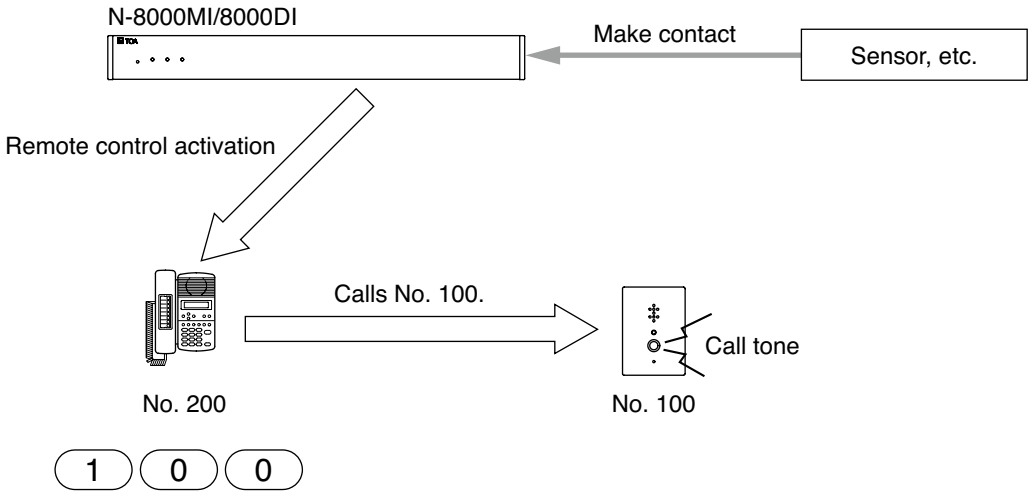
External equipment can be controlled by a one-shot make signal or a make/break signal provided at the N-8000MI's, the N-8000DI's, or the N-8000AF's contact output through either interlock with received calls or station operation. Such control includes door remote control, calling station indication control, and hospital waiting status indication control.



11.4.2. Remote dial control

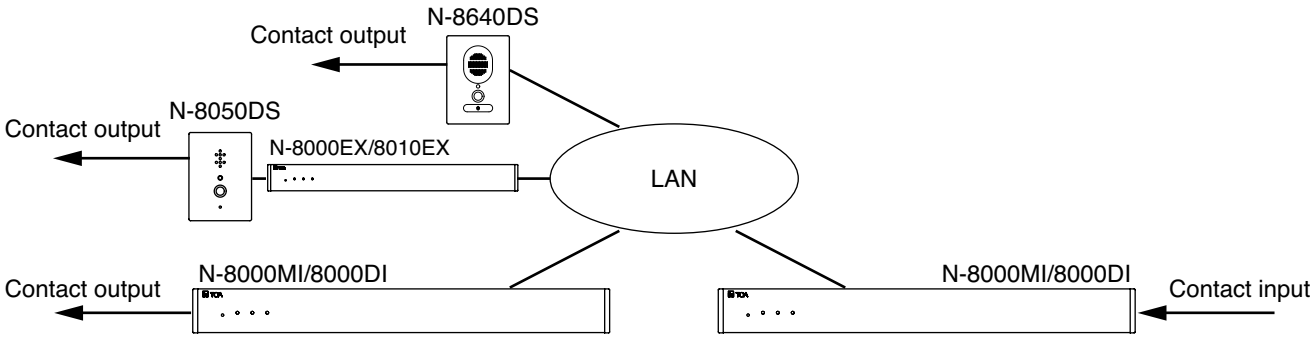
When the N-8000MI's or the N-8000DI's contact input terminal is closed, a station is made to automatically perform dial operation. A set of up to 20 dial codes (including dial numbers and key operations) can be assigned to each contact input terminal.
For example, signals from a sensor can automatically activate a station to make a call as shown below.

Note
To perform the remote dial control, the contact input terminal needs to be closed for over 50 ms.



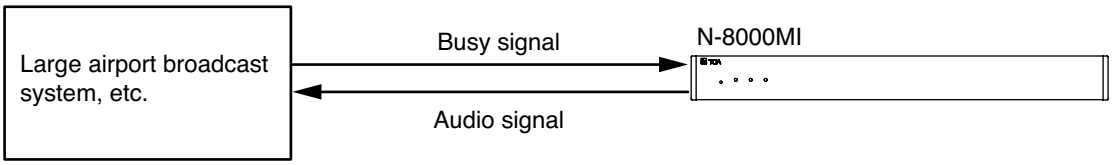
11.4.3. Contact bridge function (external contact interlock)

Contact signals can be transmitted by way of a network.



11.4.4. Paging busy input

Busy status data from an airport broadcast system or similar large sound systems can be received when the N-8000MI is interlocked with such systems, allowing important information to be accurately transmitted.

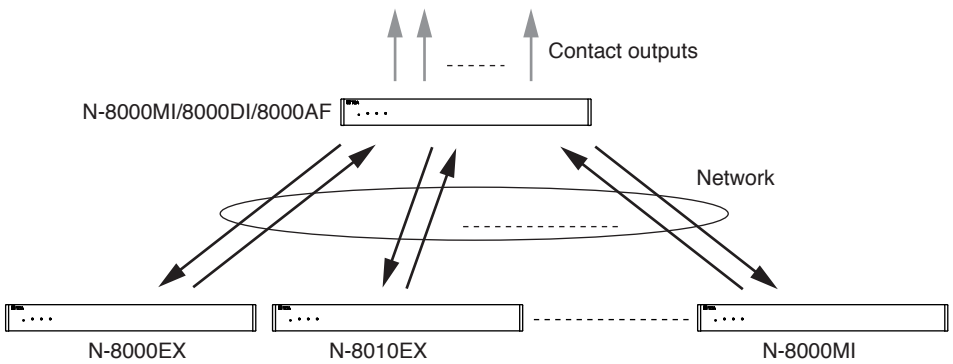


11.4.5. System diagnosis

The N-8000MI/8000DI/8000AF diagnoses the system condition, and provides its results at the contact output terminal as open or closed contact. The system diagnosis is performed in a way that the N-8000MI/8000DI/8000AF connects the target equipment via the network.
The contact output terminal is closed only when an abnormality has been detected.
Thereafter, its closed terminal opens when the N-8000MI/8000DI/8000AF judges the condition to be normal.
This function aims to diagnose the exchange's line status and the network status of the connected equipment.

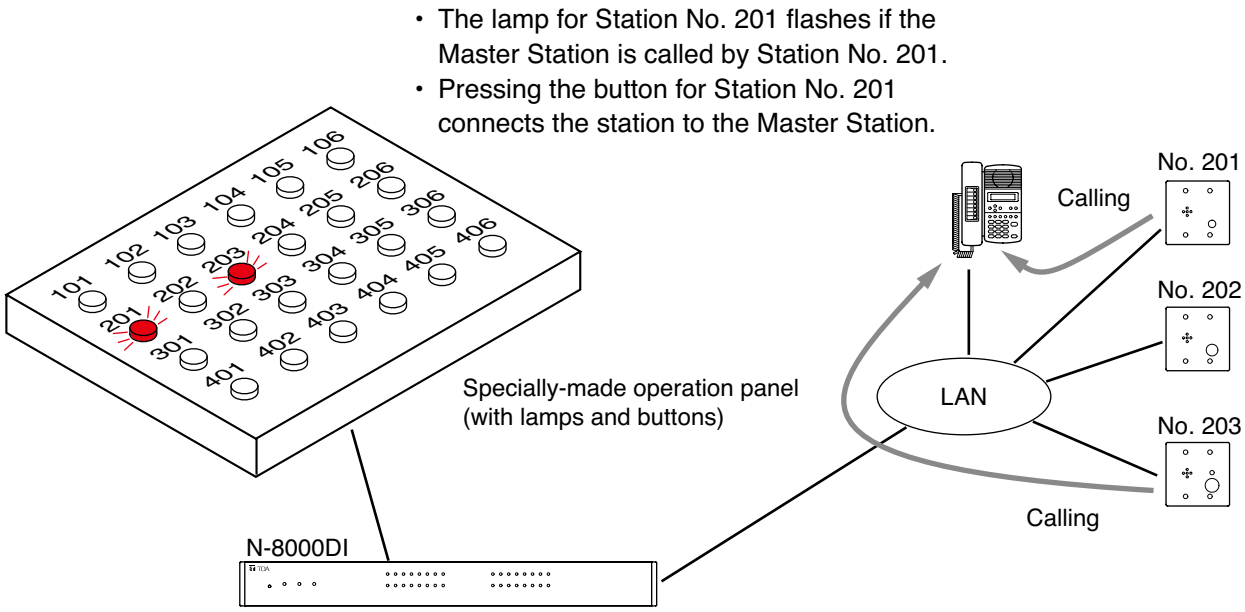
Note
Diagnosis is performed at the set time intervals*. Therefore, the diagnosis results are not obtained in real time. The system condition, even if a change occurs, cannot be detected in the intervals from a diagnosis to the next diagnosis.

* Diagnosis results are renewed every 20 seconds or less.



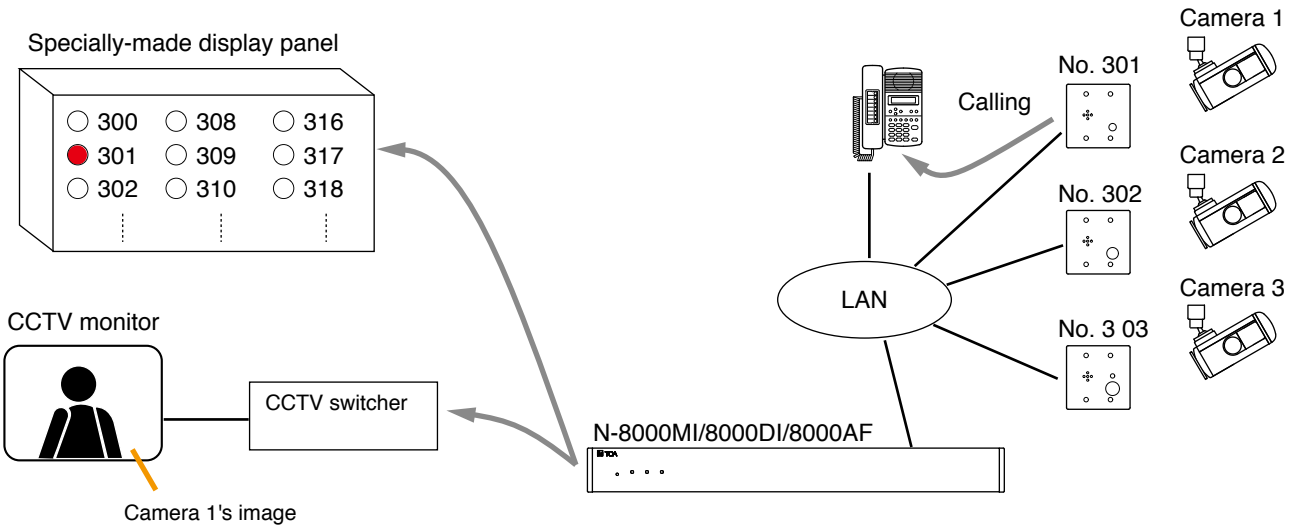
11.4.6. Direct select

This function can be used when the system's call response mode is set to "Selective Response." By separately making an operation panel for a specified Master Station which is equipped with the lamps and buttons corresponding to other stations, and by assigning the Master Station and other stations to the N-8000DI's contact input and output channels, the stations that are calling the Master Station are indicated by means of lamps. Also, operating the desired channel button allows calls to be made between the Master Station and the station assigned to that channel.



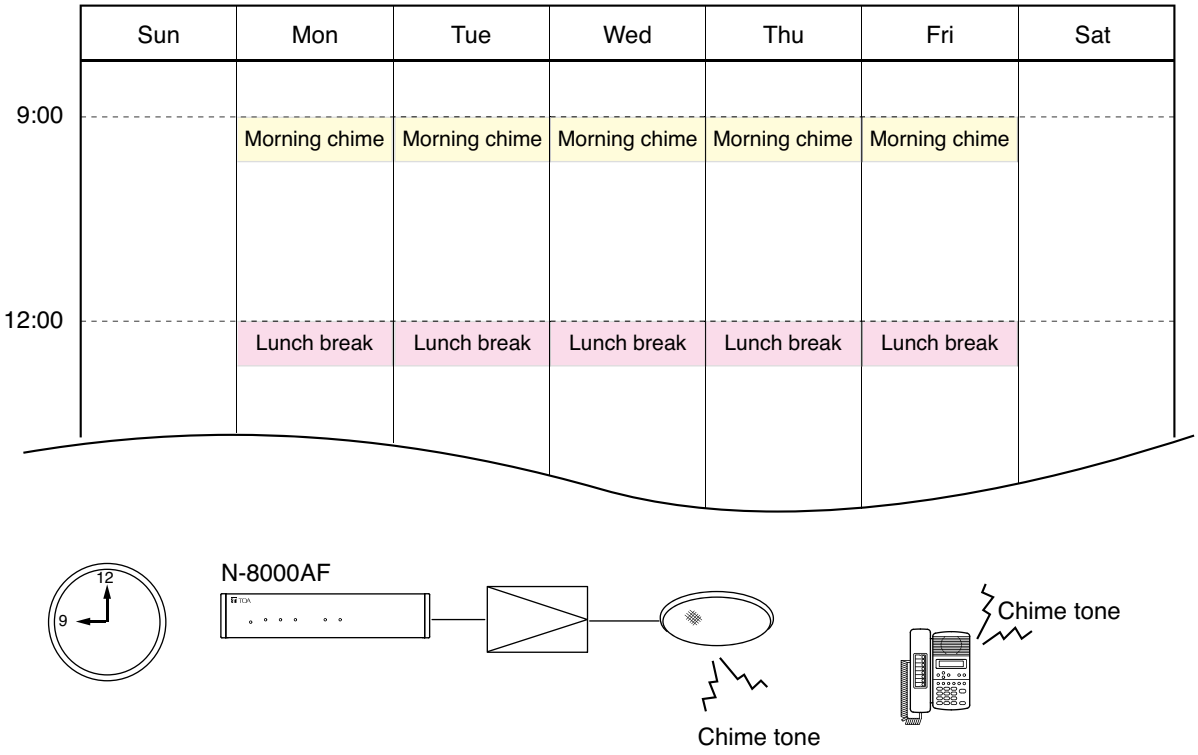
11.4.7. Calling station indication/CCTV interlock

By installing a lamp type indication board at the specified station, conversation partners and calling stations that made calls to the specified station during conversation can be displayed on the board. The indication board can be shared among multiple stations (up to 8 stations) to indicate which station within the group has been called. It is also possible to use the N-8000MI's, the N-8000DI's, or the N-8000AF's contact for interlocking the N-8000MI, the N-8000DI, or the N-8000AF with a CCTV system so that a calling party is displayed on the monitor screen.



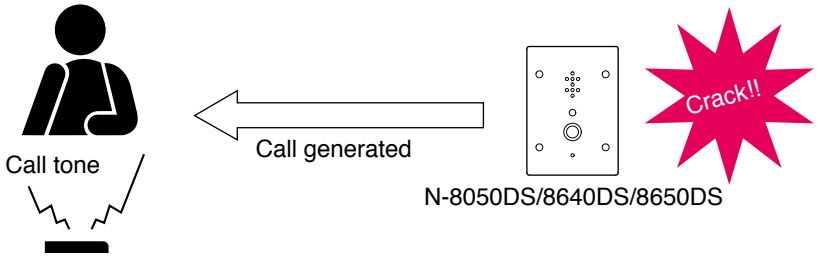
11.5. Time Signal

This function pagings set sound sources to set paging zones according to preprogrammed schedules using the N-8000AF Audio Interface. The operation mode of one of the Audio Interfaces in the system must be set to "Time Signal," and "Events" (time, paging zone, sound source, etc.) and "Schedules," which are combinations of various "Events," must be preprogrammed to automatically operate the Time Signal function.



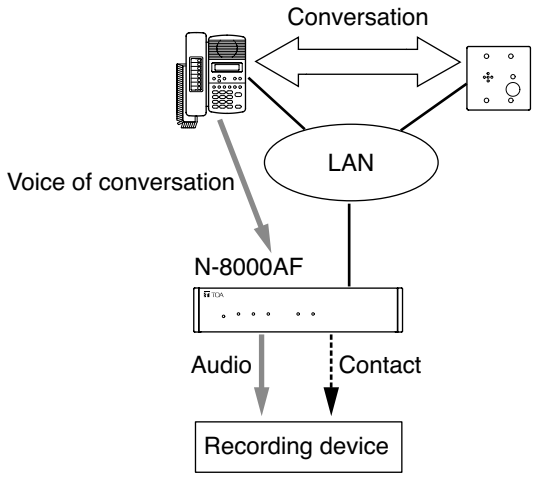
11.6. Audio Trigger

Alarm operation is activated if audio that enters the preprogrammed N-8050DS Door Station's or N-8640DS/8650DS IP Door Station's microphone meets set conditions.
Only the N-8000EX Exchange can support this function, and up to four Door Stations that enable Audio Trigger alarm operation can be connected per Exchange. The Audio Trigger function cannot be used for stations that are set to receive background music. The Door Station detects input audio when it is in standby mode.
Preprogrammed Master Station calls can be generated or the contact terminal of the preprogrammed N-8000MI Multi-Interface Unit or N-8000DI Direct Select Unit can be closed upon alarm operation (closure by one-shot pulse). In addition, audio detected by the Door Station can be heard at the preprogrammed Master Station's hands-free speaker for a set period of time after Audio Trigger detection.



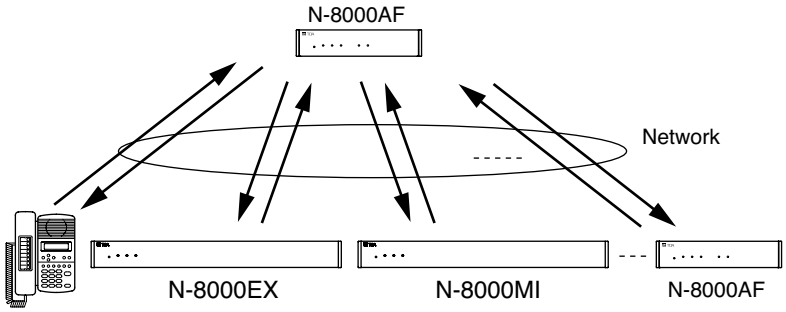
11.7. Recording

Setting the Audio Interface Unit's operation mode to Conversation Recording allows the recording of conversations, conferences, paging calls and scan monitoring of the Master Stations and telephones (used instead of stations). It is also possible to record conversations of the outside line telephones. Such conversations and conferences are recorded on recorders connected to the Audio Interface Unit.
Recording begins with the start of a call, conference, paging or scan monitor on the Master Station or telephone, which has been set to enable recording. Recording is completed when such operations end.



11.8. Time Correction

Synchronizes the clocks of all components in the system with the one as a clock master.
The Master Clock transmits a sync command to all other system equipment once a day.
Use the supplied N-8000 Setting Software program for the Master Clock setting.



11.9. Automatic Daylight Saving Time (Summer Time) Correction

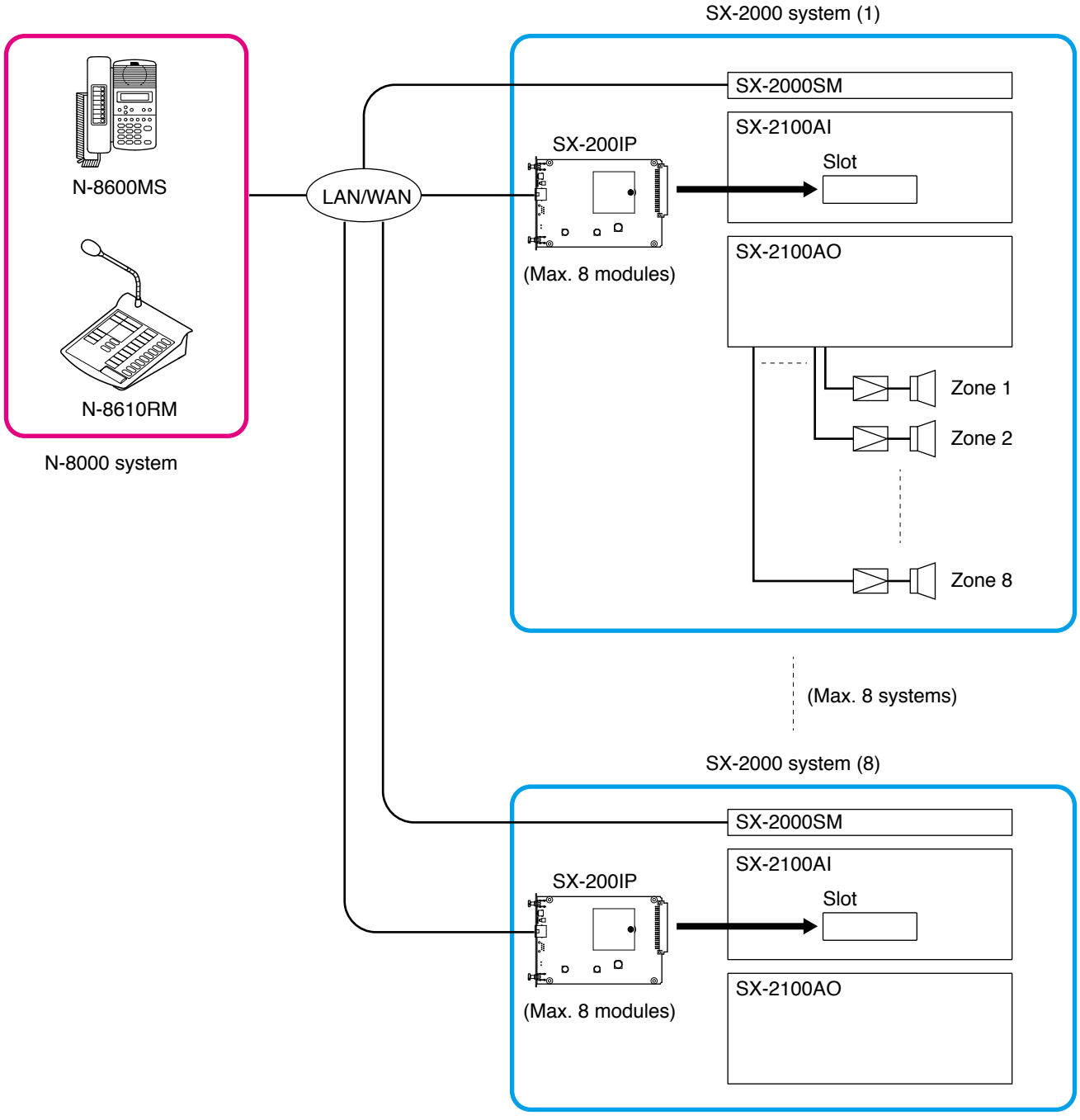
Daylight saving time (summer time) can be supported and the following settings performed using the N-8000 Setting Software:

- Automatic daylight time correction ON/OFF
- Daylight time start setting (month, week, day, hour)
- Daylight time end setting (month, week, day, hour)

The daylight saving time correction will start or end at the set [hour] of nth [day] of [week] of [month].
The last day of the week in the month can also be designated.

11.10. Broadcast to SX-2000 System

Using the SX-200IP IP Interface Module in the SX-2000 system allows broadcasts from the N-8600MS Multifunctional master station or N-8610RM IP Remote microphone station to be made to the SX-2000 system.



One SX-200IP module allows simultaneous 2 channels of broadcasts.
Up to 8 modules can be employed per SX-2000 system, allowing simultaneous up to 16 channels of broadcasts.
Broadcasts can be simultaneously made to up to 8 SX-2000 systems, enabling individual selected broadcasts to up to 2048 zones.

Chapter 2

FUNCTION AND OPERATION

This chapter describes the system functions and operation of the N-8000 Series Packet Intercom System.

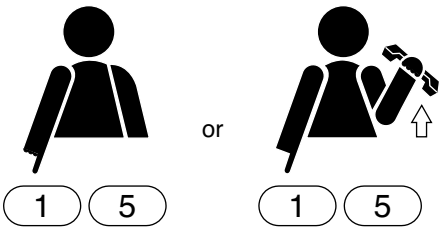
MASTER STATION'S FUNCTIONS AND OPERATION

1. BASIC USAGE

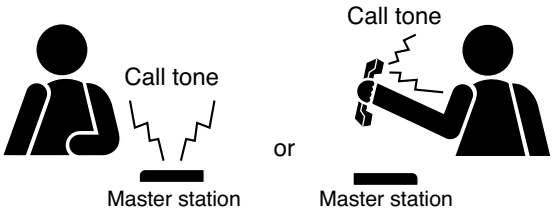
Operation is the same for both the stations connected to the exchange and the IP stations connected to a LAN, and also for the N-8031MS Hands-free Master Station used in combination with the RS-191 Handset.

1.1. Calling from a Master Station (Individual Calls)

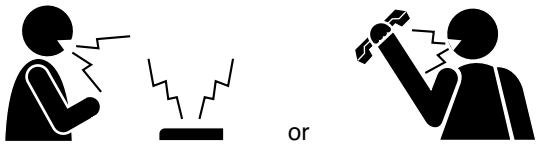
Step 1. Press the station number to be called.
In this case, the station's handset may be either lifted or in place.



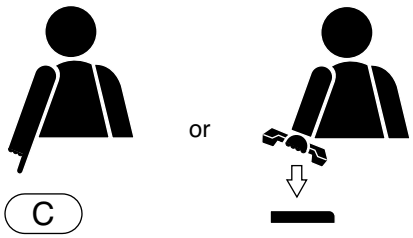
The call tone is heard through the calling station's internal speaker (heard in the handset speaker if the handset is lifted).
When a busy tone is heard, wait till the line becomes free, and you are automatically connected to the called party.



Step 2. Start conversations when the call tone stops and the called party answers.
Note
When the system is set to "Sequential Response*" and the called station set to "Automatic Connection Mode*," it is possible to start conversations after a brief ring tone is sounded once. In other settings, the call tone continues to sound and stops when the called party answers, allowing conversations to start.



Step 3. To finish conversations, press the Clear key or replace the handset.



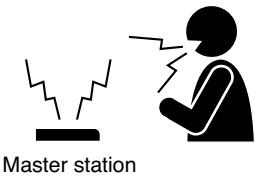
* Use the supplied N-8000 Setting Software to perform Sequential response and Incoming call mode setting. (Refer to p. 5-26, 5-65, 5-80.)

Note
If the system has been set for call time-out or conversation time-out, the call or conversation automatically stops after the specified time limit. The specific length of this time-out (in 10-second units between 10 and 990 seconds) is preprogrammed into individual exchanges or IP stations using the supplied N-8000 Setting Software. (Refer to 5-36, 5-54, 5-63, 5-98.)

1.2. Receiving a Call (when the system is set to "Sequential Response" mode)

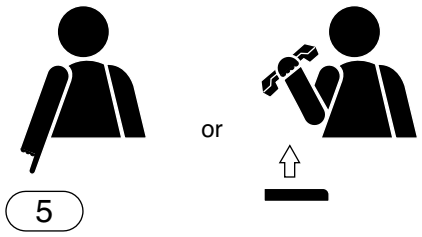
Step 1. Answer a received call.

1-1. When the called station's incoming call mode is set to "Automatic Connection Mode*," the call tone sounds only once, after which the calling party's voice is heard immediately through the internal speaker. Answer by speaking into the station microphone or lifting the handset.

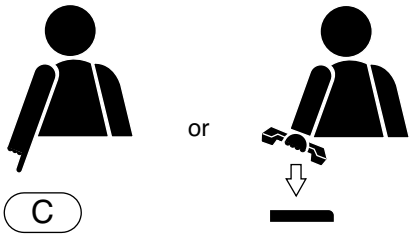


1-2. When the called station's incoming call mode is set to "Continuous call tone mode*," press any key for hands-free conversation or lift the handset for handset conversation.
Tip
If a headset is connected to the called station, the call tone is also heard from the station speaker.
Handset conversation is established when the handset is lifted.

[Example]



Step 2. To finish conversations, press the Clear key or replace the handset.



* Use the supplied N-8000 Setting Software to perform Automatic connection mode/Continuous call tone mode setting. (Refer to 5-65, 5-80.)

1.3. Receiving a Call (when the system is set to "Selective Response" mode)

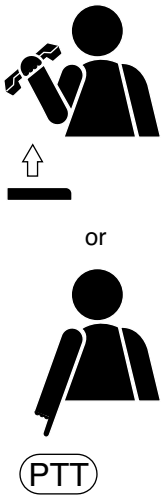
Note: Only continuous call tones is available in "Selective Response" mode.

[Answering a call at the Standard Master Station]

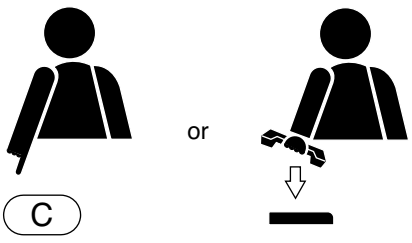
Step 1. Answer a received call.

1-1. When responding by lifting the handset:
Lifting the handset stops the call tone and permits conversation to proceed.

1-2. Response with the Push-to-talk key
Pressing the Push-to-talk key enables hands-free conversation.



Step 2. To finish conversations, press the Clear key or replace the handset.

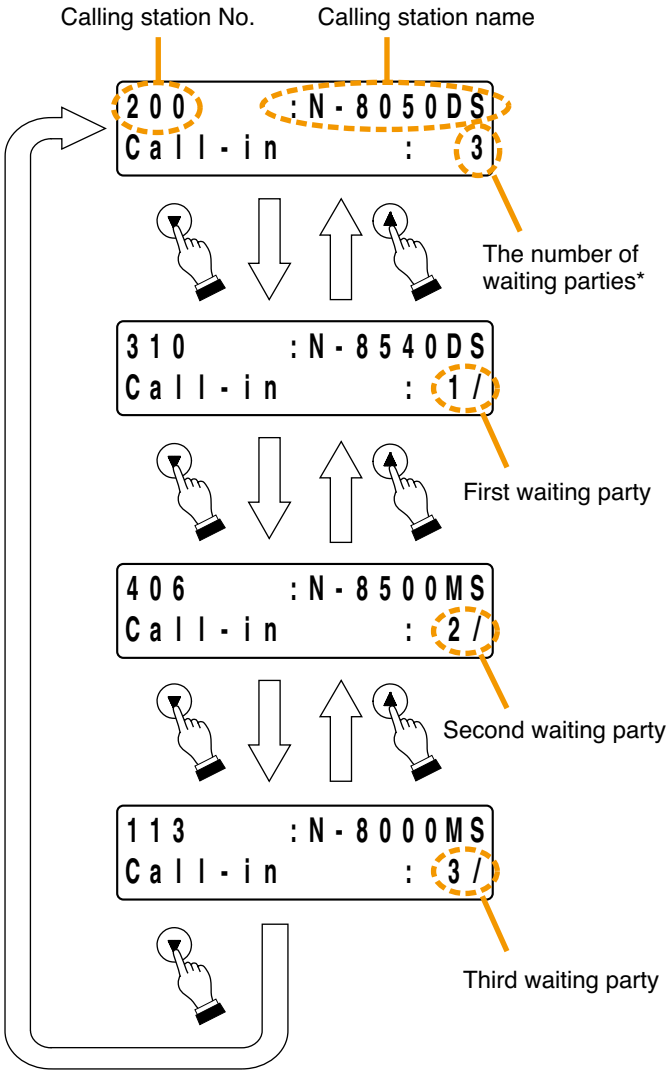


[Multi-Functional Master Station response]

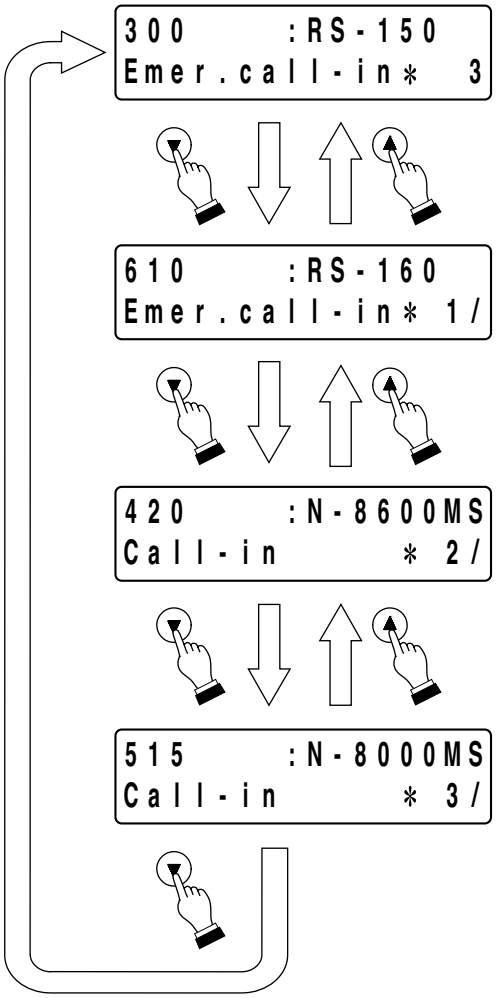
The Multi-Functional Master Station can respond to stations displayed on the LCD in the same way as the Standard Master Station. When multiple calls are simultaneously received, the call to be answered can be selected with the following operation.

Step 1. Press the Up and Down arrow keys to display the stations to be responded to.
The station number and name are displayed according to call priorities. Pressing the Clear key returns the screen to the original display.

[Display example for normal received calls]

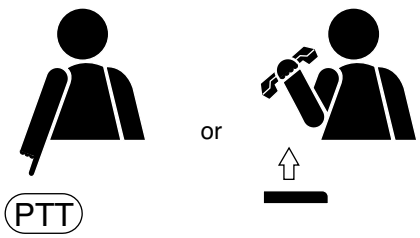


[Display example for received calls containing Emergency calls]



* The currently-displayed party is not included.
If nothing is displayed, there is no waiting station.

Step 2. Lift the handset when the desired station number and name are displayed.
The call tone then stops and permits conversation to proceed. (The Push-to-talk key may also be pressed for hands-free response.)

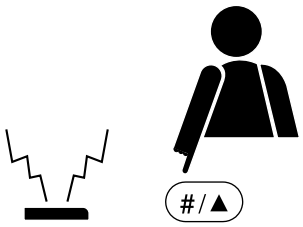


1.4. Station Speaker Volume

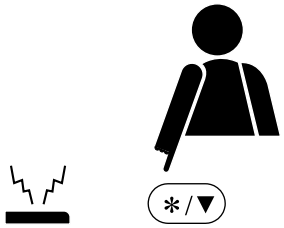
The master station speaker volume can be preset using the supplied N-8000 Setting Software, however it can also be adjusted at the station.

When using the master station other than the N-8410MS:

- The speaker volume level can be changed in 5 steps (in 3 dB per step).
- Pressing the [#/▲] key during conversation increases the volume.



- Pressing the [✻/▼] key during conversation decreases the volume.

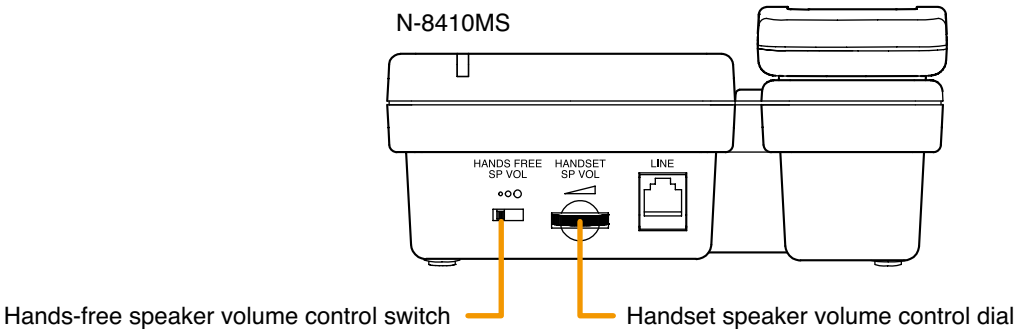


Note
The changed volume level is maintained even after conversation is finished.

When using the N-8410MS:

The station speaker volume cannot be adjusted with key operation.

- Hands-free speaker volume can be adjusted using the station's rear-mounted hands-free speaker volume control switch.
  Its output level can be changed in 3 steps (in 4 dB per step).
- Handset speaker volume can be adjusted using the station's rear-mounted handset speaker volume control dial.



1.5. Speech Method

1.5.1. Hands-free conversation

Permits conversations to be made without using the handset when a call is made without lifting a handset or received in automatic connection mode.

Duplex conversations

[Operation when both stations are engaged in hands-free conversation]

- When both stations (except the N-8410MS) are engaged in hands-free conversation, either full duplex conversation by way of an echo canceller* or half duplex conversation by way of a voice switch is made depending on conditions. (Refer to p. 8-2, "FULL DUPLEX AND HALF DUPLEX CONVERSATIONS.")
  During this conversation, station's internal settings (parameters relating to the condition of sound reflection) are constantly updated in response to the change in sound collected by the built-in microphone, allowing for optimum hands-free conversation.
  When both stations make hands-free conversation after either one has been moved in a new environment or the environment surrounding the station has significantly changed, this may cause acoustic feedback. In this case, continue the conversation and the situation will soon return to the normal condition.
  If acoustic feedback cannot be removed, adjust the microphone sensitivity and speaker output volume of the station.

  Note
  Use the supplied N-8000 Setting Software (refer to p. 5-65, p. 5-80) to set the microphone sensitivity and speaker output volume.
  It is possible to set the master station's speaker output volume at the station. (Refer to p. 2-5.)

  * An echo canceller is used to eliminate acoustic feedback caused when the voice outputs from the station's speaker are picked up by the same station's microphone. As acoustic feedback cannot be eliminated thoroughly, the echo canceller is usually used in conjunction with a voice switch.

- When the N-8410MS is engaged in hands-free conversation, the speech method is the one using a voice switch only. (Refer to p. 8-5.)

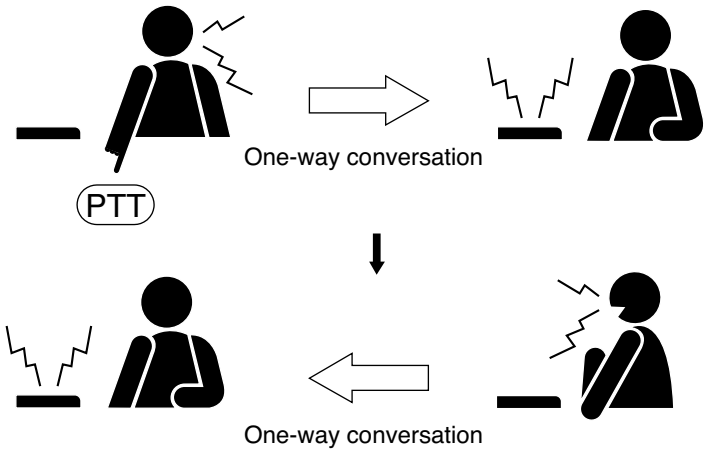
1.5.2. Handset conversation

Calls can be made or received by lifting the handset.

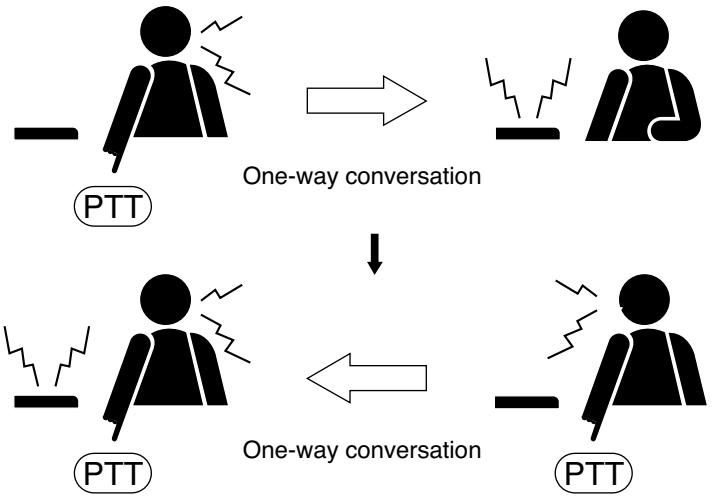
Duplex conversations

1.5.3. PTT conversation

This function makes announcements and conversations possible to areas with a high ambient noise level. Pressing the Push-to-talk key during a hands-free conversation enables one-way conversation from the party who pressed the Push-to-talk key. Conversation flow reverses when the key is released.



When both parties have pressed the Push-to-talk key, the party who pressed the button last is given precedence to speak.



2. CONVERSATION FUNCTIONS AND OPERATION

2.1. Calling

2.1.1. Individual calls

- The desired party can be called by pressing its station number with or without lifting the handset.
- Conversation can start when the called party answers and the call tone stops.
- A busy tone indicates that the called party is already engaged on another line. Connection to the called party will be made as soon as the busy line is freed.

2.1.2. Redialing

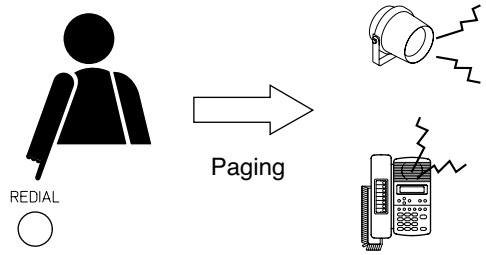
Pressing the Redial key automatically redials the last dialed number.
Only the N-8000MS Multifunctional Master Station and the N-8500MS/8600MS IP Multifunctional Master Station permit selection from the most recent 10 numbers dialed.

Tip
Keys to be registered into the Redial key are the Dial keys (12 keys), the Paging key, and the Function key.

When using the N-8010MS/8011MS/8020MS/8031MS/8033MS/8410MS/8510MS:

Press the Redial key to automatically redial the last dialed number (individual call, paging, etc.)

[Example when dialing the paging last]



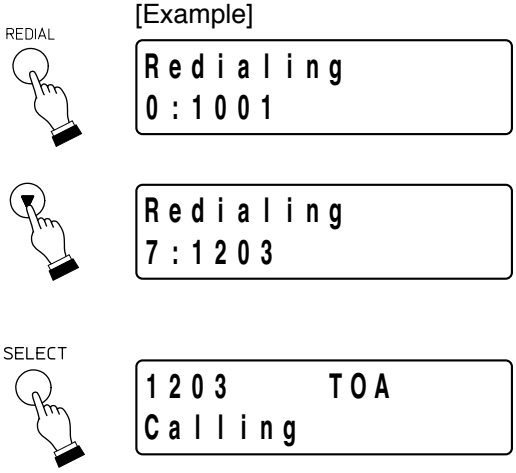
When using the N-8000MS/8500MS/8600MS station:

Step 1. Press the Redial key to display the most recently dialed numbers on the display.

Step 2. Use the Up and Down arrow keys to display the desired dial number. Pressing the Down arrow key displays the last ten numbers dialed in reverse chronological order. They are numbered 0 – 9 from top to bottom.

Step 3. Press either the Select or Redial key to perform the dial operation indicated on the display (individual call, paging, etc.).

[Example]

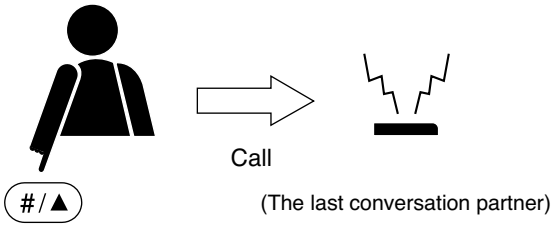


2.1.3. Recall

The last conversation partner can be recalled by pressing the [#/▲] key regardless of whether the call was made or received. Only the N-8000MS Multifunctional Master Station and the N-8500MS/8600MS IP Multifunctional Master Station permit selection from the most recent 10 numbers.

When using the N-8010MS/8011MS/8020MS/8031MS/8033MS/8410MS/8510MS:

Press the [#/▲] key to recall the last conversation partner regardless of whether the call was made or received.

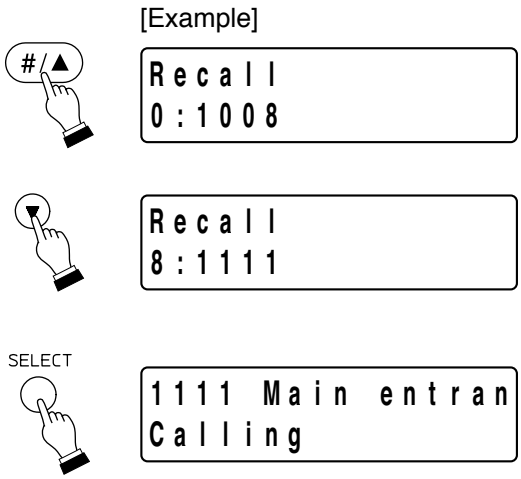


When using the N-8000MS/8500MS/8600MS:

Step 1. Press the [#/▲] key to display the recent dial data of the conversation partners regardless of whether the call was made or received on the display.

Step 2. Use the Up and Down arrow keys to display the desired dial number. Pressing the Down arrow key displays the last ten numbers dialed in reverse chronological order. They are numbered 0 – 9 from top to bottom.

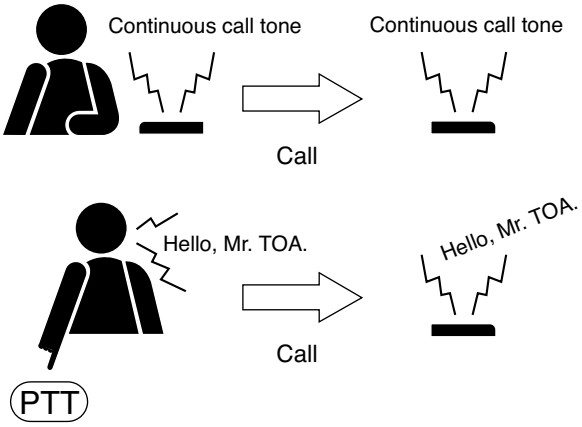
Step 3. Press either the Select or [#/▲] key to perform the dial operation indicated on the display.



2.1.4. Calling by voice (Only when the system is set to "Sequential Response" mode)

Calling by voice can be made to the partner during call by means of a continuous call tone and to the RS-140 placed in privacy mode.

- Voice a call to a called party by pressing the Push-to-talk key as the continuous call tone sounds.
  The call tone stops as long as the Push-to-talk key is pressed, enabling the called party to hear your voice.
- The original continuous call tone resumes as soon as the Push-to-talk key is released.
- For the RS-140 placed in privacy mode, the privacy tone resumes when the PTT key is released.



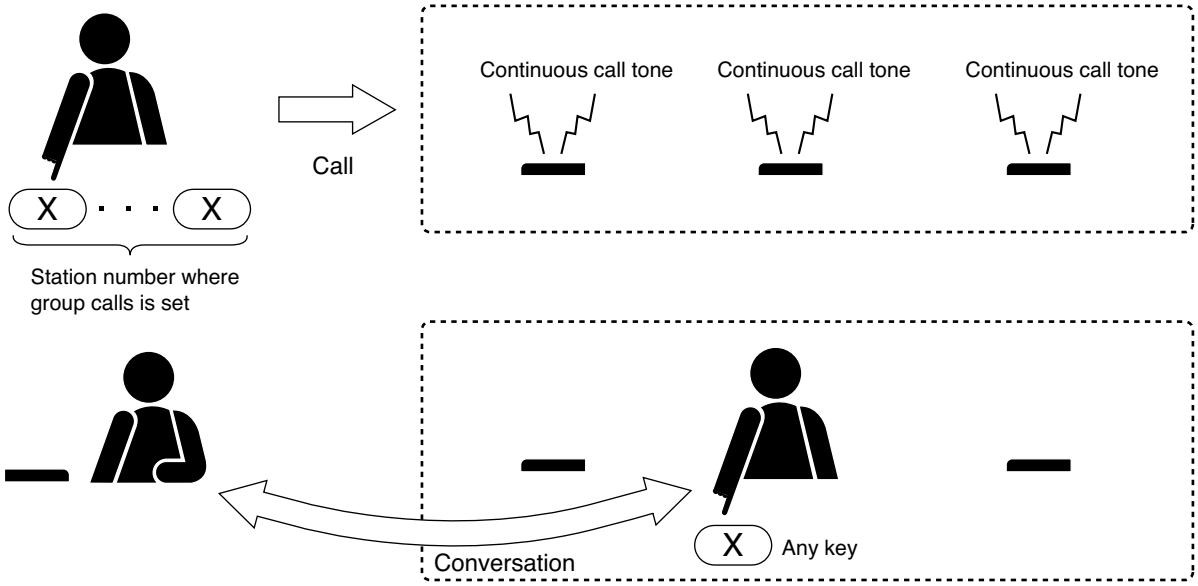
Note
Calling by voice cannot be made to the station which has been set as a member of group call.

2.1.5. Group calls

- When a station is assigned to group call member station, if the station is called, this station (representative station) and all member stations are simultaneously called by a continuous call tone regardless of their call receiving mode settings.

- Even when the representative station is busy, all of the associated member stations within the same group are called by means of a continuous call tone. This continuous call tone stops when any one of the associated stations responds to the call.
- Use the supplied N-8000 Setting Software to perform the group call member station setting. (Refer to p. 5-65, 5-80)

Notes
- The N-8050DS Door Station, N-8540DS/8640DS/8650DS IP Door Station, RS-150/160/170/180/450/460 /470/480 Substation, RS-140/143/144 Switch Panel, and RS-142/442 Switch Board cannot be assigned to the group call representative station nor member station.
- When the call response mode is set to “Selective Response,” the stations connected to the same N-8010EX Exchange or the N-8400RS Substation Interface Unit cannot be assigned to the group call member stations.



2.2. Setting Call Receiving Modes
(only when the system is set to "Sequential Response" mode)

Call receiving modes, and call tone on/off can be selected for each station.

Use the supplied N-8000 Setting Software to perform the setting. (Refer to p. 5-65, p. 5-80.)

2.2.1. Automatic connection

Incoming calls are automatically connected after a brief call tone (about 1 second) or without a call tone.
When a call is received, the status indicator changes from unlit to flashing red. It lights red continuously when a conversation begins.
Lifting the handset creates a handset conversation.

2.2.2. Continuous call

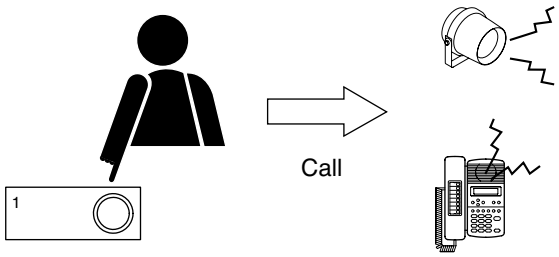
Calls continue with a continuous call tone (or without a call tone) and a status indicator flashes as long as there is no answer. When a call is received, the status indicator changes from unlit to flashing red. It lights red continuously when a conversation begins.
Handset conversation is established when the handset is lifted, and hands-free conversation when any key is pressed to answer a call (one-touch key response).

Note
The N-8050DS Door Station and N-8540DS/8640DS/8650DS IP Door Station cannot be set for the continuous call mode.

2.3. Speed Dialing

2.3.1. Auto-dialing (N-8000MS/8500MS/8600MS only)

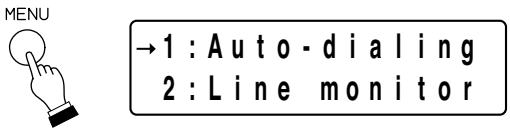
When the dial operation (up to 20-digit numbers) is preprogrammed into each station's Auto Dial key, such programmed call can be made by simply pressing a single key.



- Auto Dial keys can be programmed individually at each station.
- The contents programmed into each Auto Dial key can be confirmed at each station.

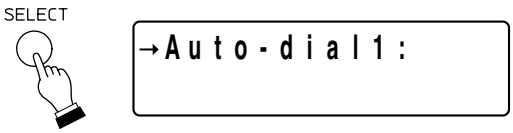
[Programming]

Step 1. Press the Menu key to set the display to Menu mode.

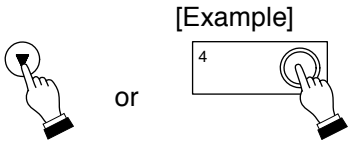


Step 2. Press the Select key to set the display to auto-dial programming mode, displaying the data already programmed into the Auto Dial key 1.

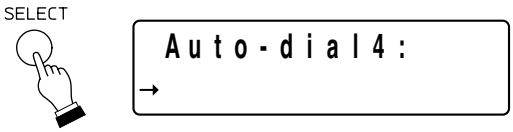
Tips
- Use the Left and Right arrow keys to scroll the display of programmed numbers with more than 15 digits.
- Since there are no factory program settings, the display is initially blank.



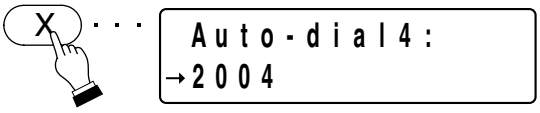
Step 3. Select the desired Auto Dial key by pressing the corresponding Auto Dial key directly or moving the cursor using the Up and Down keys.



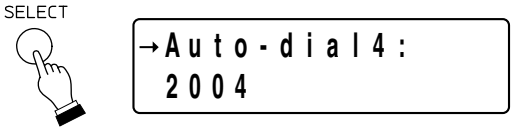
Step 4. Press the Select key to allow the contents programmed into the selected Auto Dial key to be edited.



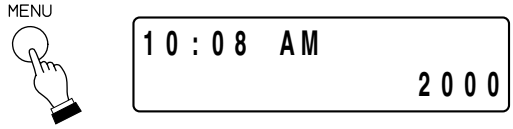
Step 5. Dial keys (12 keys), Paging key, Paging response key, Hold key, Transfer key, and Function key can be used for programming into the Auto Dial keys. Entering a number longer than 15 digits causes the screen to scroll.



Step 6. Press the Select key to enter the number into the program of the selected Auto Dial key. To continue programming additional Auto Dial, return to Step 3 and repeat the process.

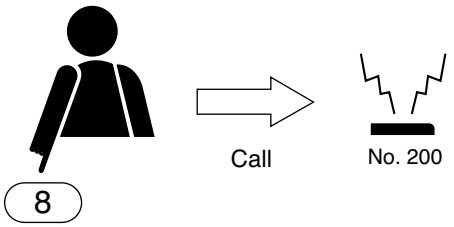


Step 7. Press the Menu key to return the screen to the normal (standby) mode.



2.3.2. One-touch dialing

Programming the dial operation (up to 32-digit numbers) into the station's [7], [8], [9], [0] or off-hook* key allows calls or other operation to be made by one-touch dialing.

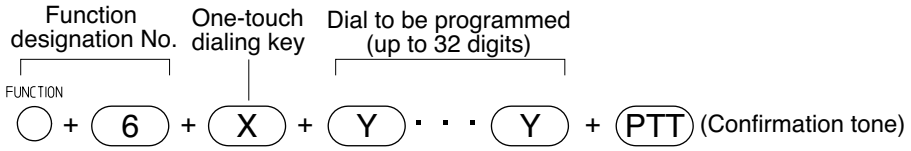


* The action to lift up the handset.

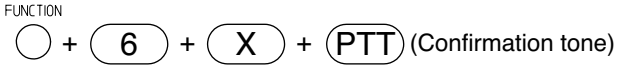
Notes

- Perform one-touch dial programming when using the external dial input terminal on the N-8031MS/8033MS.
- The one-touch programming can be performed either by dialing operation (see below) or using the supplied N-8000 Setting Software. (Refer to p. 5-68, 5-83.)

[Programming]



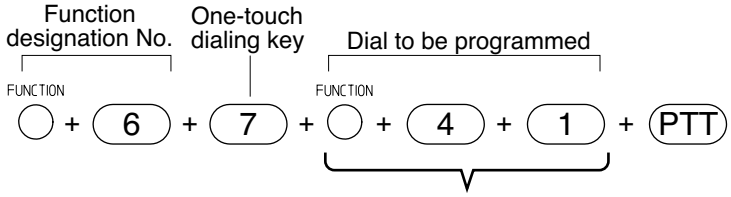
[Erasure]



Tips

- The key X above represents the [7], [8], [9], [0], or Push-to-talk key, which is used for one-touch functions.
- Enter one-touch dialing programming (the key Y above) using the Dial keys (12 keys), Paging key, Paging response key, Hold key, and/or Function key.

[Example] Programming [7] key for function designation number of Call forwarding.

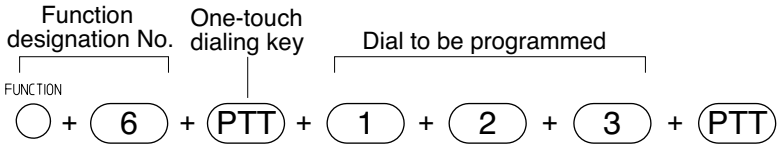


(Example) Function designation number of Call forwarding

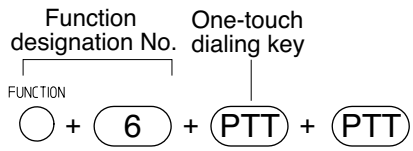
- Press the Push-to-talk key when enabling the Off-Hook function for one-touch key operation.

[Example] Programming and erasing of station [1][2][3] for the Off-Hook function.

[Programming]



[Erasure]



Note

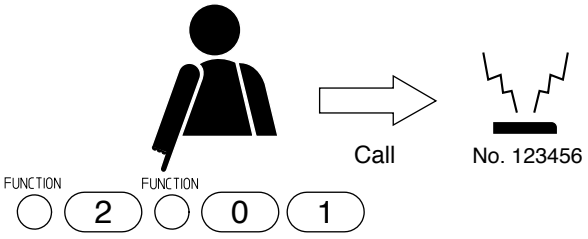
The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

2.3.3. Dial pattern activation (N-8600MS only)

When the dial operation (up to 380-digit numbers) is preprogrammed into the N-8600MS as dial pattern, such programmed call can be made by the following operation.

Press the function key, [2], and then the function key followed by the dial pattern number (01 – 54).

[Example]



Notes

- Enter dial pattern programming using the Dial keys (12), Paging key, Paging response key, Hold key, Transfer key, and/or Function key.
- Programming can be performed using the supplied N-8000 Setting Software. (Refer to p. 5-77.)

2.4. Hold

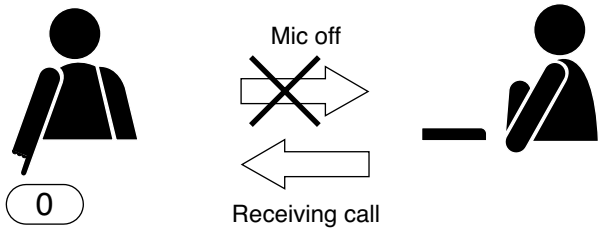
2.4.1. Mic off

Disabling the microphone during a conversation places the line on hold.

[Mic off]

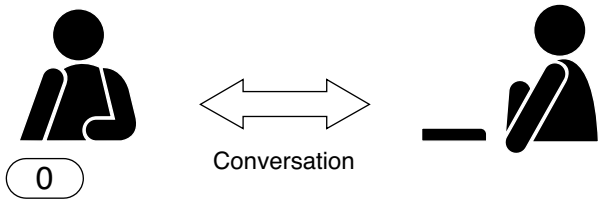
Hold down any key of [0] through [9] continuously during a conversation.

[Example]



[Mic off release]

If the key being held down is released, the original conversation mode is restored.



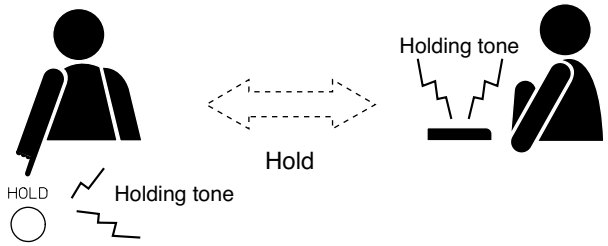
Release the key hold down.

2.4.2. Call hold

Calls during conversations can be placed on hold.

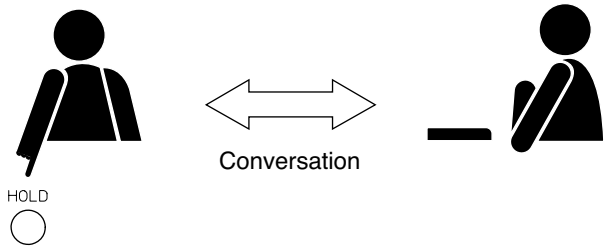
[Hold]

When the Hold key is pressed during conversations, a hold tone is heard at both parties, placing the conversation on hold.
If the handset is replaced with Hold key is pressed, the conversation is not terminated.



[Hold release]

If the Hold key is pressed again, the hold mode is cancelled, and the original conversation mode is restored.
If the call is on hold with the handset on hook, only lifting the handset cancels the hold mode.



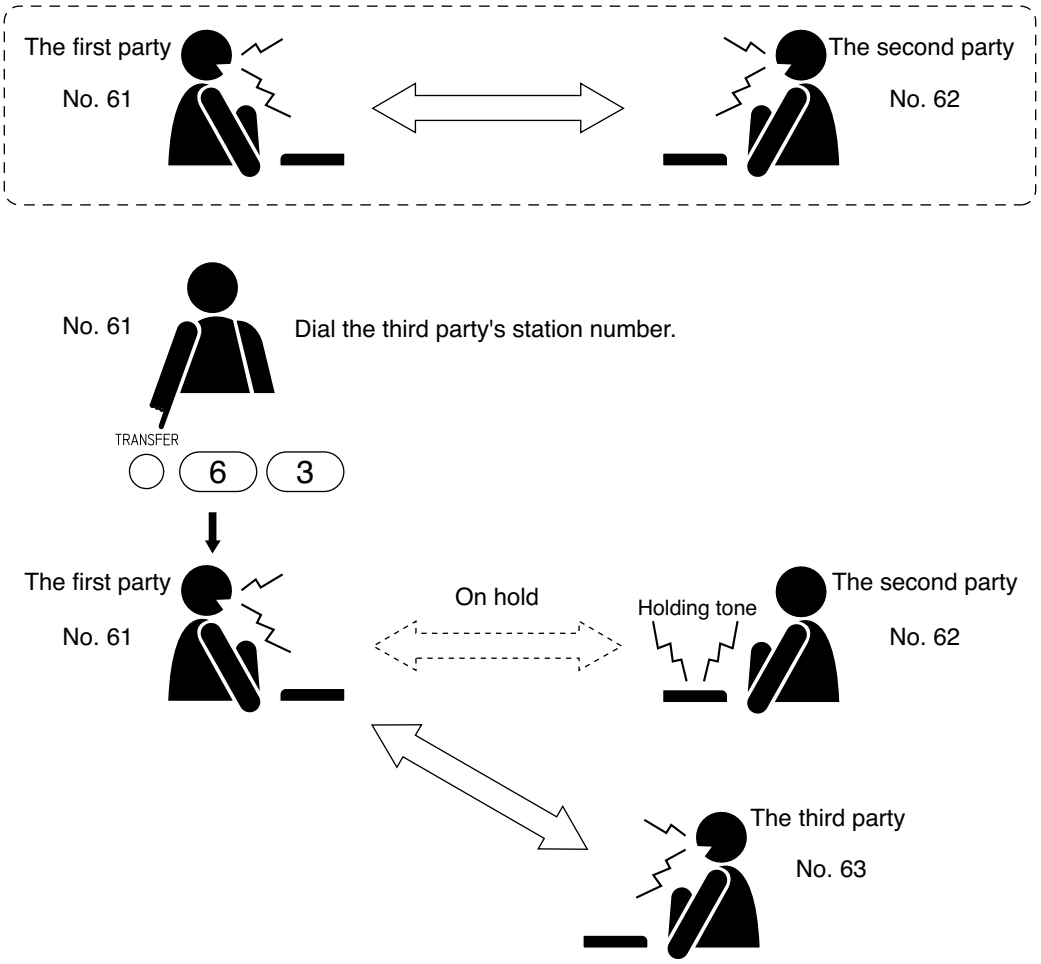
2.5. Call Transfer

Either party engaged in two-party conversation can call the third party to make conversation with (placing the original conversation partner on hold). After the conversation end, it is possible to restore the original two-party conversation or transfer the conversation with the third party to the original conversation partner.

Note
The stations connected to the N-8010EX/8400RS cannot transfer the calls.

Step 1. Press the Transfer key during two-party conversation.
The current conversation is placed on hold, sending a hold tone to the other party.

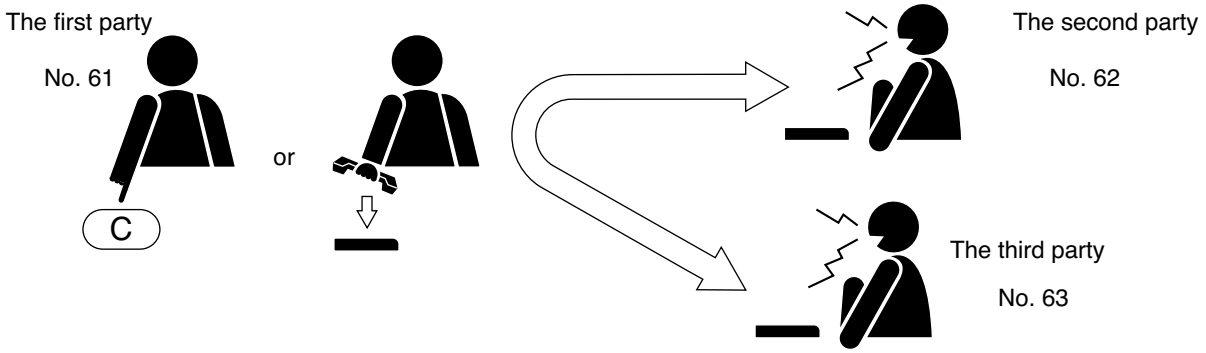
Step 2. Dial the third party's station number, for example [6][3]. If the third party answers, the first party can speak with the third party while keeping the original conversation on hold.



After completing the conversation with the third party, the first party can transfer the original conversation to the third party or return to the original conversation, as described on the next page.

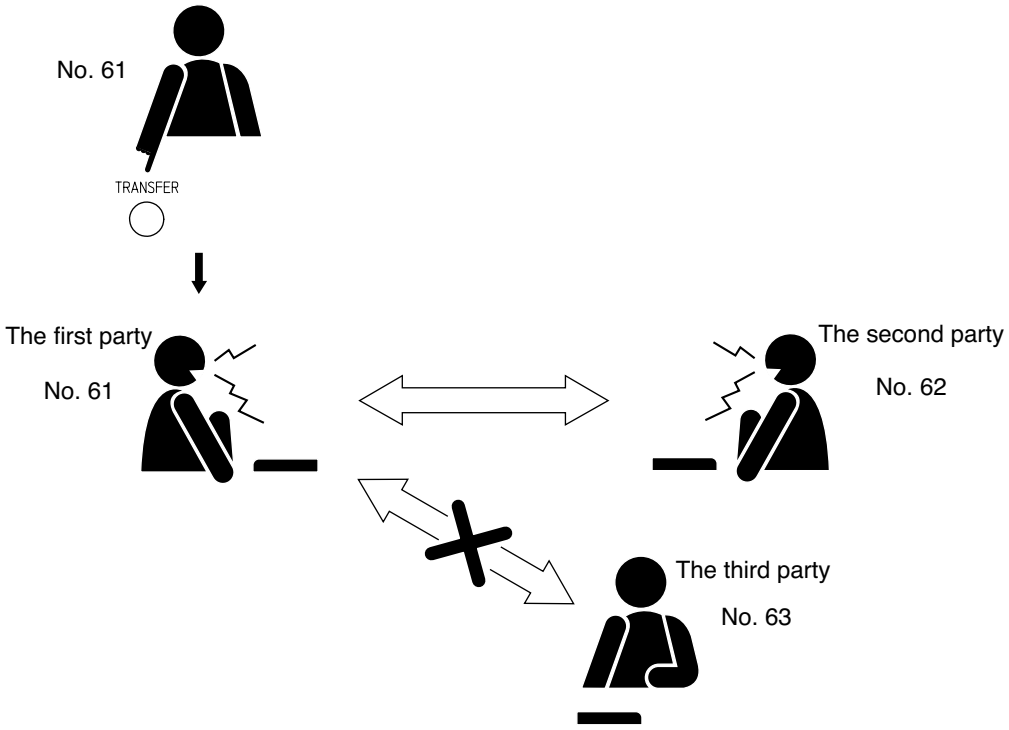
[Transferring calls to the third party]

Step 3. To connect the third party to the original conversation partner being placed on hold, either press the Clear key or replace the handset. This permits conversation between the second and third parties.

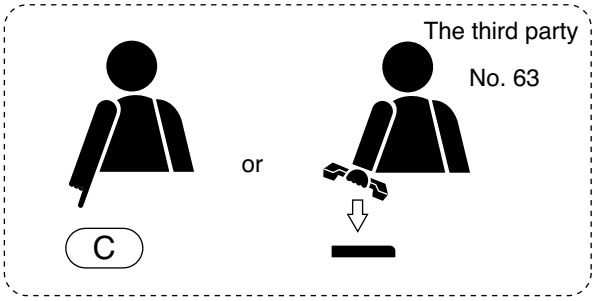


[Returning to the original conversation]

Step 4. To return to the original conversation without transferring it to the third party, press the Transfer key again. The original two-party conversation is restored.



Tip
Even if the first party does not press the Transfer key, if the third party either presses the Clear key or replaces the handset, the original conversation is restored.



2.6. Automatic Transfer

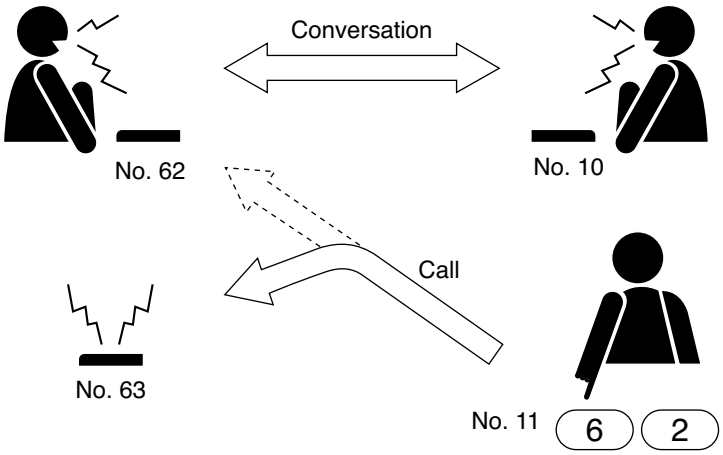
Note
Calls cannot be automatically transferred to the station connected via the multi interface unit.

2.6.1. Group hunting

Calls to a busy station set for Group hunting are automatically transferred to another designated station.
This Group hunting function also applies to the call transfer (p. 2-15) performed during conversation.

Note
The station to which a call is to be transferred can be set either by dialing operation (see p. 2-18) or using the supplied N-8000 Setting Software. (Refer to p. 5-65, 5-80.)
Use the supplied N-8000 Setting Software to enable or disable the Group hunting function. (Refer to p. 5-35, 5-62.)
The station to which a call is to be transferred cannot be designated unless the group hunting function is enabled.

(Example: A call to the station number 62 will automatically be transferred, if No. 62 is busy, to the next designated station, No. 63.)



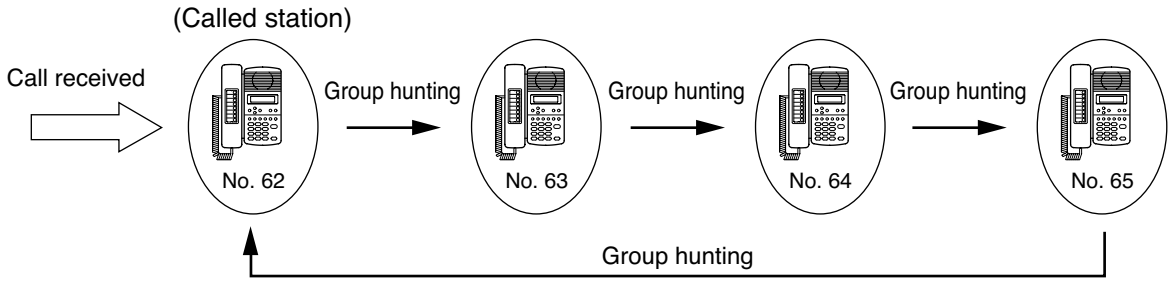
Notes
Calls are not transferred under the following conditions.
- The designated station is set for Call forwarding.
- The designated station is not in standby mode. (However, even when the designated station is busy, if it is set for Group hunting, the call is further transferred to the next designated station.)
- The station set for Group hunting is called as a representative or its associated member station of the group.
- The designated station is busy when the system is set to "Selective Response."
- The designated station is the Remote microphone station placed in Privacy mode.

[When the called station and the call forwarding receiving stations are all busy]

The called station and the call forwarding receiving stations differ in operations during conversations depending on the system's call response mode.

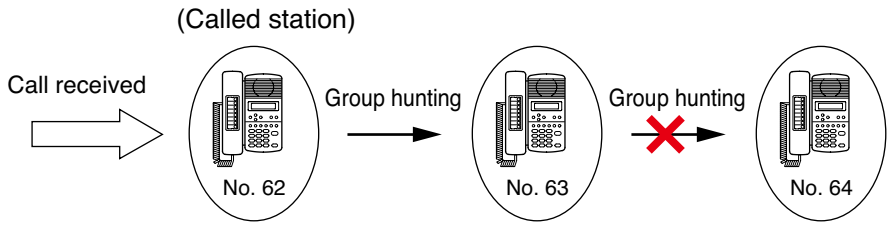
Sequential response mode: When the designated station set for Group hunting to which a call was transferred is busy, the call is automatically transferred to the next designated station, and this continues in series until a free line is found.

[Setting example] Settings can be performed to permit calls to be transferred to designated stations in a cyclical manner.
Calls to the busy station No. 62 is transferred to the designated stations No. 62 through No. 65 in a cyclical manner until one of those stations becomes free.



Selective response mode: Calls are responded by the called station or the call forwarding receiving station on a first-in-first-come basis. Calls cannot be transferred further to other stations even if the transfer destination station is set for Group hunting.

[Setting example] Calls to the station No. 62 can be responded by either station No. 62 or No. 63 even if the group hunting function is registered at the station No. 63.



Programming or erasure can be performed at your station.

[Programming]

Function designation number / Transfer destination station number

FUNCTION ○ + 4 5 + X · · · X + #/▲ (Confirmation tone)

[Erasure]

The originally called (your) station number

FUNCTION ○ + 4 5 + Y · · · Y + #/▲ (Confirmation tone)

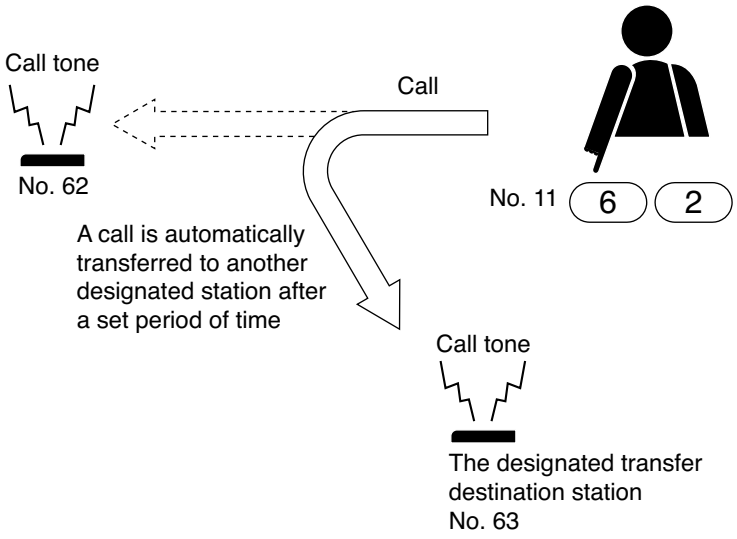
Notes

- The station to which a call is to be transferred via multi interface unit cannot be programmed as a transfer destination station.
- The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

2.6.2. Absence transfer

When no response is made to a call to the station set for Absence transfer for a set period of time, the call is automatically transferred to another designated station.
Calls received during conversations can be transferred. (Refer to p. 2-15.)

The station to which a Absence transfer is to be transferred can be set either by dialing operation (see below) or using the supplied N-8000 Setting Software. (Refer to p. 5-65, 5-80.)
Use the supplied N-8000 Setting Software to enable or disable the Absence transfer or to set a calling duration. (Refer to p. 5-35, 5-62.)
The station to which a call is to be transferred cannot be designated unless the Absence transfer function is enabled.



Notes
Calls are not transferred under the following conditions,
- The designated station is set for Call forwarding.
- The designated station is not in standby mode.
- The station set for Absence transfer is called as a representative or its associated member station of the group.
- The designated station is the Remote microphone station placed in Privacy mode.

Programming or erasure can be performed at your station.

[Programming]

Function designation number / Transfer destination station number

FUNCTION ○ + 4 4 + X · · · X + #/▲ (Confirmation tone)

[Erasure]

The originally called (your) station number

FUNCTION ○ + 4 4 + Y · · · Y + #/▲ (Confirmation tone)

Notes
- The station to which a call is to be transferred via multi interface unit cannot be programmed as a transfer destination station.
- The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

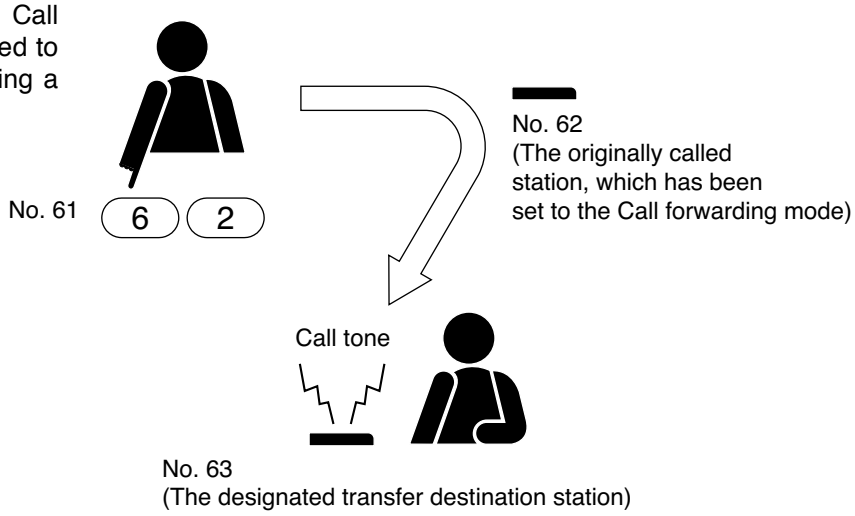
2.6.3. Call forwarding

Calls to stations set for call forwarding are automatically transferred to another designated station without sounding a call tone.
Two different modes are available: one is Call forwarding, in which calls are manually rerouted to the selected station, and the other is Time-based Call forwarding, which transfers calls only when the preset time is reached. This Call forwarding function also applies to the call transfer (p. 2-15) performed during conversations.

The station to which a Call forwarding is to be transferred can be set either by dialing operation (see below and p. 2-21) or using the supplied N-8000 Setting Software. (Refer to p. 5-65, 5-80.)
Use the supplied N-8000 Setting Software to enable or disable the Call forwarding function or to set the transfer start/end time. (Refer to p. 5-35, 5-62.)
The station to which a call is to be transferred cannot be designated unless the Call forwarding function is enabled.

Notes
Calls are not transferred under the following conditions.
- The station set for Call forwarding is called as an associated member station of the group.
- The designated station is the Remote microphone station placed in Privacy mode.

[Calls to stations manually set for Call forwarding]
Calls to the station manually set for Call forwarding are automatically transferred to the designated station without sounding a call tone.



Programming can be performed at your station or the transfer destination station, while erasure at your station.

[Programming at your station]
Function designation number: 41 — Transfer destination station number: X · · · X
FUNCTION + 4 1 + X · · · X + #/▲ (Confirmation tone)

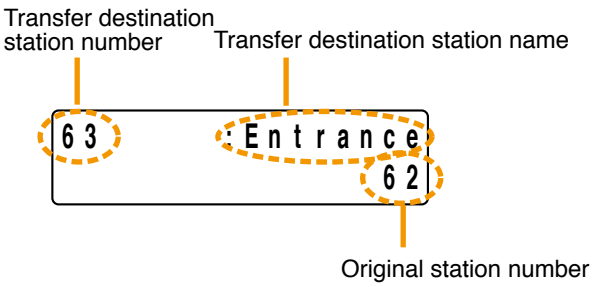
[Programming at the transfer destination station]
The originally called (your) station number: Y · · · Y
FUNCTION + 4 2 + Y · · · Y + #/▲ (Confirmation tone)

[Erasure]
(available only at your station)
The originally called (your) station number: Y · · · Y
FUNCTION + 4 1 + Y · · · Y + #/▲ (Confirmation tone)

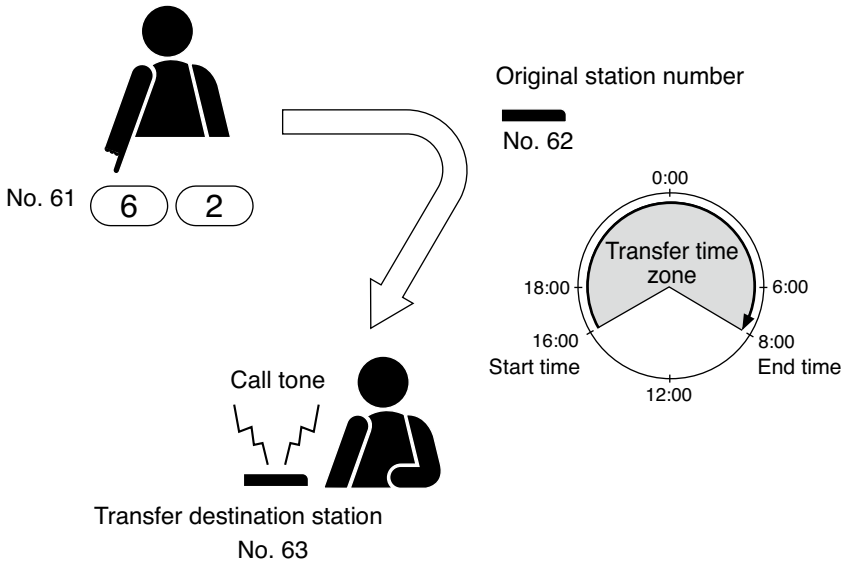
Notes
- The station to which a call is to be transferred via multi interface unit cannot be programmed as a transfer destination station.
- The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

[Calls to stations set for Time-based Call forwarding]

Step 1. When the preset transfer time is reached, the station's display shows the station (e.g. No. 62) has entered the Time-based Call forwarding mode (N-8000MS/8500MS/8600MS only).



Step 2. Calls to stations (original station) are automatically transferred to the transfer destination station without sounding a call tone.



Programming or erasure can be performed at your station.

[Programming]

Function designated number: FUNCTION + 4 3
Transfer destination station number: + X · · · X
+ #/▲ (Confirmation tone)

[Erasure]

The originally called (your) station number: FUNCTION + 4 3 + Y · · · Y + #/▲ (Confirmation tone)

Notes

- The station to which a call is to be transferred via multi interface unit cannot be programmed as a transfer destination station.
- The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

2.7. Remote Response (only when the system is set to "Sequential Response" mode)

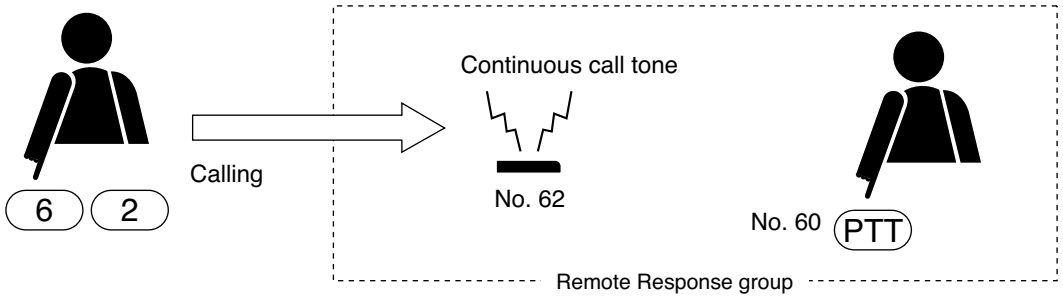
When a station is being called, such calls can be answered by another station instead if these stations are assigned to the same group.
Up to 16 stations can be set to a Response group.
The Remote Response function can only be used while calls are being made by a continuous call tone.
The Remote response function cannot be used for answering a call made by the group call function.

Notes

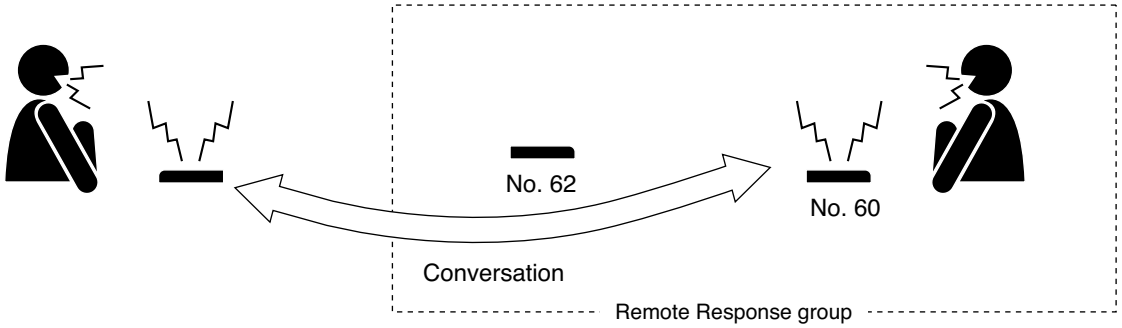
- Remote Response group can be set either by dialing operation (see p. 2-23) or using the supplied N-8000 Setting Software. (Refer to p. 5-125.)
- The stations connected to the N-8010EX/8400RS cannot be assigned to the Remote Response group.

[Operation example]

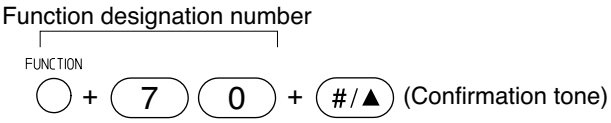
Press the Push-to-talk key while the station assigned to the same Remote Response group (Example 62) is being called by a continuous call tone.



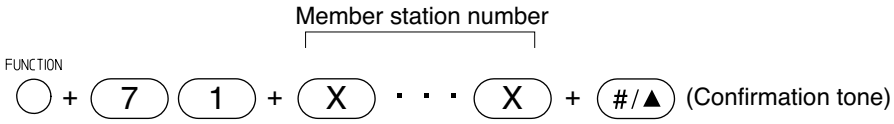
The party (Station No. 60) who pressed the Push-to-talk key can respond instead of the called station (No. 62).



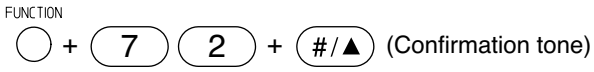
[Remote response group new programming]



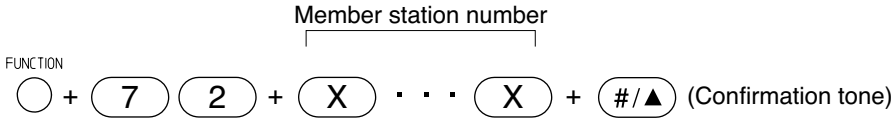
[Remote response group member addition]



[Remote response group erasure]



[Remote response group member erasure]



Notes

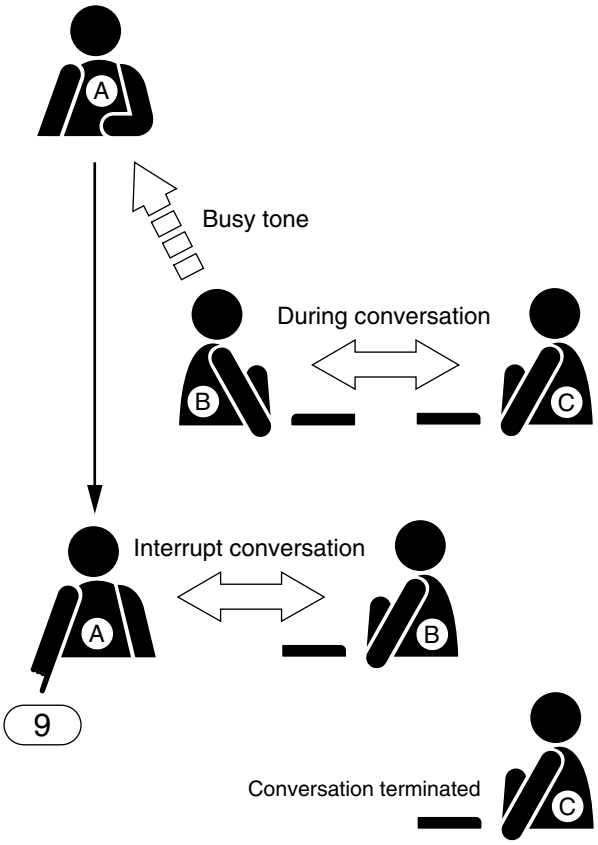
- Stations currently set for other Remote Response groups can not establish a different Remote Response group.
- Stations currently set for other Remote Response groups cannot join a different Remote Response group as a member station.
- Stations currently set for other Remote Response groups cannot erase from a member station of the Remote Response group.
- The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

2.8. Executive Priority (only when the system is set to "Sequential Response" mode)

If a called station is busy, as indicated by a busy tone, performing Priority operation from a call station transmits a short priority call tone, then forcibly terminates the current conversation, allowing the call to go through. Access to priority call operation or refusal of priority calls can be set individually for each station.
Use the supplied N-8000 Setting Software to perform the setting. (Refer to p. 5-67, 5-82.)

Note
The Executive priority calls cannot interrupt the stations connected to the N-8010EX/8400RS and the telephones connected to the N-8000AL.

[Operation]
When Station A calls Station B, which is at that time engaged in a conversation with Station C, press [9] key at Station A.



A priority call tone is transmitted to both Stations B and C, and the conversation is forcibly terminated, enabling Station A to be connected to Station B.

Note
If a function to refuse priority calls has been assigned to Station B being called, Station A cannot interrupt Station B and the busy status remains unchanged.

3. PAGING FUNCTION AND OPERATION

3.1. Paging

Paging stations are preprogrammed.
Paging durations can be limited by preprogramming the time limit (between 10 and 990 seconds in 10-second units) for each exchange or IP station.

Note
Use the supplied N-8000 Setting Software to enable or disable the paging operation and to set the paging duration. (Refer to p. 5-36, 5-63, 5-67, 5-82.)

3.1.1. Zone paging

Paging calls can be made to one of the pre-programmed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

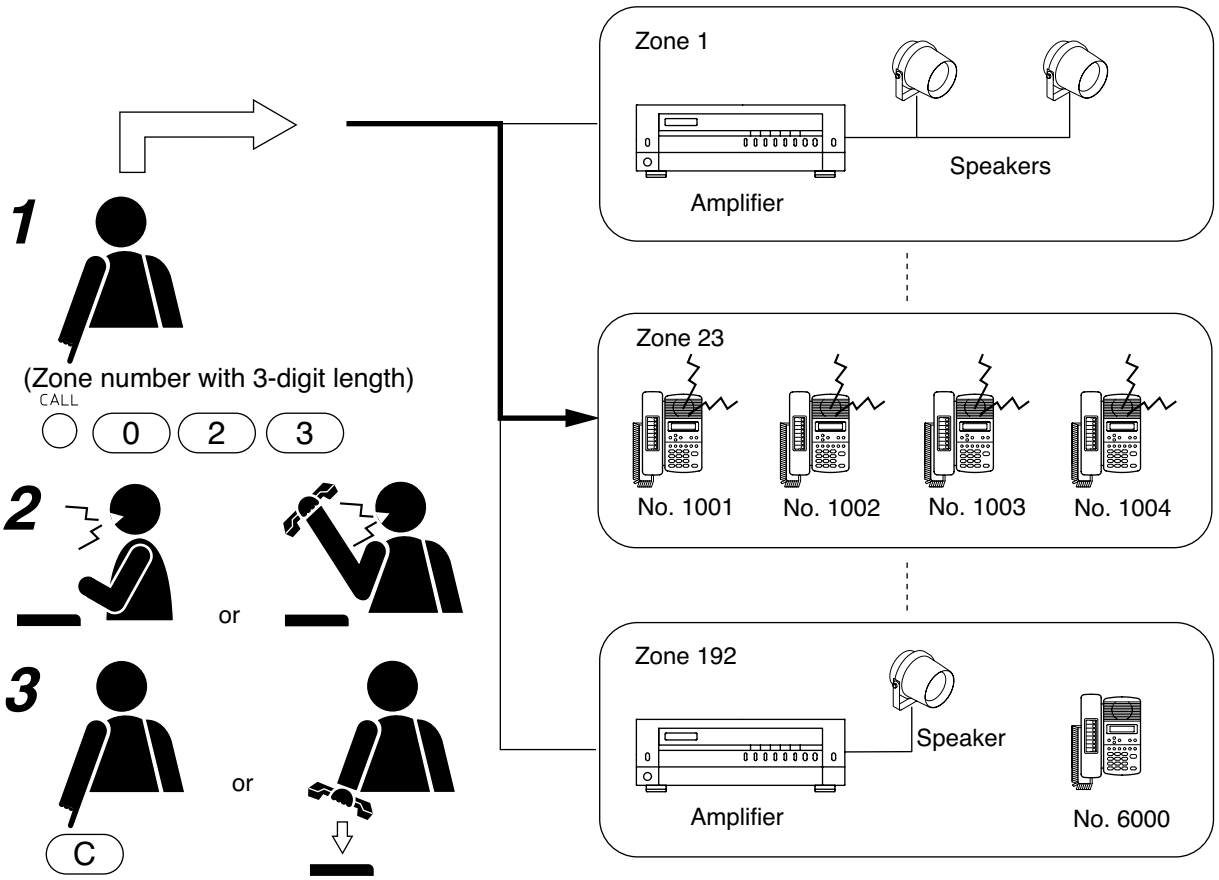
Step 1. Press the Paging key, followed by the desired paging zone number (1 – 192).
A paging tone is transmitted to the selected zone.

Note
Enter a zone number with the digit length (1 – 3 digits) set by way of the N-8000 Setting Software.

Step 2. Page with the handset either lifted or in place.
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32), announce the response zone number to the paged party in the paging message.

Step 3. Either press the Clear key or replace the handset.
The paging is completed.

[Example paging to the zone 23]



3.1.2. Selectable paging

Paging calls can be made to up to 50 preprogrammed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

Step 1. Press the Paging key, then [∗/▼] key followed by the desired paging zone number (1 – 192).

Note
Enter a zone number with the digit length (1 – 3 digits) set with the N-8000 Setting Software.

Step 2. To select the zone numbers consecutively, press the [∗/▼] key.

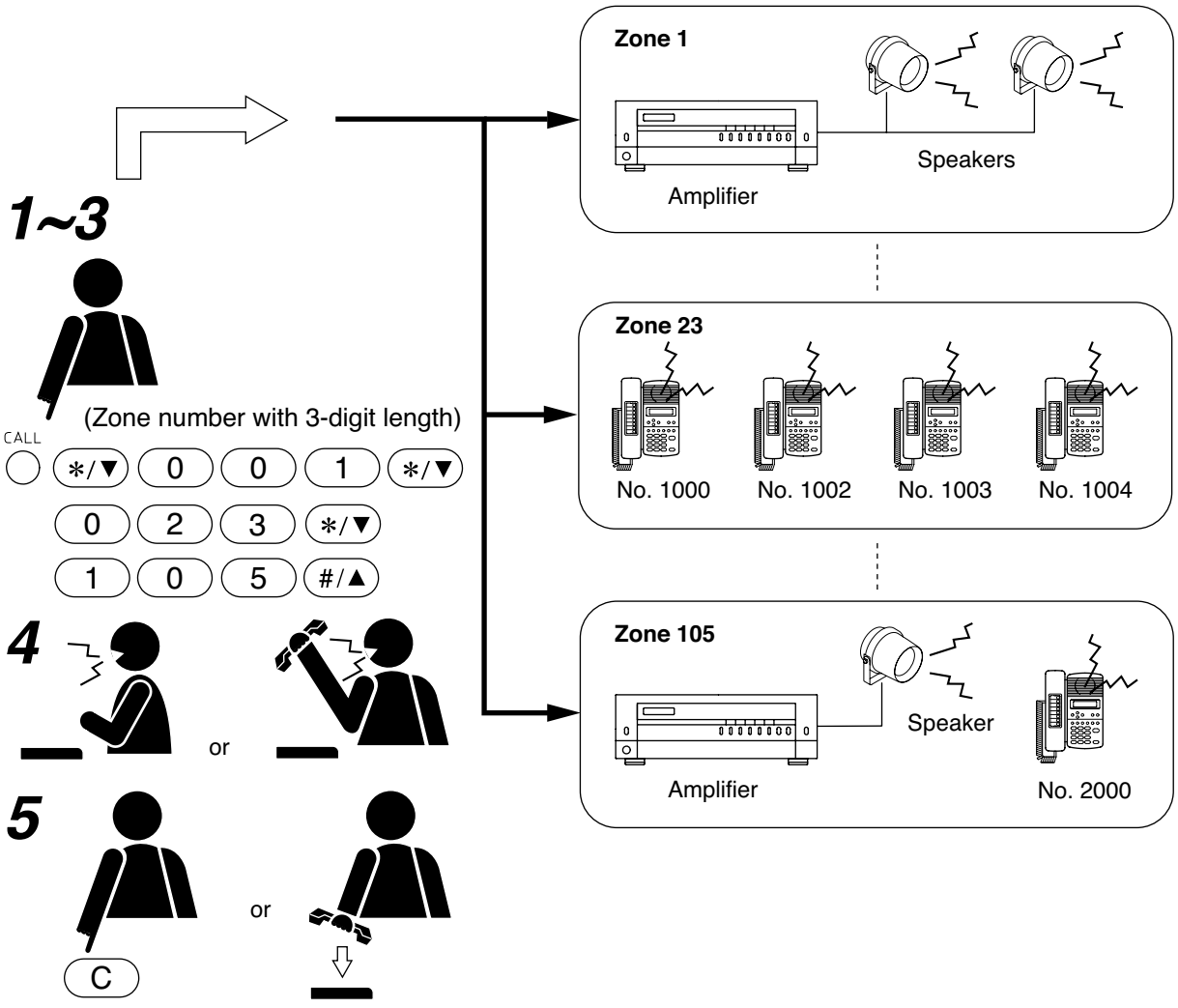
Step 3. To terminate the zone selection, press the [#/▲] key following the zone number.
A paging tone is sounded in the selected zone(s).

Step 4. Page with the handset either lifted or in place.

Note
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32.), announce the response zone number (any one of the paged zones) to the paged party in the paging message.

Step 5. Either press the Clear key or replace the handset.
The paging is completed.

[Example paging to the zones 1, 23, and 105.]



3.1.3. Selectable paging to individual zones or the zones set by a zone pattern (N-8600MS only)

Broadcasts can be made to the preset multiple zones (individual zones or a zone group set as a zone pattern*).

* A pattern into which multiple paging zones are grouped.

Note
Set the paging zone and zone pattern using the supplied N-8000 Setting Software. (Refer to p. 5-121, 5-77.)

Step 1. Press the Paging key.

Step 2. Select a zone.
Multiple zones or zone patterns can be sequentially selected by repeating the key operation in the following **step 2-1** or **2-2**.

Note
The maximum number of digits for zone selection dial is 380.

2-1. When selecting a zone
Press the [∗/▼] key, followed by the desired paging zone number (1 – 192).
Note
Enter the zone number with the digit length set by the N-8000 Setting Software.

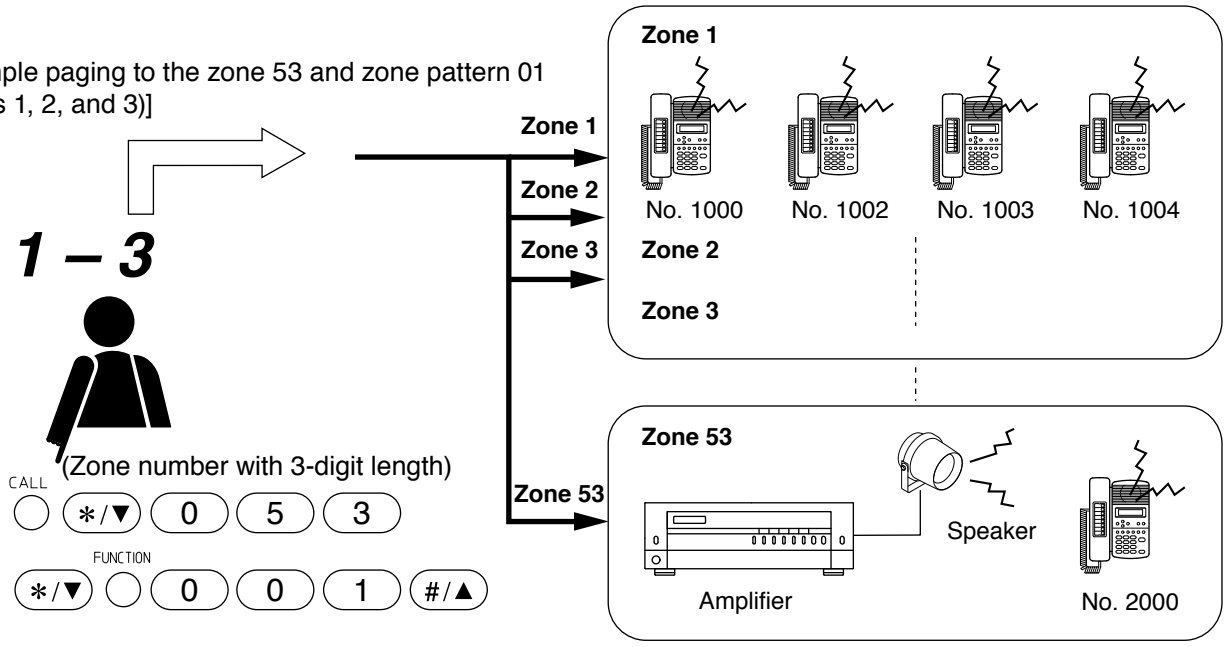
2-2. When selecting a zone pattern
First press the [∗/▼] key and then Function key, followed by the desired paging zone pattern number (001 – 216).

Step 3. Press the [#/▲] key.
A paging tone is transmitted to the selected zone(s).

Step 4. Page with the handset either lifted or in place.
Tip
When the Call response mode is set to "Zone number designation response" (refer to p. 2-32), inform the zone number (only one of the paged zones) to respond to at a paging call.

Step 5. Either press the Clear key or replace the handset.
Paging is completed.

[Example paging to the zone 53 and zone pattern 01 (zones 1, 2, and 3)]



3.1.4. All-call paging

Paging calls can be made simultaneously to all of the pre-programmed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

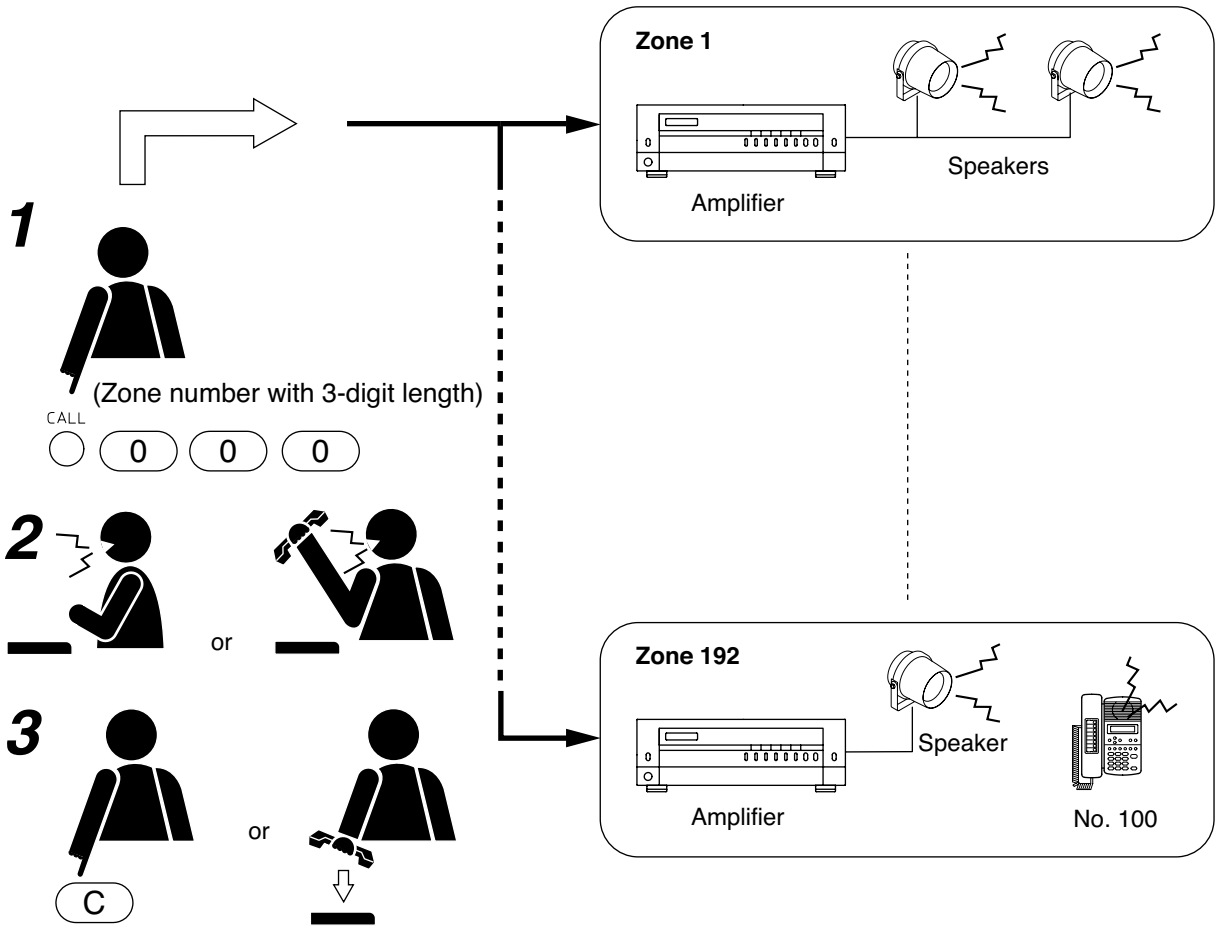
Step 1. Press the Paging key, followed by the paging zone number "0" (for all-call paging).
A paging tone is transmitted to all zones.

Note
Enter a zone number with the digit length (1 – 3 digits) set with the N-8000 Setting Software.

Step 2. Page with the handset either lifted or in place.

Note
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32), notify the paged party to respond to [0] in the paging message.

Step 3. Either press the Clear key or replace the handset.
The paging is completed.



3.1.5. Emergency paging

This function terminates all conversations, paging calls and other functions currently in progress throughout the system, and simultaneously makes a paging call to all stations, the N-8000EX IP Intercom Exchange's audio outputs, the N-8000MI Multi-Interface Unit designated as paging output, and N-8000AF Audio Interface Unit's audio output.

Note
All contact output terminals of N-8000MI and N-8000AF units included in the paging zone are closed.

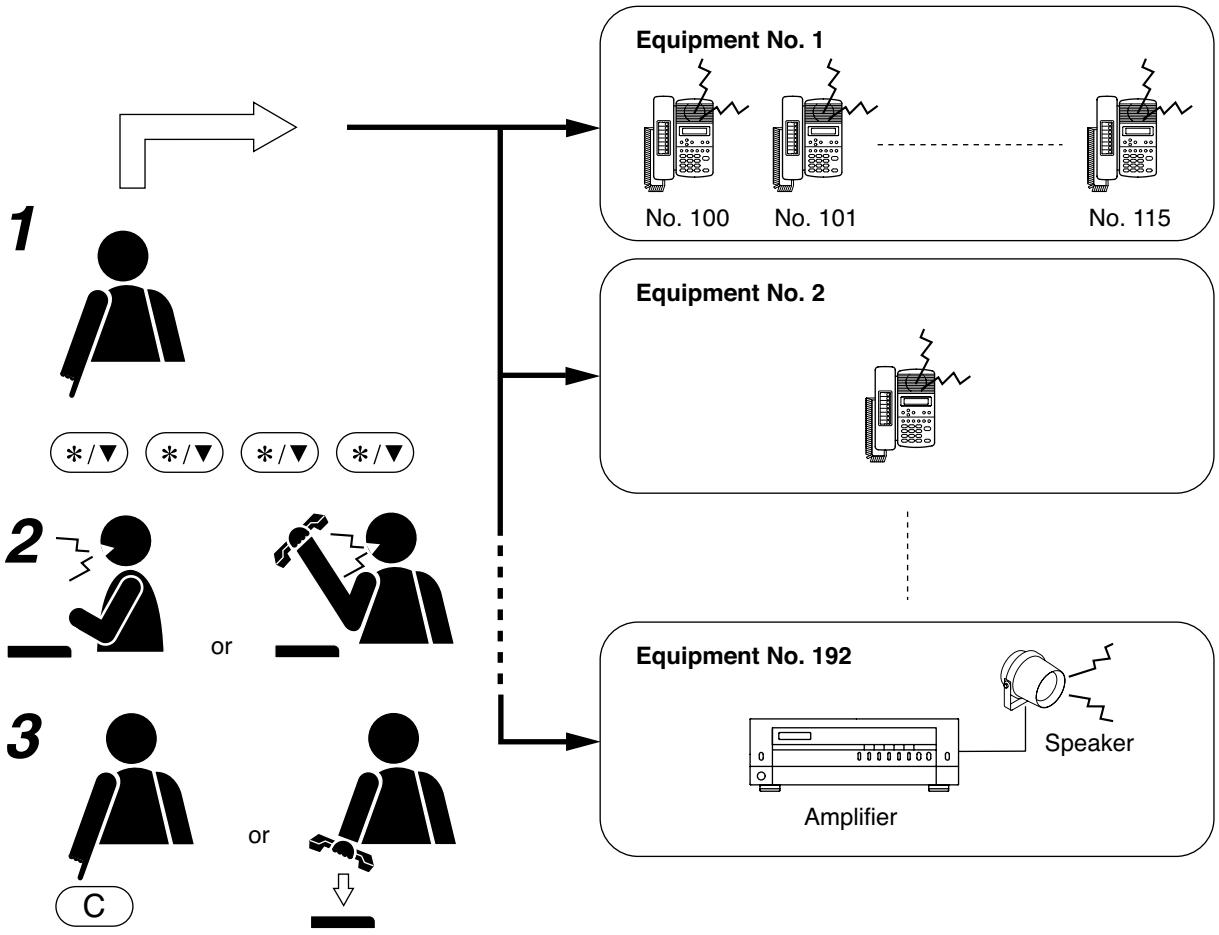
Step 1. Press the [∗/▼] key four times.
All functions currently in operation are terminated, transmitting a paging pre-announcement tone to all zones.

Step 2. Page with the handset either lifted or in place.

Note
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32), notify the paged party to respond to [∗] in the paging message.

Step 3. Either press the Clear key or replace the handset.
The paging is completed.

Note
Functions terminated by Emergency paging are not restored, even when the Emergency paging is completed.



3.1.6. Paging priority

[Emergency paging]

Emergency paging takes precedence over conversations, paging calls and all other functions. Initiating Emergency paging terminates all other functions currently in operation, and these functions are not restored even when the page is completed. Further, all other functions are disabled until the Emergency paging is completed.

[All-call paging, zone paging and selectable paging priorities]

The all-call paging has the highest priority, while the zone paging and selectable paging are the same in priority level.

- Initiating the all-call paging during the zone or selectable paging terminates the zone or selectable paging, allowing the all-call paging to go through.
- Initiating another paging of the same priority during a paging causes the later paging to be held busy when the paged station or in-use PA paging output overlaps.

[All paging function priorities]

Priorities are assigned in the following order.
- Emergency paging
- Message paging
- External input paging (when priority is enabled) (Refer to p. 2-181.)
- All-call paging
- Zone paging and selectable paging

Note
For more information, read "Priorities" on p. 2-177.

3.2. Responding to Paging

If the paged party responds at the nearest station, the paging party is called and put through to the paged party. "Automatic Response" and "Zone Number Designation Response" modes are available for the paging response, and the system is preset to one of the two modes. (Refer to p. 5-36, 5-63.)

Notes

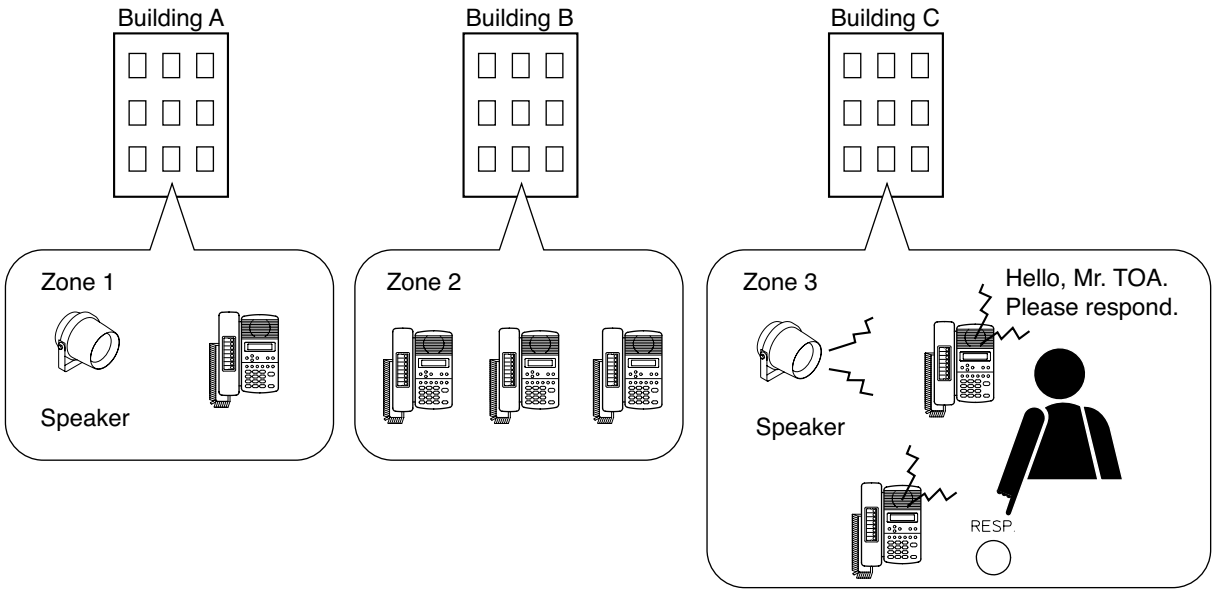
- In the system when the call response mode is set to "Selective Response," paging response cannot be performed at a paging receiving station. In this case, respond to the paging after the paging call ends.
- In the system when the call response mode is set to "Sequential Response" and the station paging receiving mode* set to "Paging priority," paging response cannot be performed at a paging receiving station. Respond to the paging after the paging call ends.
  * The station that receives station paging operates in either Conversation priority mode or Paging priority mode, which has been already set to the station. (Refer to p. 5-36, 5-63.)

3.2.1. Automatic response

If the paged party responds by pressing the Paging Response key, the paging party who made the last page is called and put through to the paged party.

[Operation]

Press the Paging Response key. The paging party who made the last page is called and put through to the paged party.



- Since each paging zone is independent, responding from any station where a paging call is received connects the paged party to the paging party.

3.2.2. Zone number designation response

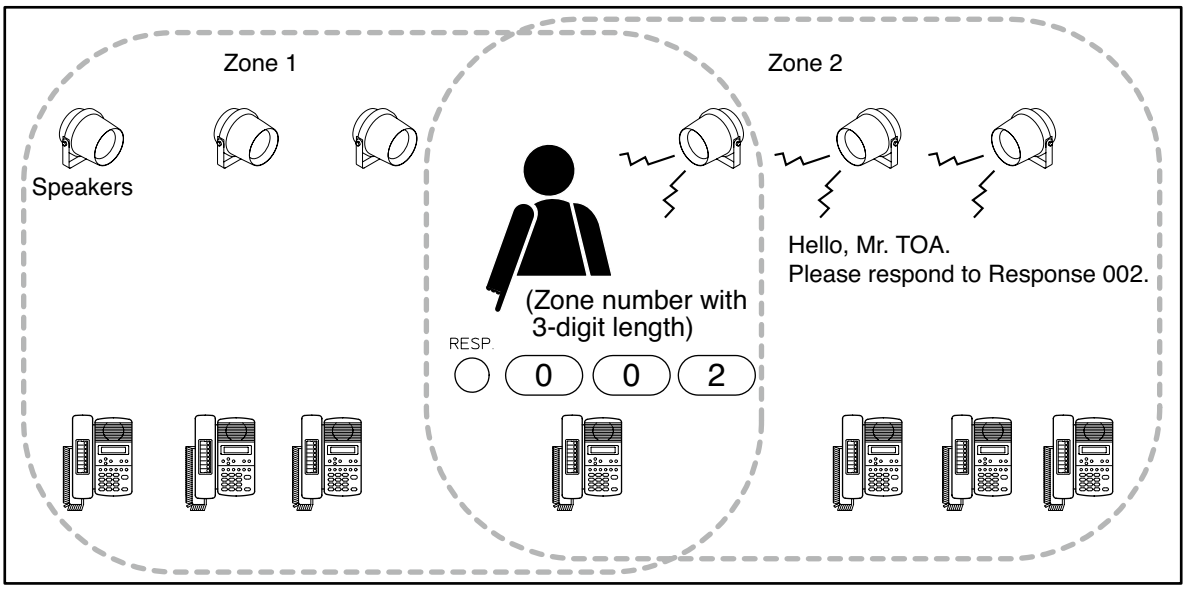
If the paged party responds by pressing the designated zone number, the paging party who made the paging to the designated zone last is called and put through to the paged party.
When making a paging, the paging party should announce the paging zone to respond.

[Operation]

Press the Paging Response key, followed by zone number paged.

Note
Enter a zone number with the digit length (1 – 3 digits) set with the N-8000 Setting Software.
The paging party who made the paging to the designated zone last is called and put through to the paged party.

[Example]



The station that can make response is as follows.

- Station assigned to the paged zone
- Station assigned to the paged zone and station connected to the same exchange as the PA paging output is connected to.

4. BROADCAST TO SX-2000 SYSTEM (N-8600MS only, only when SX-200IP is used)

4.1. Selected Zone Broadcast

Broadcasts can be made to the zone(s), or zones assigned to a zone pattern*1 within the SX-2000 system area. Broadcast durations can be limited by preprogramming the time limit (between 1 and 20 minutes in 1-minute units) for each station.

*1 A pattern into which multiple zones are grouped.

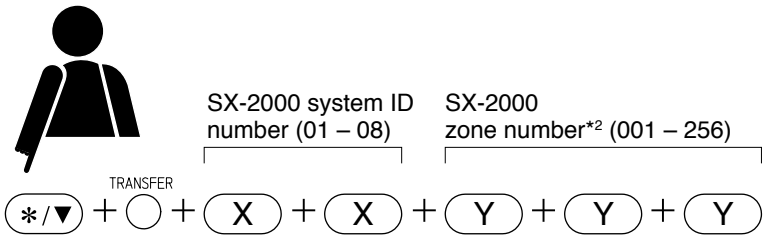
Notes
- Perform zone pattern settings using the N-8000 Setting Software. You can also import and use the output zone pattern having been set on the SX-2000 Setting Software. (Refer to p. 5-77.)
- Set the time limit (Time out) using the supplied N-8000 Setting Software. (Refer to p. 5-72.)

Step 1. Press the Paging key.

Step 2. Select a zone.
Multiple zones or zone patterns can be sequentially selected by repeating the key operation in the following **step 2-1** or **2-2**.

Note
The maximum number of digits for zone selection dial is 380.

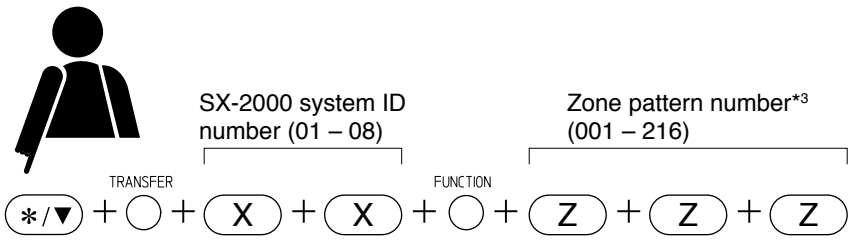
2-1. When selecting a zone
Press the following keys in order.



*2 Zone numbers are assigned as shown in the table below.

Zone No.	SX-2000AO's unit No.	SX-2000AO's audio output terminal No.
001	1	1
002	1	2
⋮	⋮	⋮
008	1	8
009	2	1
⋮	⋮	⋮
256	32	8

2-2. When selecting a zone pattern
Press the following keys in order.



*3 The pattern number having been set using the N-8000 Setting Software.

Step 3. Press the [#/▲] key.
A chime tone is transmitted to the selected zone(s).

Step 4. Page with the handset either lifted or in place.

Step 5. Either press the Clear key or replace the handset.
A chime tone is transmitted to the selected zone(s), then paging is completed.

Notes
- Set the SX-2000 system ID using the supplied N-8000 Setting Software. (Refer to p. 5-28.)
- Chime tone can be set to OFF. (Refer to p. 5-72.)

4.2. General-Purpose Broadcast

General broadcast patterns*1 having been set in the SX-2000 system can be activated.

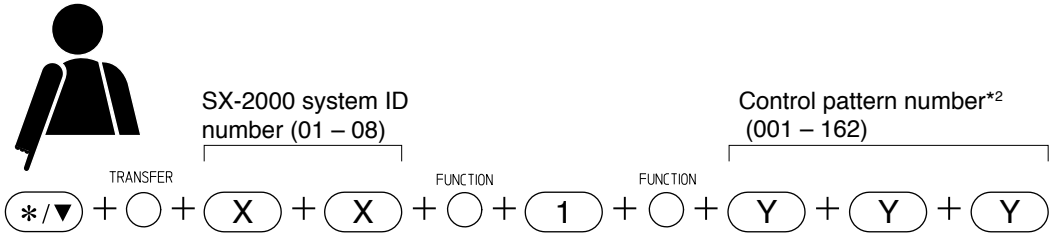
*1 Contain the preset broadcast sound sources, output zones, and other settings. For details, refer to the SX-2000 Setting Software Instructions.
In the N-8000 system, you can import the SX-2000 system setting and use it as a control pattern using the N-8000 Setting Software. (Refer to p. 5-77.)

Note
The SX-2000 system's general broadcast pattern that can be activated by the N-8000 system's station is only the one set as "General broadcast (Level)" assigned to each unit's control input in the Event setting.

4.2.1. Activation

Step 1. Press the Function key.

Step 2. Select the control pattern to which the function to activate a general broadcast pattern is assigned.
Press the following keys in order.



*2 The pattern number having been set using the N-8000 Setting Software.

Multiple control patterns can be sequentially selected by repeating above key operation.

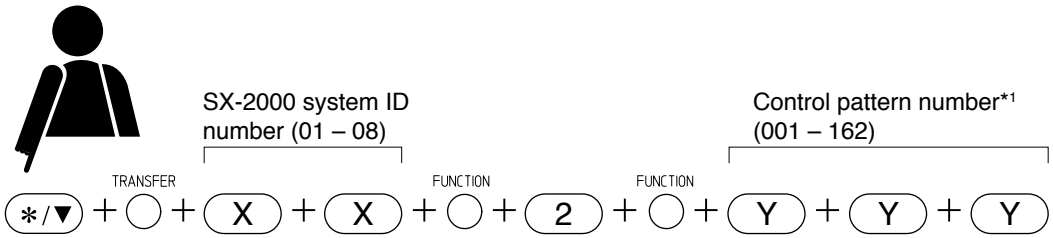
Step 3. Press the [#/▲] key.
The set general broadcast pattern or patterns are selected and activated.

Note
Set the SX-2000 system ID using the supplied N-8000 Setting Software. (Refer to p. 5-28.)

4.2.2. Termination

Step 1. Press the Function key.

Step 2. Select the control pattern to which the function to activate a general broadcast pattern is assigned.
Press the following keys in order.



*1 The pattern number having been set using the N-8000 Setting Software.

Multiple control patterns can be sequentially selected by repeating above key operation.

Step 3. Press the [#/▲] key.
The set general broadcast pattern or patterns are selected and activated.

Note
Set the SX-2000 system ID using the supplied N-8000 Setting Software. (Refer to p. 5-28.)

4.3. BGM Broadcast

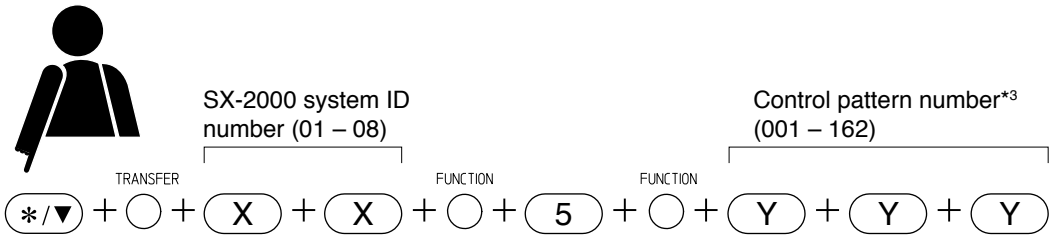
The BGM pattern*2 having been set in the SX-2000 system can be activated.

*2 A broadcast pattern containing BGM source, output zone, and other preset items. For details, refer to the SX-2000 Setting Software Instructions.

4.3.1. Activation

Step 1. Press the Function key.

Step 2. Select the control pattern to which a BGM pattern change function is assigned.
Press the following keys in order



*3 The pattern number having been set using the N-8000 Setting Software.

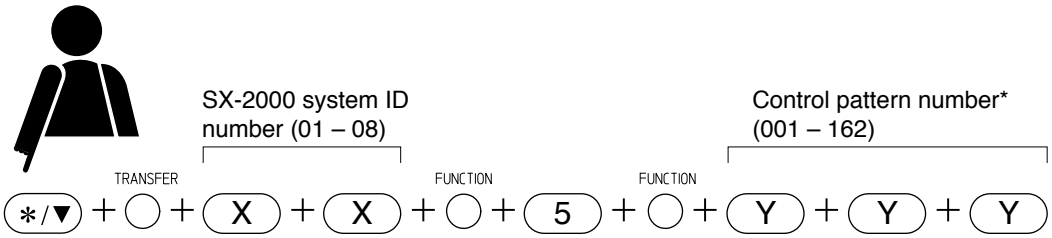
Multiple control patterns can be sequentially selected by repeating above key operation.

Step 3. Press the [#/▲] key.
The set BGM pattern or patterns are selected and activated.
In this case, if other BGM has been broadcasting, it will be stopped and overridden by the BGM pattern broadcast activated with this key.

4.3.2. Termination

Step 1. Press the Function key.

Step 2. Select the control pattern to which a BGM pattern end function is assigned.
Press the following keys in order.



* The pattern number having been set using the N-8000 Setting Software.

Multiple control patterns can be sequentially selected by repeating above key operation.

Step 3. Press the [#/▲] key.
The set BGM pattern or patterns are selected and terminated.

Note
Set the SX-2000 system ID using the supplied N-8000 Setting Software. (Refer to p. 5-28.)

4.4. Control Output Activation

The control output of the SX-2000 system can be activated.

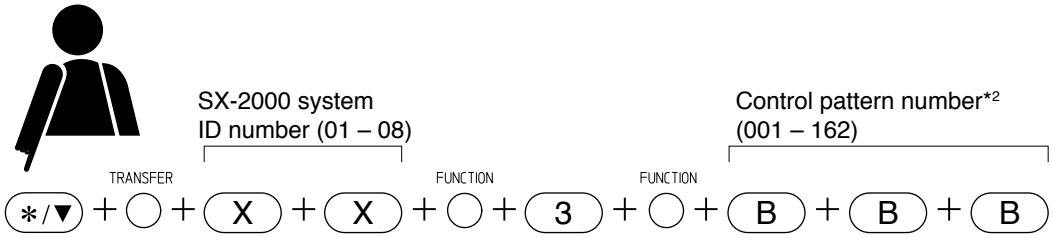
4.4.1. Activating the control output

Step 1. Press the Function key.

Step 2. Select a control pattern set for the control output pattern.
Press the following keys in order.
Multiple control patterns*1 can be sequentially selected by repeating key operation shown below.

*1 Perform control pattern settings using the N-8000 Setting Software. You can also import the control output pattern of the SX-2000 system, or designate the control output terminal number of the SX-2000 system. (Refer to p. 5-77.)

Note
The maximum number of digits for control output selection dial is 380.



*2 The pattern number having been set using the N-8000 Setting Software.

Step 3. Press the [#/▲] key.
The control output(s) are activated.

Note
Set the SX-2000 system ID using the supplied N-8000 Setting Software. (Refer to p. 5-28.)

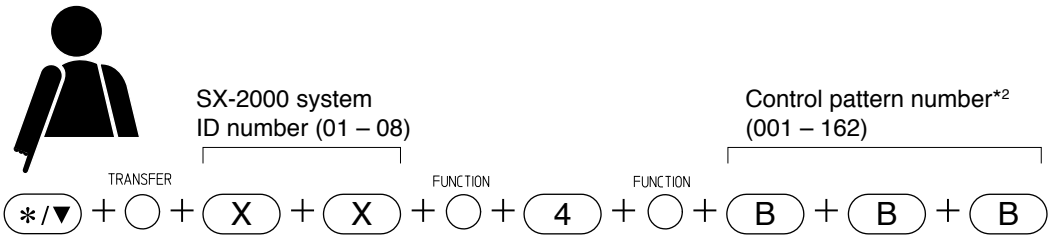
4.4.2. Deactivating the control output

Step 1. Press the Function key.

Step 2. Select a control pattern set for the control output pattern.
Press the following keys in order.
Multiple control patterns*1 can be sequentially selected by repeating key operation shown below.

*1 Perform control pattern settings using the N-8000 Setting Software. You can also import the control output pattern of the SX-2000 system, or designate the control output terminal number of the SX-2000 system. (Refer to p. 5-77.)

Note
The maximum number of digits for control output selection dial is 380.



*2 The pattern number having been set using the N-8000 Setting Software.

Step 3. Press the [#/▲] key.
The control output(s) are deactivated.

Note
Set the SX-2000 system ID using the supplied N-8000 Setting Software. (Refer to p. 5-28.)

4.5. Multi-Operation Activation

4.5.1. Simultaneously activating selected zone broadcast and control output pattern

Broadcasts to the SX-2000 zone (individual zone or zone pattern*1) and SX-2000 system's control output activation can be performed at the same time.
Broadcast durations can be limited by preprogramming the time limit (between 1 and 20 minutes in 1-minute units) for each station.

*1 A pattern into which multiple zones are grouped.

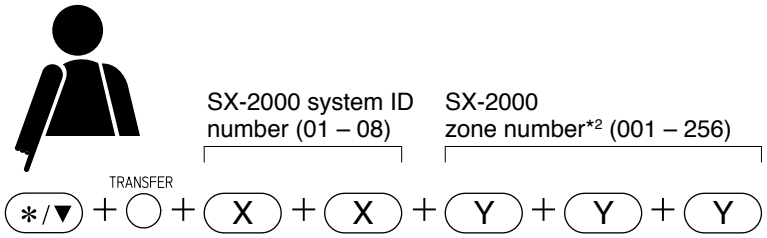
Notes
- Perform zone pattern settings using the N-8000 Setting Software. You can also import and use the output zone pattern having been set on the SX-2000 Setting Software. (Refer to p. 5-77.)
- Set the time limit (Time out) using the supplied N-8000 Setting Software. (Refer to p. 5-72.)

Step 1. Press the Paging key.

Step 2. Select a zone.
Multiple zones or zone patterns can be sequentially selected by repeating the key operation in the following **step 2-1** or **2-2**.

Note
The maximum number of digits for zone selection dial is 380.

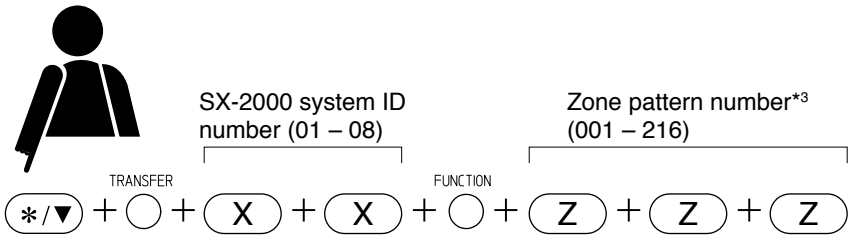
2-1. When selecting a zone
Press the following keys in order.



*2 Zone numbers are assigned as shown in the table below.

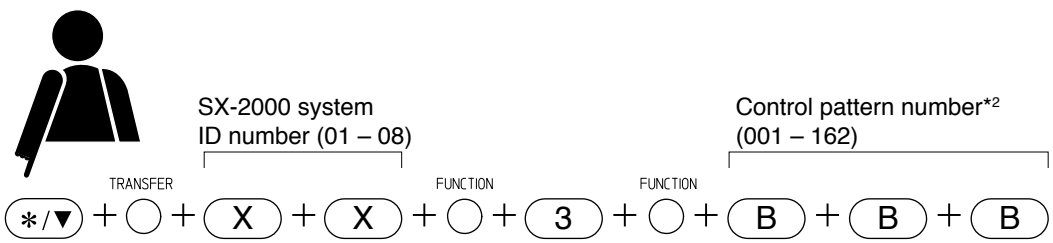
Zone No.	SX-2000AO's unit No.	SX-2000AO's audio output terminal No.
001	1	1
002	1	2
⋮	⋮	⋮
008	1	8
009	2	1
⋮	⋮	⋮
256	32	8

2-2. When selecting a zone pattern
Press the following keys in order.



*3 The pattern number having been set using the N-8000 Setting Software.

Step 3. Select the control pattern set for the control output function.
Press the following keys in order.



*4 The pattern number having been set using the N-8000 Setting Software.

Multiple control patterns can be selected by repeating the above key operation.

Step 4. Press the [#/▲] key.
Confirmation tone sounds, then a chime tone is transmitted to the selected zone(s).
The control output(s) assigned to the selected control output pattern are activated.

Step 5. Page with the handset either lifted or in place.

Step 6. Either press the Clear key or replace the handset.
A chime tone is transmitted to the selected zone(s), then paging is completed.
On termination of broadcast, the control output having been activated in synchronization with the broadcast is also terminated.

Note
Set the SX-2000 system ID using the supplied N-8000 Setting Software. (Refer to p. 5-28.)

4.5.2. Simultaneously activating paging, selected zone broadcast, and control output pattern

Broadcasts to the N-8000 system zone (paging zone or paging zone pattern*1) and the SX-2000 system zone (individual zone or zone pattern*2), and SX-2000 system's control output activation can be performed at the same time.
Broadcast durations can be limited by preprogramming the time limit (10 – 990 seconds in 10-second units or 1 – 20 minutes in 1-minute units) for each station.

*1 A pattern into which multiple paging zones are grouped.
*2 A pattern into which multiple zones are grouped.

Notes
- Set the N-8000 system zone and time limit (Time out) using the supplied N-8000 Setting Software. (Refer to p. 5-121, 5-77, 5-63, 5-72.)
- Perform SX-2000 zone pattern settings using the N-8000 Setting Software. You can also import and use the output zone pattern having been set on the SX-2000 Setting Software.

Tip
When making N-8000 Paging call and SX-2000 Selected zone broadcast at the same time, the same operations regarding pre-announcement paging tone, chime tone, or other paging-related functions are performed to both systems. Determine which setting to choose, N-8000 system setting or SX-2000 system setting by the priority settings (p. 5-73) in the N-8000 Setting software.
The table below shows the operations depending on the priority setting.

Priority setting	Operation
N-8000	Operates according to the settings of the N-8000 pre-announcement paging tone, paging delay time, and paging time limit in addition to the Paging call and Selected zone broadcast. A paging pre-announcement tone instead of a chime tone is also broadcast to the SX-2000 system zone.
SX-2000	Operates according to the settings of the SX-2000 chime tone, waiting time, and time out in addition to the Paging calls and Selected zone broadcast. A chime tone instead of a pre-announcement paging tone is also broadcast to the N-8000 system zone.

It is not possible to operate on each different setting that a pre-announcement paging tone is broadcast to the N-8000 system and a chime tone to the SX-2000 system.

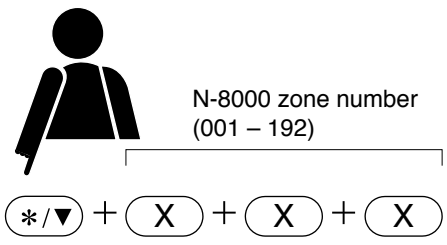
[Operation]

Step 1. Press the Paging key.

Step 2. Select an N-8000 zone and SX-2000 zone.
Multiple N-8000 zones, N-8000 zone patterns, SX-2000 zones, or SX-2000 zone patterns can be sequentially selected by repeating the key operation in the following **step 2-1** or **2-2**.

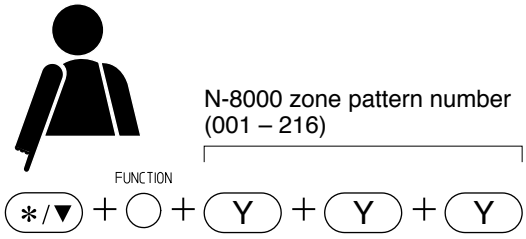
Note
The maximum number of digits for zone selection dial is 380.

2-1. When selecting an N-8000 zone
Press the following keys in order.

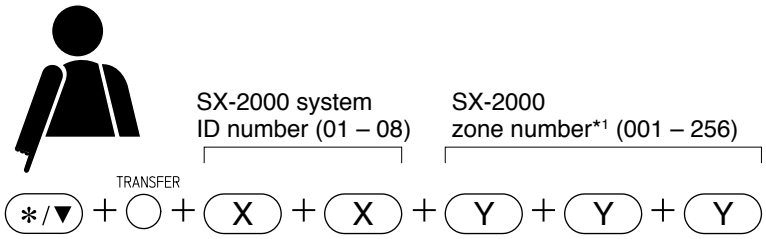


Note
Enter the zone number with the digit length (1 – 3) set on the N-8000 Setting Software.

2-2. When selecting an N-8000 zone pattern
Press the following keys in order.



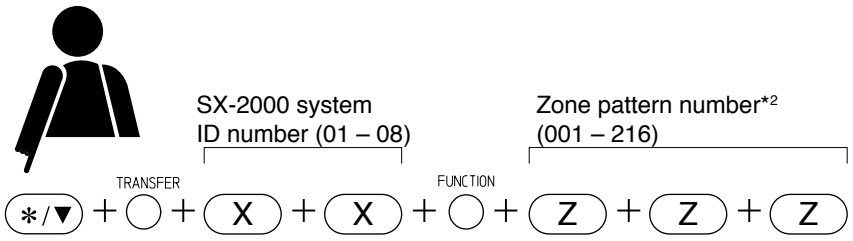
2-3. When selecting a SX-2000 zone
Press the following keys in order.



*1 Zone numbers are assigned as shown in the table below.

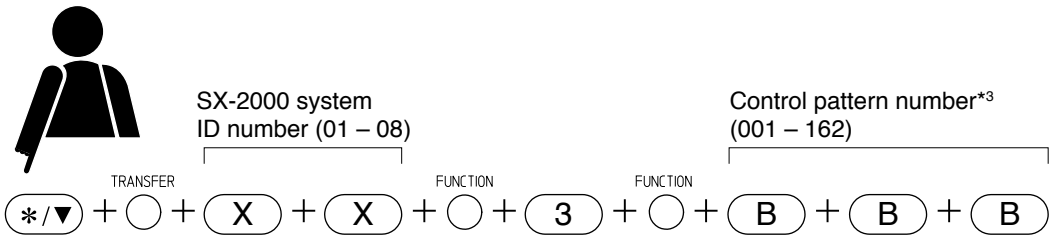
Zone No.	SX-2000AO's unit No.	SX-2000AO's audio output terminal No.
001	1	1
002	1	2
⋮	⋮	⋮
008	1	8
009	2	1
⋮	⋮	⋮
256	32	8

2-4. When selecting a SX-2000 zone pattern
Press the following keys in order.



*2 The pattern number having been set using the N-8000 Setting Software.

Step 3. Select the control pattern set for the control output function.
Press the following keys in order.

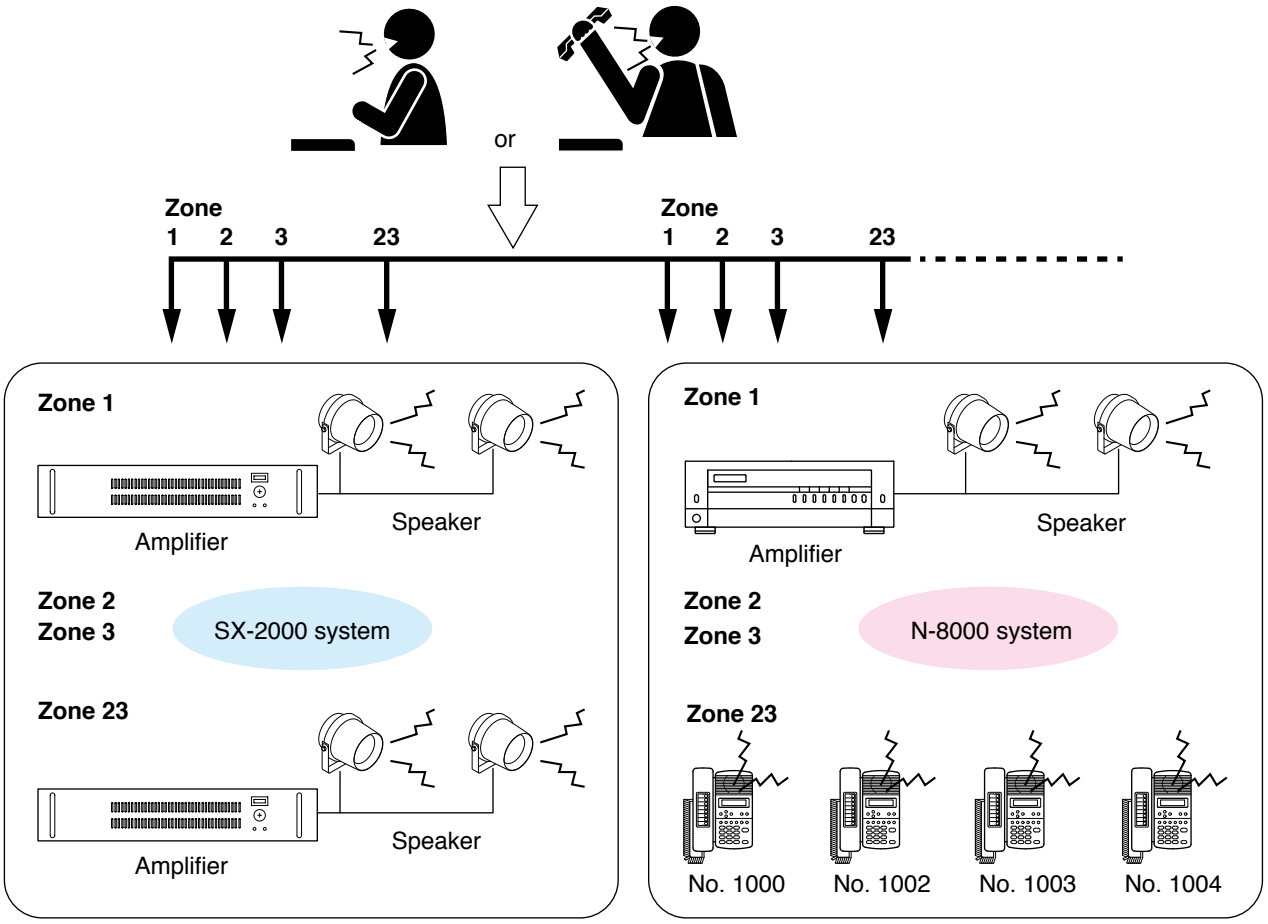


*3 The pattern number having been set using the N-8000 Setting Software.

Multiple control patterns can be selected by repeating the above key operation.

Step 4. Press the [#/▲] key.
Confirmation tone sounds, then a paging pre-announcement tone or chime tone is transmitted to the selected zone(s).
The control output(s) assigned to the selected control output pattern are activated.

Step 5. Page with the handset either lifted or in place.



Step 6. Either press the Clear key or replace the handset.
Paging is completed.
On termination of broadcast, the control output having been activated in synchronization with the broadcast is also terminated.

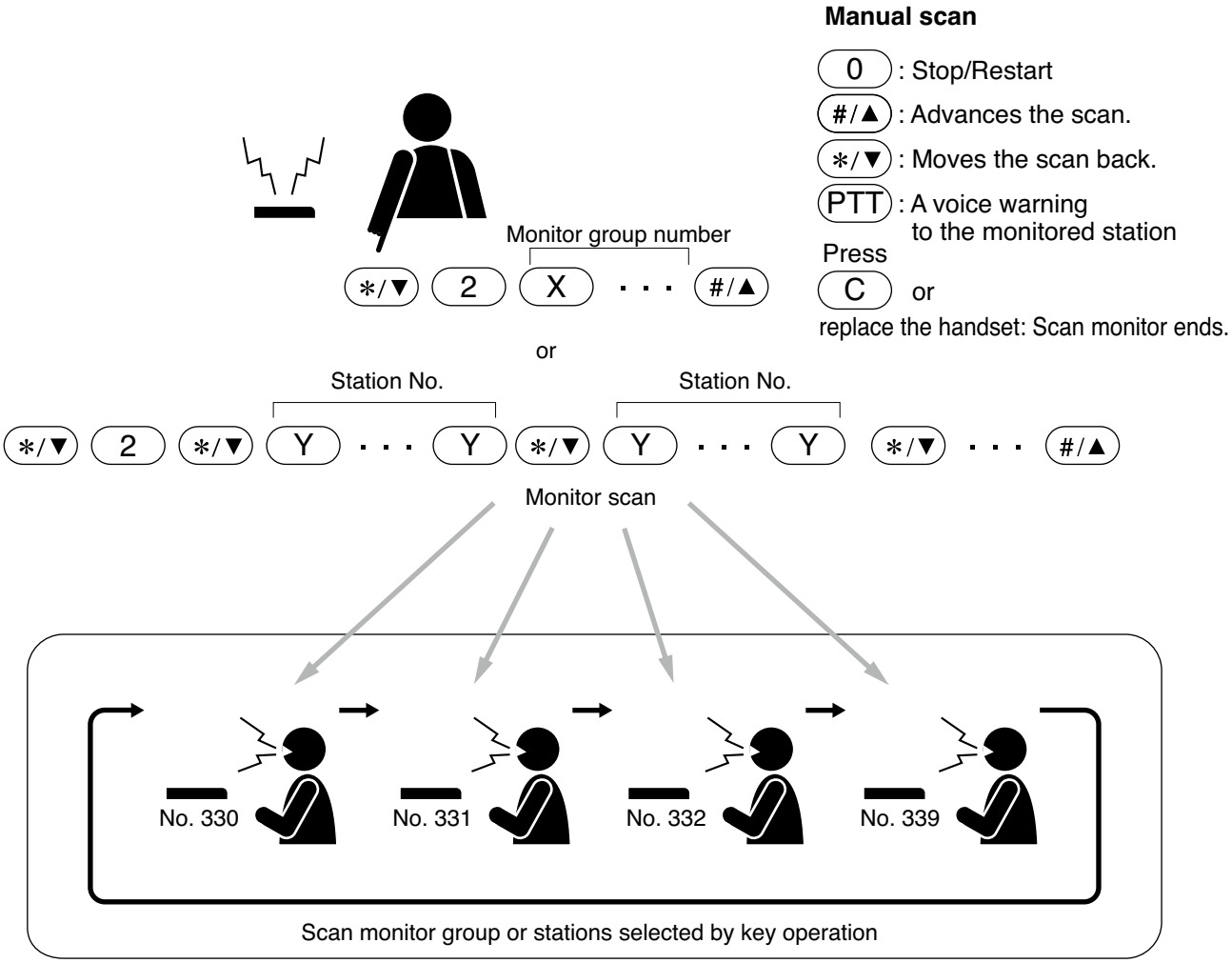
Note
Set the SX-2000 system ID using the supplied N-8000 Setting Software. (Refer to p. 5-28.)

5. OTHER FUNCTIONS AND OPERATION

5.1. Scan Monitor

The station can scan arbitrary stations for auditory monitoring.
The station to be scan-monitored must be preprogrammed into a monitor group or can be selected each time by designating the station number.
The stations to be monitored are switched in preprogrammed sequence or in order of being selected at specified time intervals.
Manual control from the monitoring station can also be performed.
Up to 16 stations can be programmed to the same monitor group.
Up to 4 station groups (up to 64 stations) can be monitored in sequence from a single station.
Up to 16 stations can be selected by key operation.

- Use the supplied N-8000 Setting Software to set a monitor group, scan monitor duration, and the conditions of the stations to be monitored. (Refer to p. 5-69, 5-84.)
- Stations in use or in busy state are skipped and not monitored. The RS-140 Switch Panel or N-8610RM Remote Microphone Station set to Privacy mode is also skipped.



The station to be scan-monitored is preset to one of the following display modes using the N-8000 Setting Software:

[Display OFF]
The station remains in standby mode (status indicator unlit) even while being scan-monitored.
[Display ON]
The status indicator remains lit while the station is being scan-monitored.
[Display & Monitor Tone]
A start tone (key-touch tone) sounds when scan monitoring begins and the status indicator remains lit during monitoring.

Note
In the case of the RS-140/180/480, the status indicator does not light even if set to "Display ON" mode.

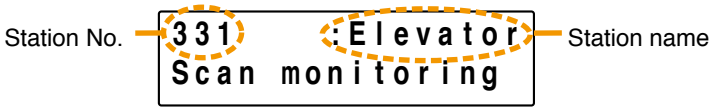
[Operation]

Step 1. Automatic Scan

1-1. When scan-monitoring the preprogrammed stations
Press the [∗/▼], [2] keys, then the monitor group number (1 – 4), followed by the [#/▲] key.
When monitoring two or more groups, press the group numbers consecutively.

1-2. When scan-monitoring by designating the station numbers
Press the [∗/▼], [2], [∗/▼] keys, then the station number.
To select the station number consecutively, press the [∗/▼] key.
To terminate the station selection, press the [#/▲] key following the station number.

- Scan monitoring starts and cycles through the station groups in preprogrammed sequence or in order of being selected at specified time intervals until its operation is manually stopped.
- Both the number and name of the station being monitored are displayed on the monitoring station's LCD. (N-8000MS/8500MS/8600MS only)
  [Example] Station No. 331 is being monitored.



- A handset can also be used for monitoring.

Step 2. Manual Scan

2-1. Stopping and restarting automatic scan
To continuously monitor a specified station, press the [0] key when that station is displayed to stop automatic scan operation. Pressing the [0] key again restores automatic scan operation.

2-2. Advancing a scan
Pressing the [#/▲] key advances the scan by one station.

2-3. Moving back a scan
Pressing the [∗/▼] key moves the scan back one station.

2-4. Warning the monitored station by voice
To transmit a voice warning to the monitored station, press the Push-to-talk key.

Step 3. Scan Monitor end
To end Scan monitor, either press the Clear key or replace the handset.

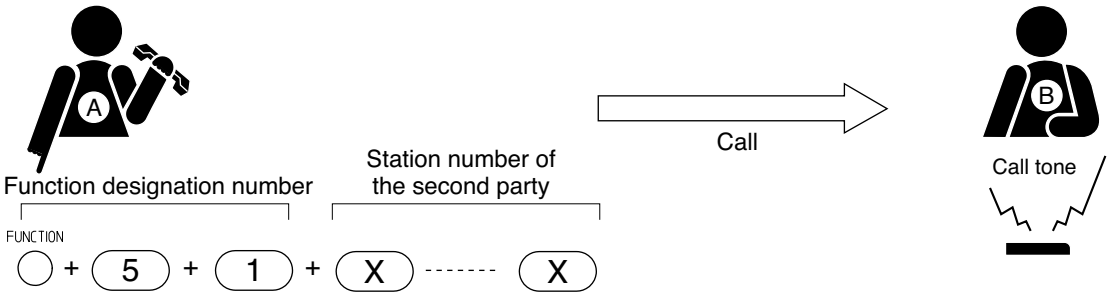
5.2. Three-Party Conference

A simultaneous (full duplex) three-party handset conversation can be held by calling up other master stations in sequence. It is possible to call a conference by calling other stations from the standby mode or by calling a third party from the two-party conversation mode.

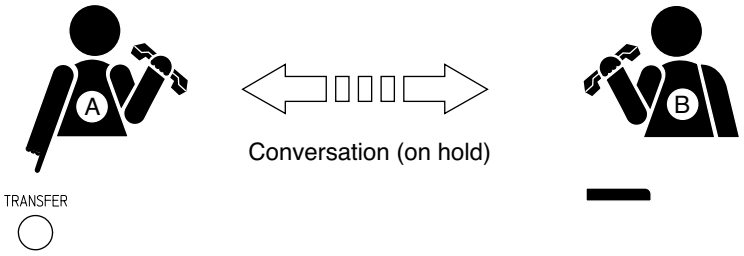
Note
Master stations connected to the N-8010EX/8400RS, N-8610RM IP Remote Microphone Station, outside line telephones connected to the N-8000CO, and telephones connected to the N-8000AL cannot participate in the conference.

5.2.1. Initiating a 3-party conference

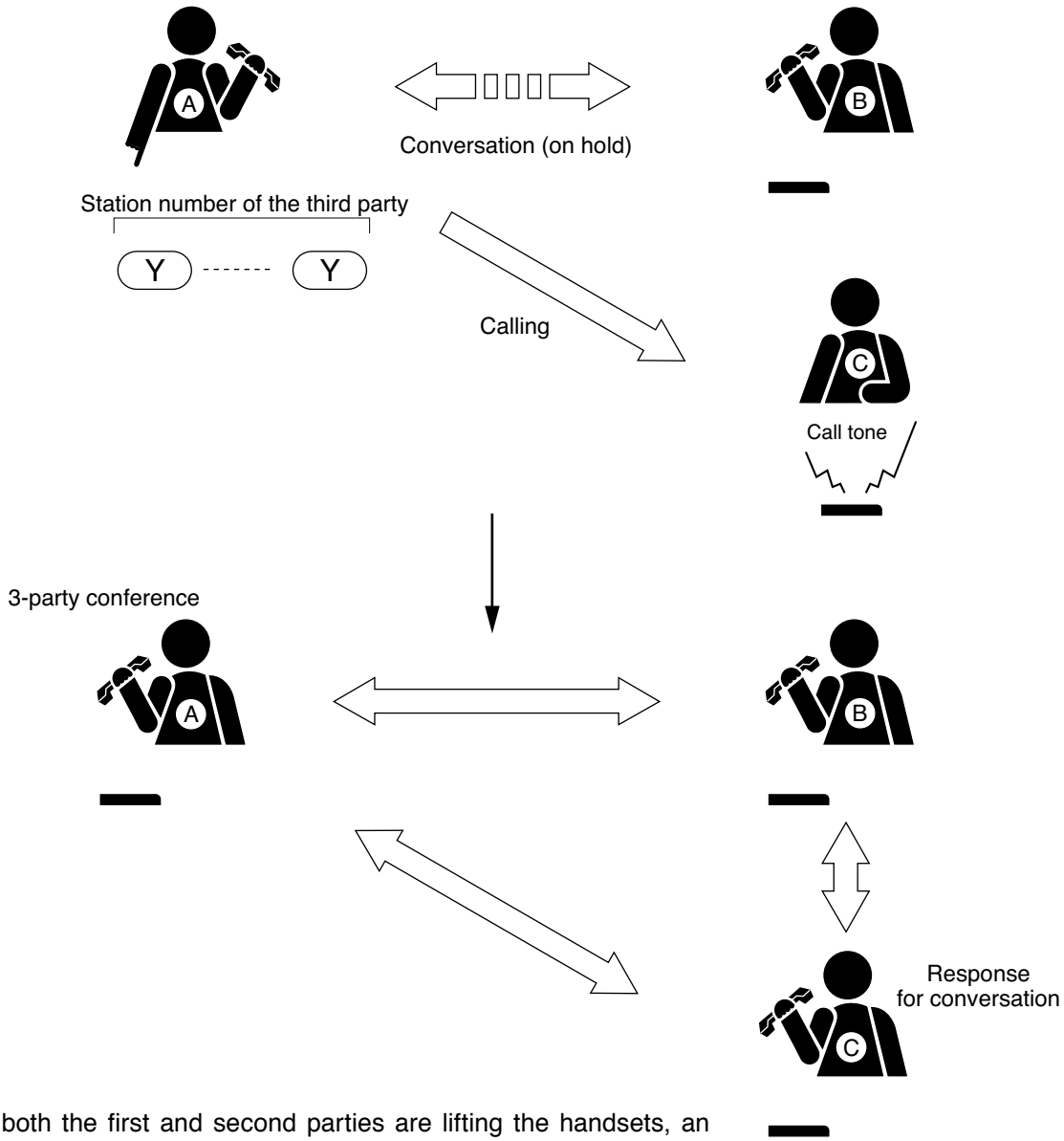
Step 1. First press the function key and then [5][1], followed by the station number of the desired (second) party.
When the second party answers, the conversation between the first and second parties can begin.



Step 2. Press the Transfer key after the second party has answered.
The second party will then be placed on hold.



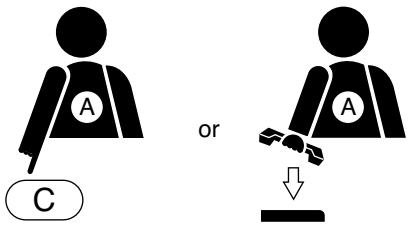
Step 3. Dial the station number of the third party.
When the third party answers, the second party is released from hold mode, permitting a 3-party conversation to proceed.



Note
Unless both the first and second parties are lifting the handsets, an error tone sounds at both parties when the Transfer key is pressed, reverting to the original conversation between the two.

Step 4. The conference is terminated when the originator of the conference either presses the Clear key or replaces the handset.

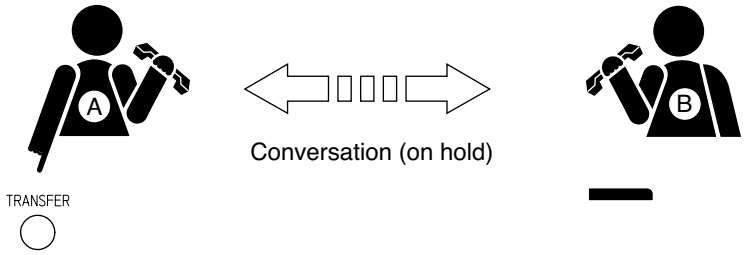
Tip
If a called party other than the originator of the conference presses the Clear key or replaces the station handset, that party can exit the conference. (The originator represents the station that called the third party.)



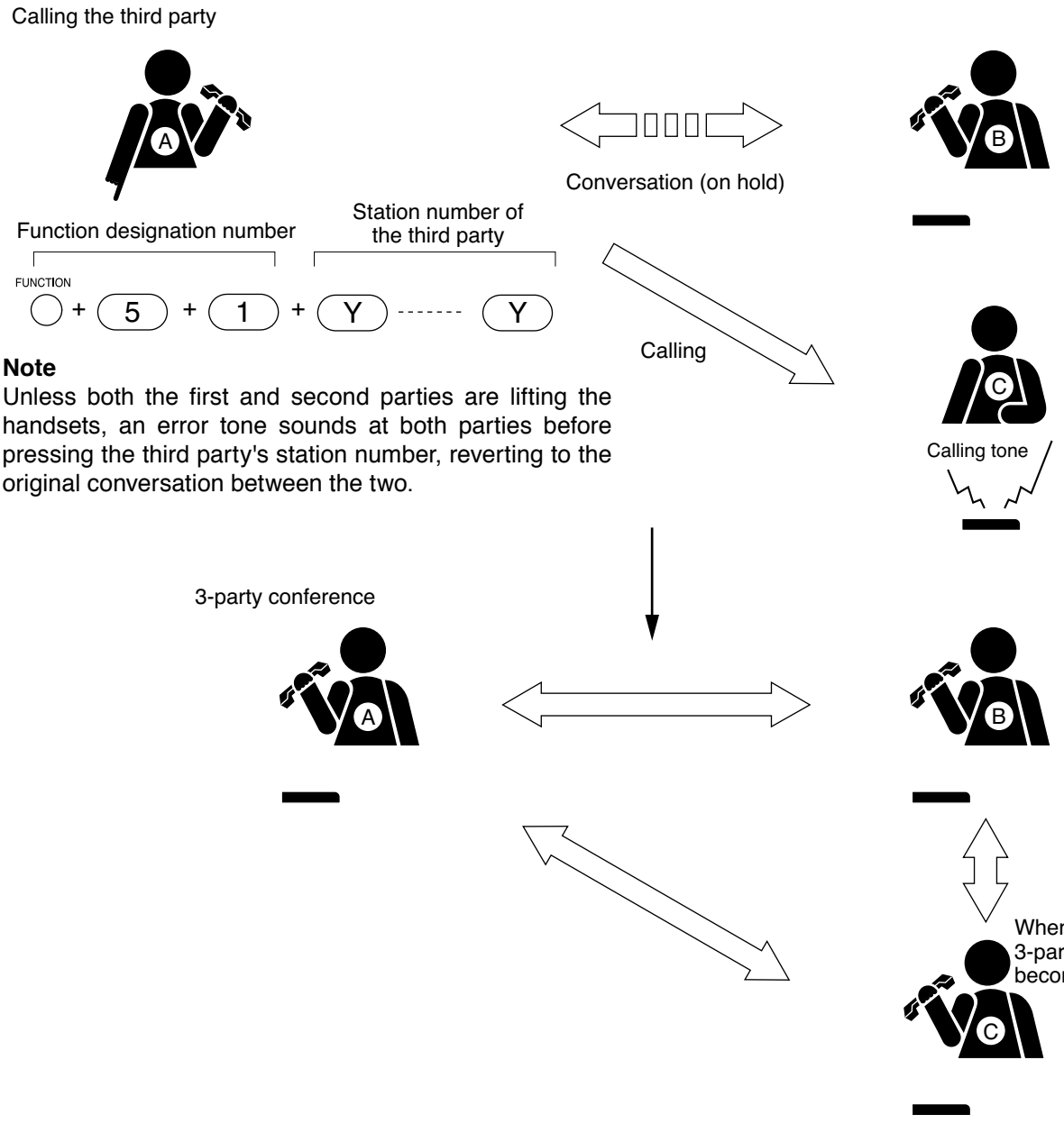
Note
For operation details, refer to p. 2-49 "Operation details of 3-party conference."

5.2.2. Initiating a 3-party conference during a 2-party conversation

Step 1. While connected with the second party, press the Transfer key.
The second party will be placed on hold.



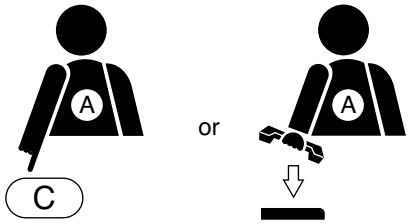
Step 2. First press the function key and then [5][1], followed by the station number of the third party.
When the third party answers, the second party is released from hold mode, permitting a 3-party conference to proceed.



Note
Unless both the first and second parties are lifting the handsets, an error tone sounds at both parties before pressing the third party's station number, reverting to the original conversation between the two.

Step 3. The conference is terminated when the originator of the conference either presses the Clear key or replaces the handset.
This completes the conference call.

Tip
If a called party other than the originator of the conference presses the Clear key or replaces the station handset, that party can exit the conference. (The originator represents the station that called the third party.)



Note
For operation details, refer to the next item "Operation details of 3-party conference."

5.2.3. Operation details of 3-party conference

(1) If the station unable to participate in the conference (Door station, substation, Master station connected to the N-8010EX/8400RS, N-8610RM IP Remote Microphone Station, outside line telephone connected to the N-8000CO, or telephone connected to the N-8000AL) is dialed, an error tone sounds at the originating station, reverting to the original conversation between the two.
(2) If the called Master Station responds in hands-free mode, the calling party's voice can be heard from the called station's speaker (hands-free voice reception mode). Lift the handset to talk.
(3) If the called master station is set for Call forwarding, conference call is automatically transferred only to the transfer destination master station. Conference call is not transferred to the destination station other than the destination master station.
(4) When the called third party is busy, a busy tone is transmitted to the calling party and the calling party must wait. As soon as the third party finishes its conversation, the calling party is automatically put through to the third party. (Camp-On Busy mode)
(5) If the Call Back function is performed*1 while attempting to call the third party, the call is canceled, and the original conversation is restored*2.
(6) If the originator of the conference presses the Transfer key followed by the participant station number during 3-party conference, the designated station is cancelled, reverting to the original conversation between the two.

*1 Press the Transfer key.
*2 Pressing the Clear key or replacing the handset while attempting to call the third party will terminate the conference.

5.3. Time Signal (only when the N-8000AF is used)

The Time Signal function broadcasts preset sound sources over preset paging zones according to preprogrammed schedules. The N-8000AF Audio Interface of which operation mode has been set to "Time Signal" outputs the time signals.

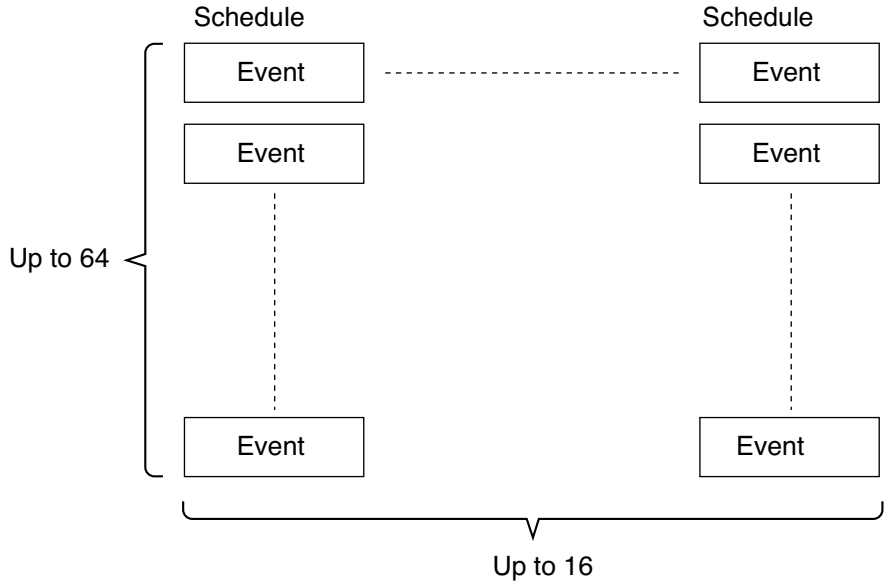
5.3.1. Time signal event

- Event settings must be performed to automatically start the Time Signal function. Set events are recorded in the N-8000AF.
- To perform event settings, the N-8000AF's operation mode must be set to "Time Signal."
- Only one (1) N-8000AF in the system can be set to "Time Signal" operation mode.

Note
Use the supplied N-8000 Setting Software to perform Time Signal settings, including events and schedules. (Refer to p. 5-107.)

[Internal timer-initiated event settings]

- Up to 1,024 events can be set.
- Individual events are assigned to a maximum of 16 schedules (up to 64 events per schedule).



- Each event is comprised of the following contents: Time (in second units), day of week (multiple days selectable), paging zones (up to 10 zones selectable from 192 zones), sound source number (selected from 0 – 9) and external equipment control (ON or OFF).
- The function of each sound source number is as follows:
  0: Silent
  1: Internal sound source 1 (Trill tone)
  2: Internal sound source 2 (Bell 1)
  3: Internal sound source 3 (Bell 2)
  4: Internal sound source 4 (Chime Tone 1)
  5: Internal sound source 5 (Chime Tone 2)
  6. External sound source 1 (N-8000AF's Contact Output 1 activated)
  7. External sound source 2 (N-8000AF's Contact Output 2 activated)
  8. External sound source 3 (N-8000AF's Contact Output 3 activated)
  9. External sound source 4 (N-8000AF's Contact Output 4 activated)
- Set the sound source activation time (1 – 99 sec.).

[External timer-initiated event settings]

- "Time Signal" broadcasts can be triggered by make contact from an external timer connected to the N-8000AF Audio Interface's contact input.
- The external timer-initiated event is comprised of the following contents for each contact input (1 – 8): Paging zones (up to 10 zones selected from 192), sound source numbers (0 – 9) and external equipment control (ON or OFF).

5.3.2. Automatic time signal activation

[Operation]

- Audible time signal can be broadcast in synchronization with preprogrammed events.
- Schedules to be activated must be set in advance.
  Time signal is broadcast over preset paging zones when the event activation time for each preset schedule is reached.
- Only one (1) N-8000AF in the system can be set to transmit the time signal.
- The time signal sound source can be either the N-8000AF's internal sound source or an external sound source connected to the N-8000AF.
- Contact output terminals (any of contact outputs 5 – 8, including those of another N-8000AF, N-8000MI, or N-8000DI) can be closed to operate a bell or other external equipment in synchronization with Time Signal Activation.
- New events activated during Time Signal operation are ignored.
- Time Signal operation is terminated when the preset sound source operation time elapses.
- The function to limit the paging time does not operate.
- If "Silent" is selected and external equipment control is set to OFF, nothing is operated.

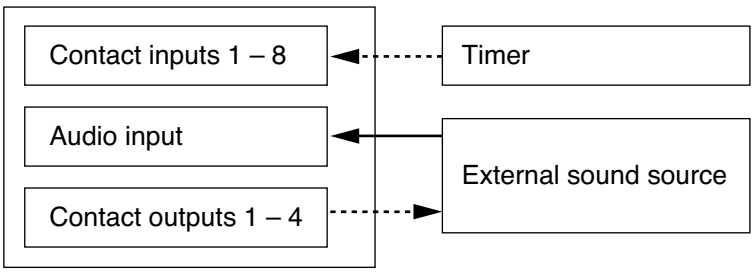
[Activation]

The following two methods can be used to automatically trigger the time signal.

(1) Activation by Internal Timer
- Time signal begins operation in synchronization with the preprogrammed event activation schedule.
- Time is managed by the N-8000AF's internal timer.
- Schedules to be activated can be changed through operation of any master station.

(2) Activation by External Timer
- The Time Signal begins operation when the N-8000AF receives make contact from the connected external timer.
- Connect the external timer to the N-8000AF's contact inputs (1 – 8).
- The Time Signal operates according to the external timer-initiated events preprogrammed for the individual contact inputs.
- The Time Signal is activated by make contact from the external timer. However, opening the contact will not terminate Time Signal operation.

[Conceptual diagram]



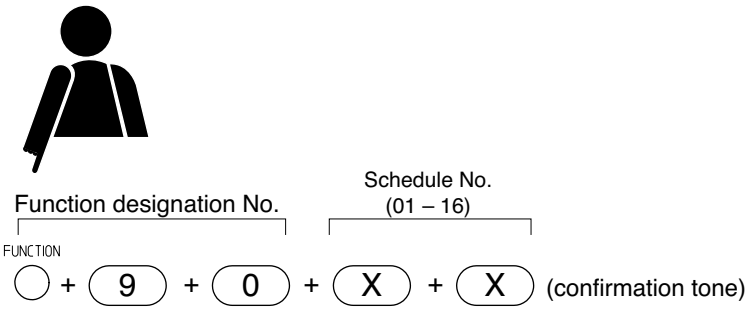
[Operation when the Time Signal broadcast overlaps other calls or broadcasts]

- Operation during overlap is the same as for external input broadcasts (refer to p. 2-181).
- When a station is in use, the time signal is broadcast to all other stations except the busy station.

5.3.3. Changing time signal schedules

System Time Signal schedules can be changed at any station.

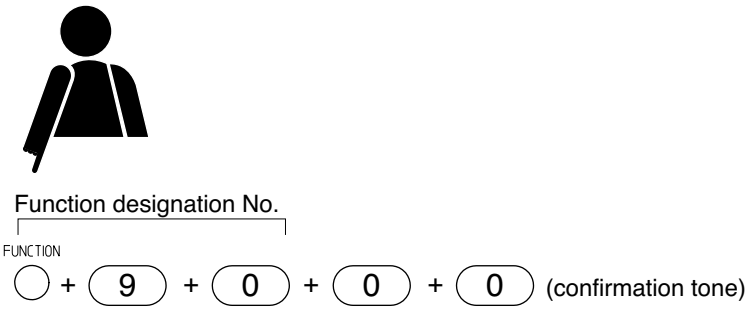
Note
Station-set contents are saved to the N-8000AF daily (00:00 AM). Switching off the power before the settings are saved returns the settings content to that which existed before changes were made.



5.3.4. Suspending time signal schedules

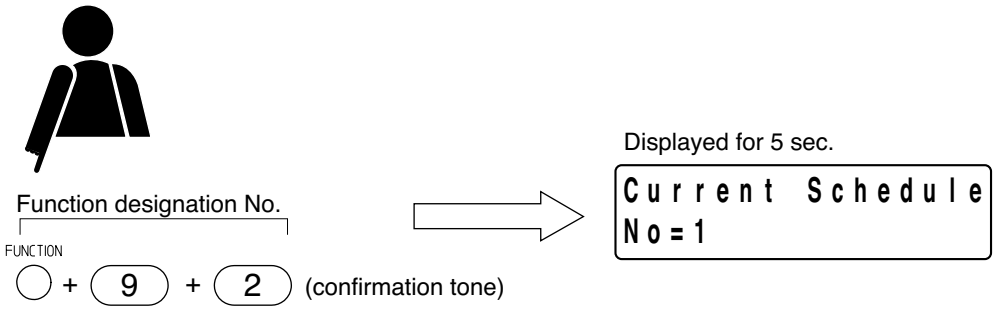
System Time Signal schedules can be suspended at any station. To restart the suspended schedules, follow the procedure for changing the schedules.

Note
Station-set contents are saved to the N-8000AF daily (00:00 AM). Switching off the power before the settings are saved returns the settings content to that which existed before changes were made.



4.3.5. Time signal schedule confirmation (N-8000MS/8500MS/8600MS only)

System Time Signal schedules can be confirmed by pressing the following buttons to display the schedule number on the LCD screen for five seconds.



5.3.6. Manually trigger time signal

Time Signal can be activated simultaneously with the master station's dial operation, through which the sound source number, external equipment control ON/OFF, and paging zone number should be designated.

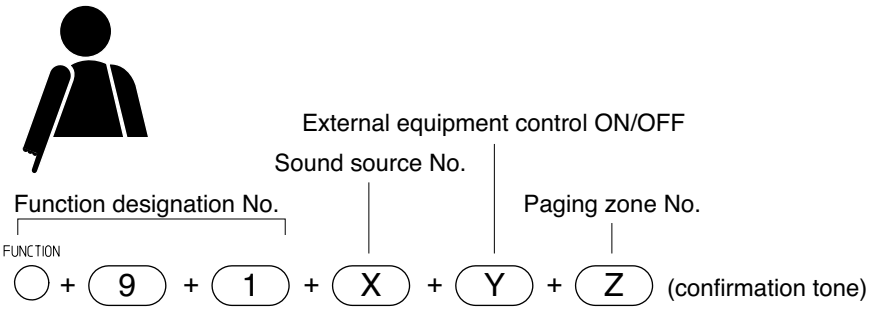
- The sound source number is designated by "0" to "9."
  0: Silent
  1: Internal sound source 1 (Trill tone)
  2: Internal sound source 2 (Bell 1)
  3: Internal sound source 3 (Bell 2)
  4: Internal sound source 4 (Chime Tone 1)
  5: Internal sound source 5 (Chime Tone 2)
  6. External sound source 1 (N-8000AF's Contact Output 1 activated)
  7. External sound source 2 (N-8000AF's Contact Output 2 activated)
  8. External sound source 3 (N-8000AF's Contact Output 3 activated)
  9. External sound source 4 (N-8000AF's Contact Output 4 activated)

- The external equipment control ON/OFF is designated by "0" or "1."
  With the external equipment control set to ON, the external equipment preset by the N-8000 Setting Software can be activated in synchronization with Time Signal Activation.
  0: External equipment control OFF
  1: External equipment control ON

- When the external equipment control is set to ON, contact output terminals (any of contact outputs 5 – 8, including those of another N-8000AF, N-8000MI, or N-8000DI) can be closed to operate a bell or other external equipment in synchronization with Time Signal Activation.

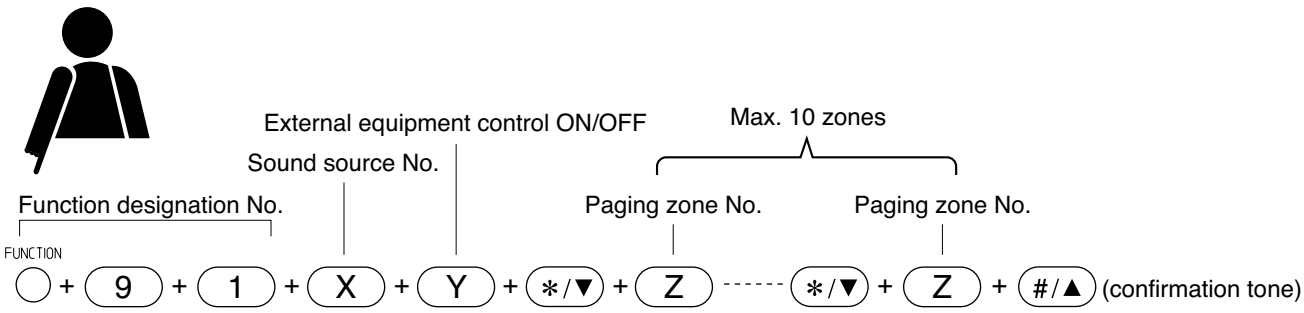
- Up to 10 zones from 192 zones can be selected for paging zones.
  Designate them in the zone number digits (1 – 3) preset by the N-8000 Setting Software.
  (Example) Zone number when 3-digit number is set: 001, 025, 192

[Operation: Making paging calls to a single zone]



Time Signal is activated after the confirmation tone sounds.

[Operation: Making paging calls to 2 or more zones]

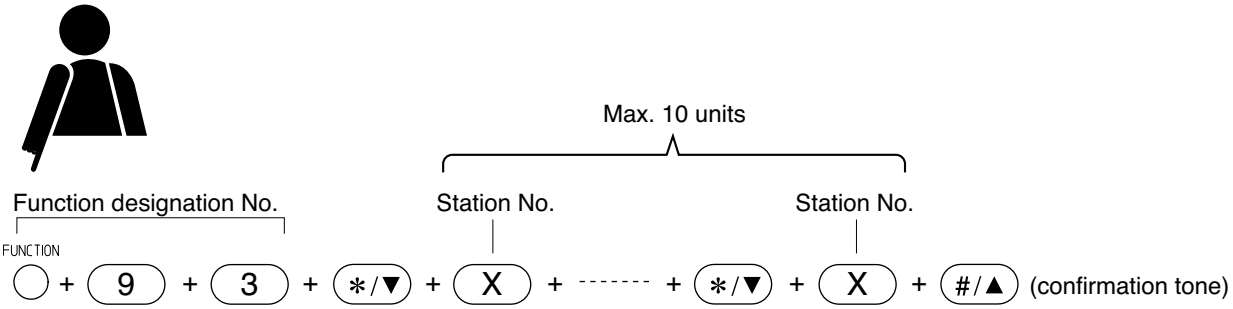


Time Signal is activated after the confirmation tone sounds.

5.3.7. Time signal temporary exception

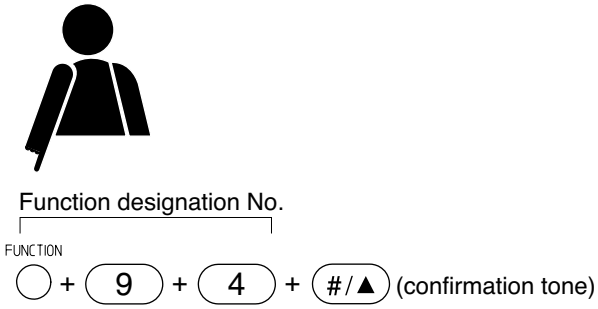
Any station can be temporarily excepted from the time signal-initiated paging destinations through key operations at the master station.
Up to 10 stations can be simultaneously excepted through a single operation.
Once registered for temporary exception, the stations will not accept any time signal-initiated paging calls until exception cancellation is performed to those stations.

[Time signal temporary exception: Registration]



Designate the station number in the station number digits (2 – 6) preset by the N-8000 Setting Software.

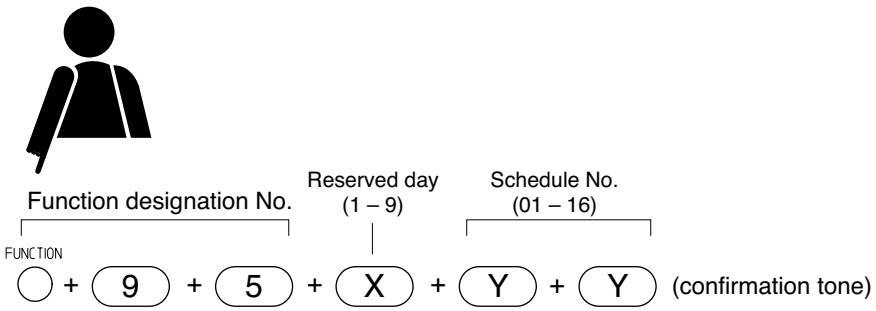
[Time signal temporary exception: Cancellation]



All temporary exception registrations are cancelled.

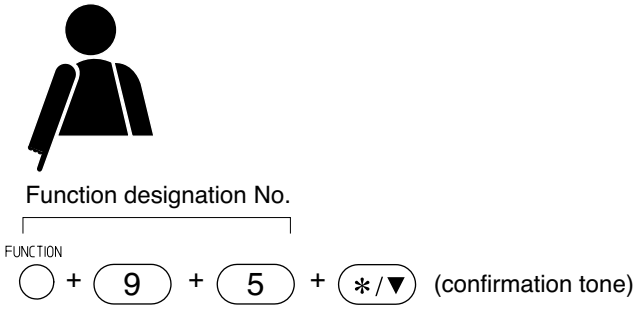
5.3.8. Reserving the time signal schedule change

System Time Signal schedule change can be reserved through key operations at any station.
To set the reserved day, designate the day from one (next day) to 9 days later after performing the reservation operation by number (1 – 9).
The reserved schedule is executed at 00:00 AM on the reserved day.



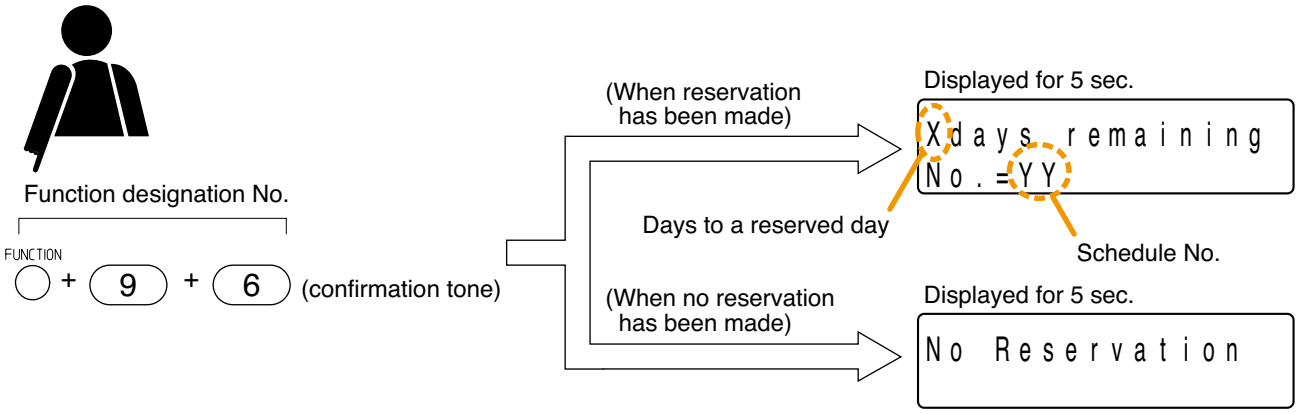
5.3.9. Cancelling the reserved time signal schedule

The reserved Time Signal Schedule can be cancelled through key operations at any station.



4.3.10. Confirming the reserved time signal schedule (N-8000MS/8500MS/8600MS only)

The reserved Time Signal Schedule can be confirmed through key operations at any station.
Reserved status can be displayed on the LCD screen for 5 seconds with the following operation.



5.4. PBX Connection (only when the N-8000MI is used)

If the Multi interface unit is connected to the PBX's analog E&M interface, calls or conversations can be mutually made between the N-8000 system's stations and the PBX's extension telephones or paging calls can be initiated from the PBX extension telephone.

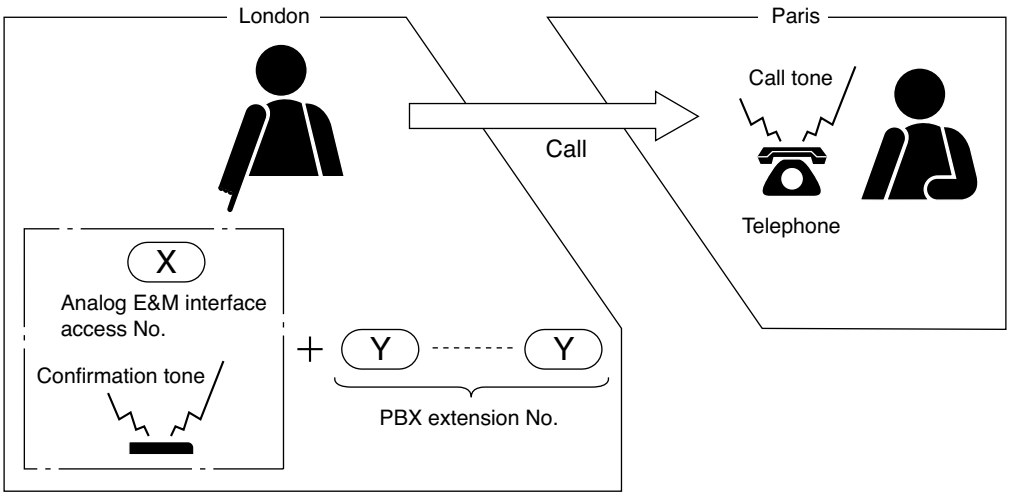
Note
This function cannot be used if the system is set to "Selective Response" mode.

5.4.1. Calling the PBX extension telephone

Step 1. Dial the analog E&M interface access number at a N-8000 system's station.
The station is connected to a PBX.

Step 2. Confirm that a dial tone from the PBX is heard, then dial the PBX extension number.
The extension telephone is called.

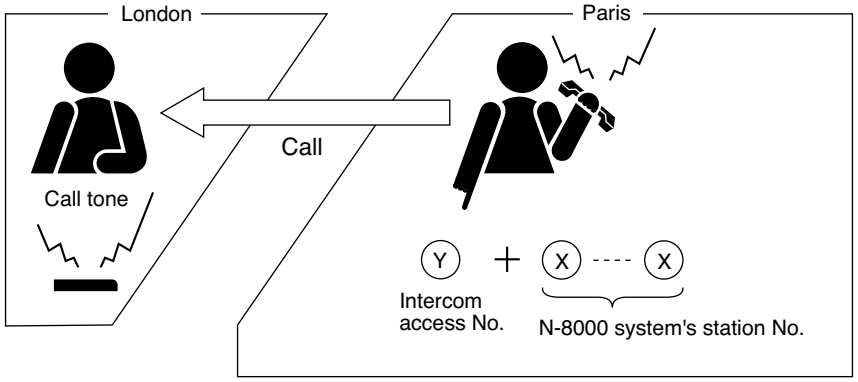
Note
Set the analog E&M interface access number using the supplied N-8000 Setting Software. (Refer to p. 5-45.)



5.4.2. Being called from a PBX extension telephone

Dialing the intercom access number as well as the N-8000 system's station number at the PBX extension telephone permits the N-8000 system's station to be called.
The method for receiving a call from the PBX extension telephone at the N-8000 system's station is the same as when it is called by another station within the system.

Note
Set the intercom access number at the PBX.

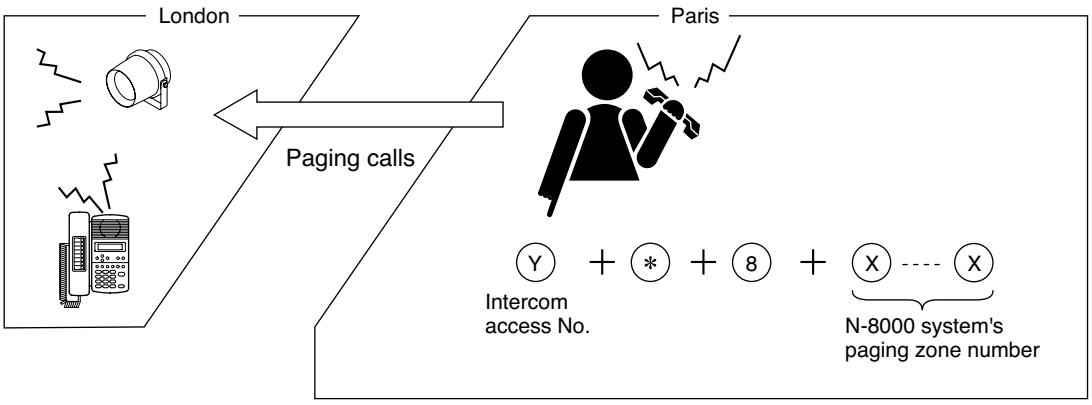


5.4.3. Being paged from a PBX extension telephone

Dialing the intercom access number, "＊," "8," and the N-8000 system's paging zone number in this order at the PBX extension telephone permits the paging calls to be made to the N-8000 system's stations.
The method for responding a paging call at the station is the same as when it is paged from the N-8000 system's station. (Note that paging response is valid only while the paging call is in progress.)

Notes

- Paging calls from the PBX extension telephone can be made only when line attribute is set to "PB" using the supplied N-8000 Setting Software. (Refer to p. 5-46.)
- Set the intercom access number at the PBX.



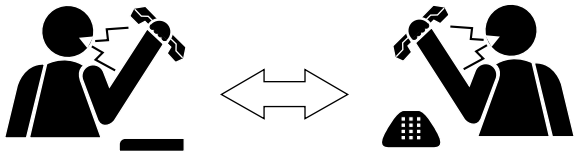
5.5. Outside Line Connection (only when the N-8000CO is used)

Outside lines can be connected to the N-8000 system, permitting the system's master stations to make or receive outside line telephone calls.

5.5.1. Calls with outside line telephones

[Handset conversation]

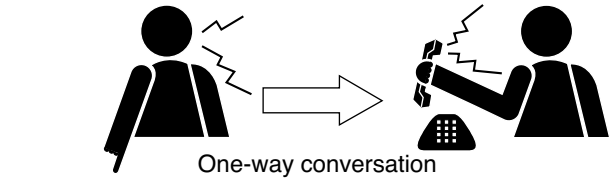
Calls can be made or received by lifting the handset.



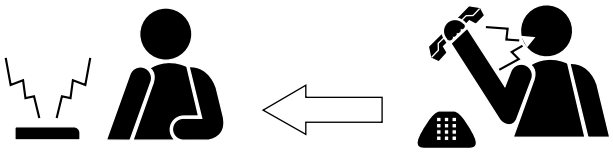
Duplex conversations

[PTT conversation]

Pressing the Push-to-talk key during a hands-free conversation enables one-way conversation from the master station. Conversation flow is reversed when the key is released.



One-way conversation



One-way conversation

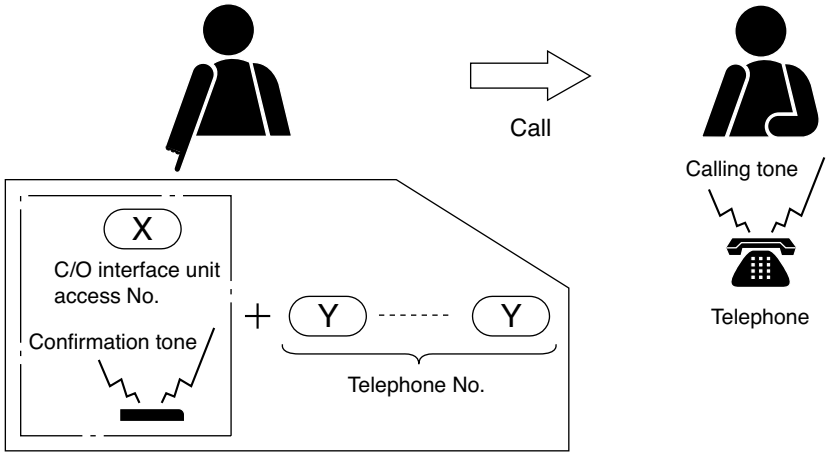
5.5.2. Calling the Outside line telephone

Step 1. Dial the C/O interface unit access number at a N-8000 system's station.
The station is connected to an outside line.

Step 2. Confirm that a dial tone from the outside line is heard, then dial the outside line telephone number.
The outside line telephone is called.

Notes

- When a dial tone is not heard, dial the outside line telephone number after more than 3 seconds have passed.
- Settings must allow outside line calling operation. (Refer to p. 5-90.)
- Use the supplied N-8000 Setting Software to set the outside line access number and enable or disable outside line calling operation.
- Even if the outside line telephone to which a call is made is busy, the call is automatically made to the free outside line telephone for which the same access number is set.



5.5.3. Receiving calls from an outside line telephone

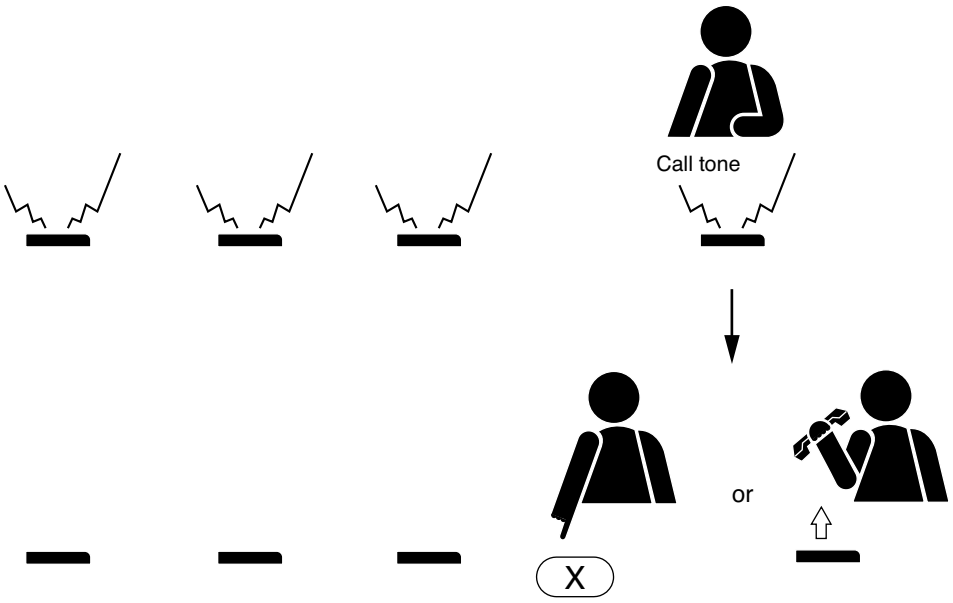
There are two modes for receiving calls from an outside line telephone: Direct-In Line and Direct-In Dialing. The audible call tone for a received outside line call is different from those of other incoming calls. (Refer to "List of Signal Tones" on p. 2-193.)

[Calls by Direct-In Line]

When a call is received from an outside line telephone, a call tone is sounded at the preprogrammed Master Station and its member stations. One (1) Master Station can also be designated as a representative station and up to three other Master Stations as member stations for each N-8000CO.

Notes
- Settings must be made so that Direct-In Line calls can be received.
- Use the supplied N-8000 Setting Software to enable or disable Direct-In Line call reception. (Refer to p. 5-90.)
- Use the supplied N-8000 Setting Software to set a representative station and its member stations to receive Direct-In Line calls. (Refer to p. 5-90.)

When the call tone sounds, answer the call. (For the operating procedure, refer to p. 2-3.)
Call tones at all master stations stop, allowing the master station that answered to initiate the conversation.



[Calls by Direct-In Dialing]

Stations can be called individually from an outside line telephone by dialing the station number. N-8000 system stations can receive Direct-In Dialing calls from an outside line telephone in the same way as receiving calls from a system station.

Notes
- Calls are automatically terminated if the caller pauses for more than five seconds while dialing the number.
- Call mode is automatically switched to Direct-In Line if the caller does not dial the station number within 10 seconds after hearing a Direct-In Dialing confirmation tone.
- Settings must be made to enable Direct-In Dialing.
- Use the supplied N-8000 Setting Software to enable or disable Direct-In Dialing.

5.5.4. Receiving paging from an outside line telephone

Stations can receive paging calls from outside line telephones.

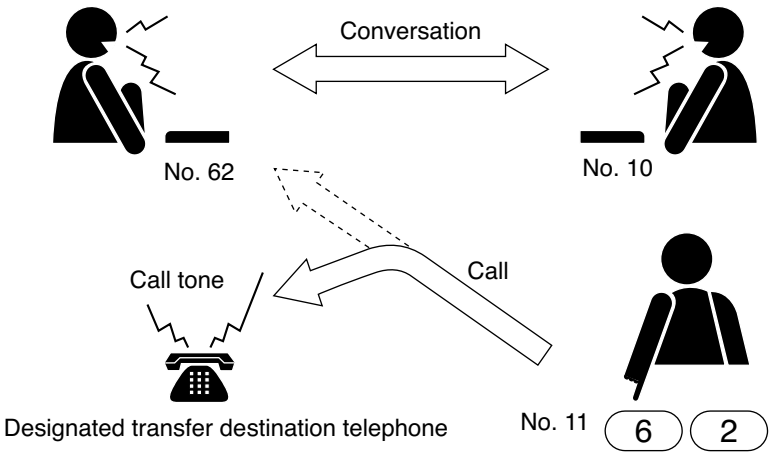
Note
Outside line telephones can page system stations only when Direct-In Dialing has been enabled by the supplied N-8000 Setting Software. (Refer to p. 5-90.)

5.5.5. Outside line Group hunting

Outside line telephones can be designated as the transfer destinations for Group hunting (refer to p. 2-17).
This Outside line Group hunting function also applies to the call transfer (p. 2-15) performed during conversation.

- The station to which a Group hunting is to be transferred can be set either by using the supplied N-8000 Setting Software or by station key operation. (Refer to p. 5-65, 5-80.)
- Use the supplied N-8000 Setting Software to enable or disable the Outside line Group hunting function. (Refer to p. 5-35, 5-62.)
  The station to which a call is to be transferred cannot be designated unless the Group hunting function is enabled.
- Settings must allow outside line calling operation.
  Use the supplied N-8000 Setting Software to set the outside line access number and enable or disable outside line calling operation. (Refer to p. 5-90.)
- Even if the outside line telephone to which a call is made is busy, the call is automatically made to the free outside line telephone for which the same access number is set. Thereafter, the telephone connected last becomes the transfer destination telephone.

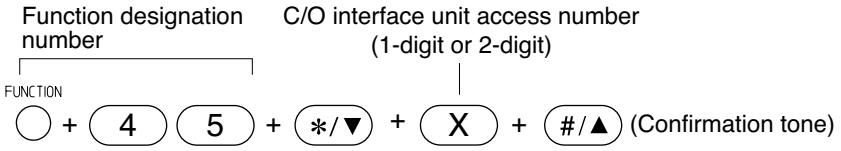
(Example: A call to the station No. 62 will automatically be transferred, if No. 62 is busy, to the designated outside line telephone.)



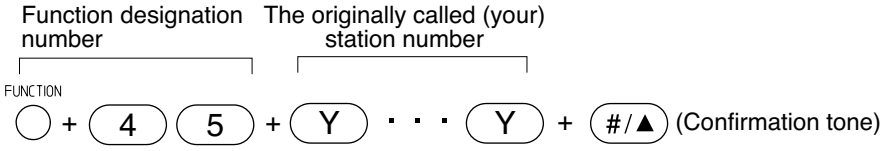
Note
Calls received from an outside line telephone are not transferred to the destination station, but only the Master Station to transfer is called.

Programming or erasure can be performed at your station.

[Programming]



[Erasure]

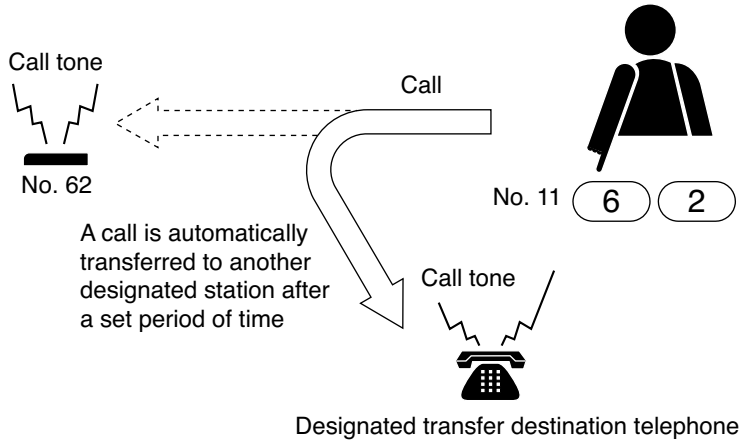


Note
The programmed contents by set dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

5.5.6. Outside line Absence transfer

Outside line telephones can be designated as the transfer destinations for Absence transfer (refer to p. 2-19). This Outside line Absence transfer function also applies to the call transfer (p. 2-15) performed during conversation.

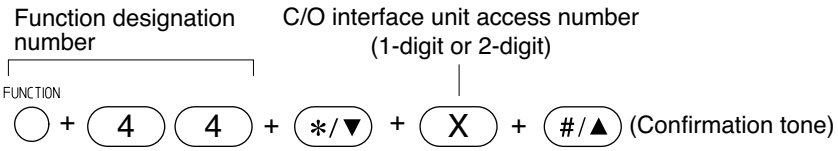
- The station to which an Absence transfer is to be transferred can be set either by using the supplied N-8000 Setting Software or by station key operation. (Refer to p. 5-65, 5-80.)
- Use the supplied N-8000 Setting Software to enable or disable the Outside line Absence transfer function or to set the transfer start/end time. (Refer to p. 5-35, 5-62.)
  The station to which a call is to be transferred cannot be designated unless the Absence transfer function is enabled.
- Settings must allow outside line calling operation.
  Use the supplied N-8000 Setting Software to set the outside line access number and enable or disable outside line calling operation. (Refer to p. 5-90.)
- Even if the outside line telephone to which a call is made is busy, the call is automatically made to the free outside line telephone for which the same access number is set. Thereafter, the telephone connected last becomes the transfer destination telephone.



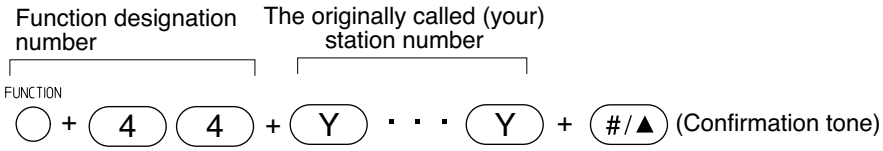
Note
Calls received from an outside line telephone are not transferred to the destination station, but only the Master Station to transfer is called.

Programming or erasure can be performed at your station.

[Programming]



[Erasure]



Note
The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

5.5.7. Outside line Call forwarding

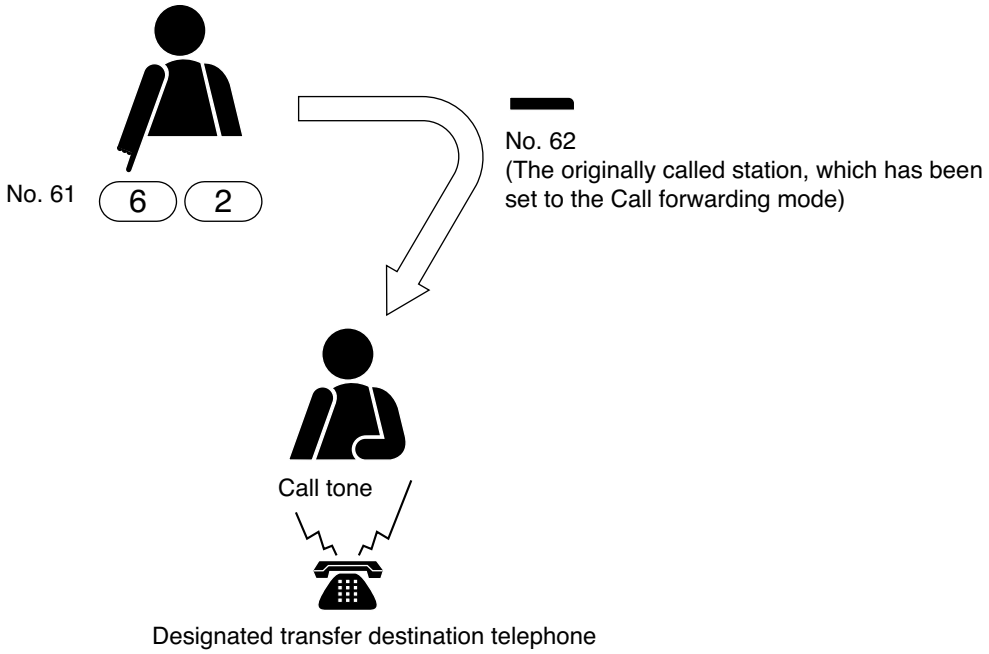
Outside line telephones can be designated as the transfer destinations for Call forwarding (refer to p. 2-20). Destinations for both manual and automatic time-interlocked Call forwarding can be set to outside line telephones.

- The station to which a Call forwarding is to be transferred can be set either by station key operation or by using the supplied N-8000 Setting Software. (Refer to p. 5-65, 5-80.)
- Use the supplied N-8000 Setting Software to enable or disable the outside line Call forwarding function or to set the transfer start/end time. (Refer to p. 5-35, 5-62.)
  The station to which a call is to be transferred cannot be designated unless the Call forwarding function is enabled.
- Settings must allow outside line calling operation.
  Use the supplied N-8000 Setting Software to set the outside line access number and enable or disable outside line calling operation. (Refer to p. 5-90.)
- Even if the outside line telephone to which a call is made is busy, the call is automatically made to the free outside line telephone for which the same access number is set. Thereafter, the telephone connected last becomes the transfer destination telephone.
- When the outside line telephone to which a Call forwarding is to be transferred is busy in conversation with a door station or substation, calling to the busy telephone continues for 25 seconds. if the line is still busy after such calls, the Master Station to transfer is called.

Note
Calls received from an outside line telephone are not transferred to the destination station, but only the Master Station to transfer is called.

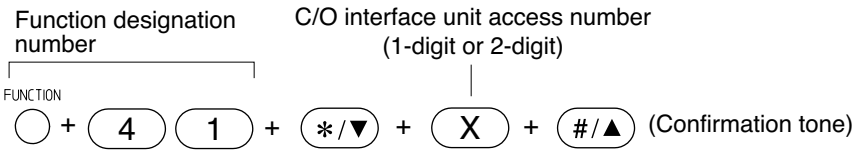
[Calls to stations manually set for outside line Call forwarding]

Calls to the station manually set for Call forwarding are automatically transferred to the designated outside line telephone without sounding a call tone.

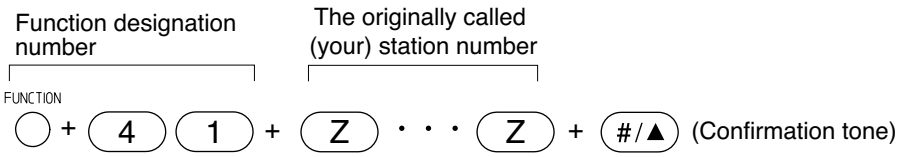


Programming or erasure can be performed at your station.

[Programming]



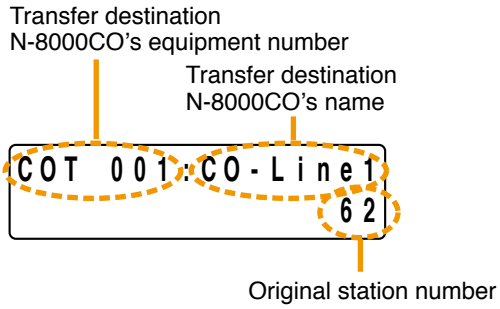
[Erasure]



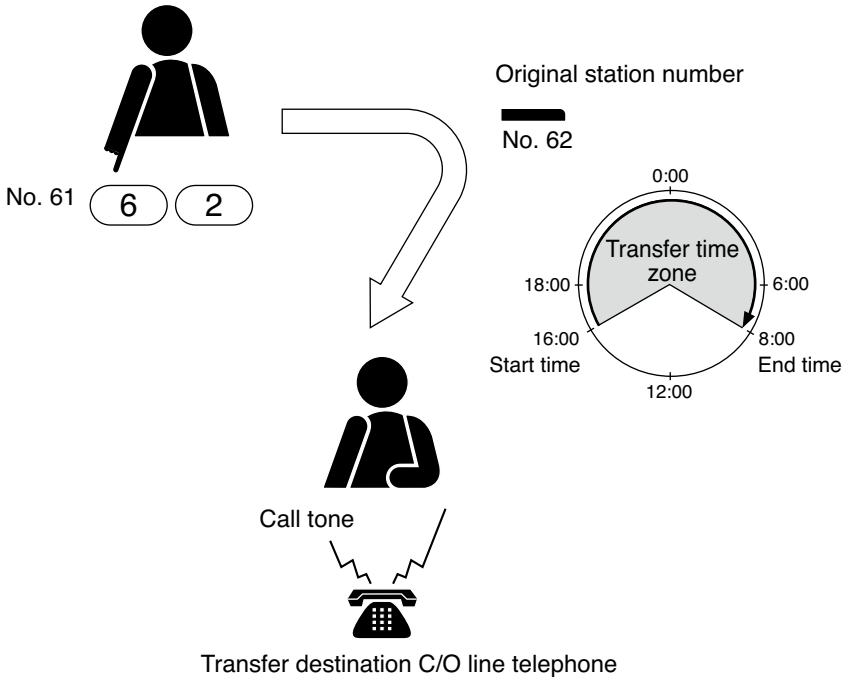
Note
The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

[Calls to stations set for outside line Time-based Call forwarding]

Step 1. When the preset transfer time is reached, the station's display shows the station (e.g. No. 62) has entered the Time-based Call forwarding mode (N-8000MS/8500MS/8600MS only).



Step 2. Calls to the original station are automatically transferred to the transfer destination outside line telephone without sounding a call tone.



Programming or erasure can be performed at your station.

[Programming]

Function designation number: FUNCTION ○ + 4 3 +
C/O interface unit access number (1-digit or 2-digit): ✱/▼ + X +
#/▲ (Confirmation tone)

[Erasure]

Function designation number: FUNCTION ○ + 4 3 +
The originally called (your) station number: Z ・・・ Z +
#/▲ (Confirmation tone)

Note
The programmed contents set by dialing operation are automatically saved into the exchange or IP stations at midnight every day. If the exchange or IP station is turned off before completion of save, the state returns to the contents that were programmed before power-off.

5.6. Tie-Line Connection (only when the N-8000MI is used)

Using the Multi interface unit for tie-line connection between the N-8000 Series intercom system exchange and other series intercom system exchanges via 4-wire private lines permits calls, conversations, or paging calls to be mutually made between stations connected to the tie-line connected exchanges.

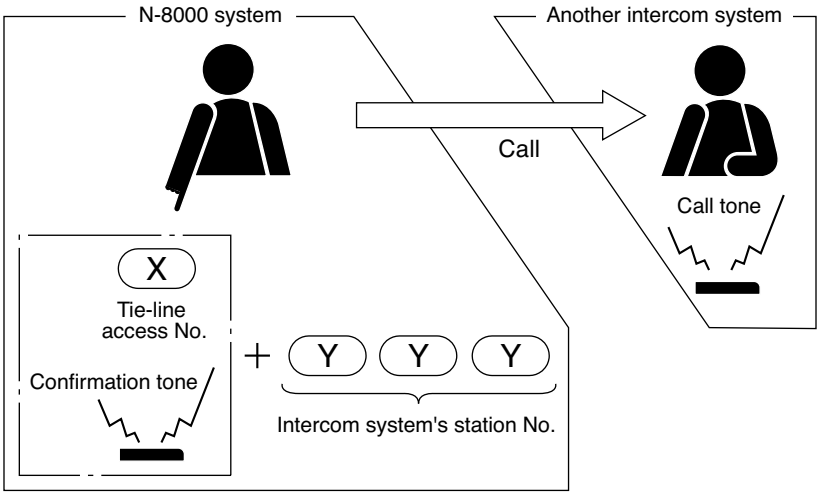
Note: This function cannot be used if the system is set to "Selective Response" mode.

4.6.1. Calling another intercom system

Step 1. Press the tie-line access number.
The called intercom system can be connected.

Step 2. After confirming a dial tone from the connected system, dial the station number of the intercom system to call.

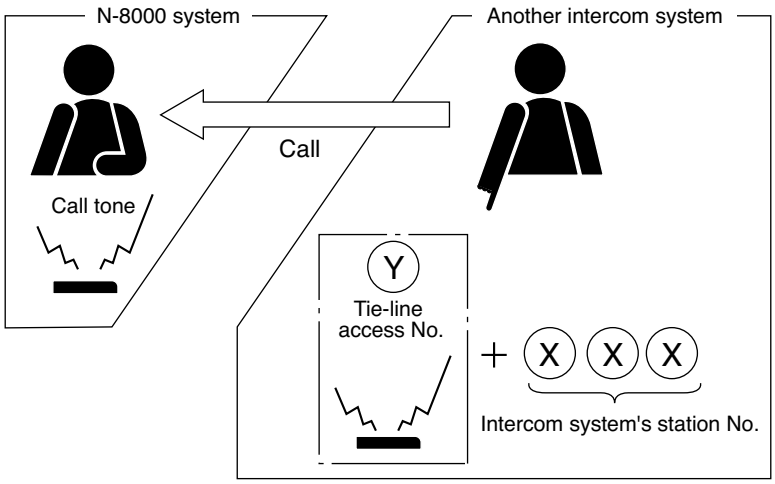
Note
Set the tie-line access number using the supplied N-8000 Setting Software. (Refer to p. 5-46.)



5.6.2. Being called from another intercom system

Dialing the tie-line access number and the N-8000 system's station number at the other intercom system's station permits the N-8000 system's station to be called. The method for receiving a call from the other intercom system's station at the N-8000 system's station is the same as when it is called by another station within the N-8000 system.

Note
Set the tie-line access number to be used by another intercom system at another intercom system side.

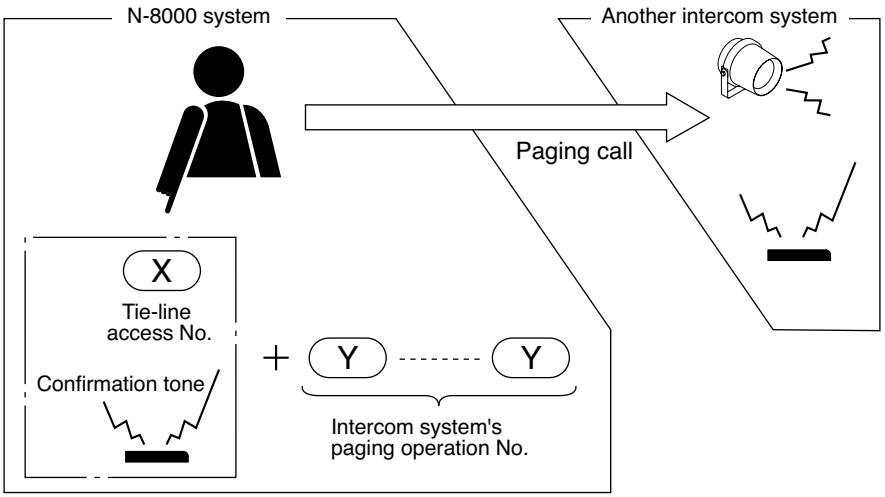


5.6.3. Making paging calls to another intercom system

Step 1. Press the tie-line access number.
The called intercom system can be connected.

Step 2. After confirming that a dial tone from the connected intercom system is heard, dial the paging operation number of the connected intercom system, and make a paging call to the connected intercom system.

Note
Set the tie-line access number using the supplied N-8000 Setting Software. (Refer to p. 5-46.)

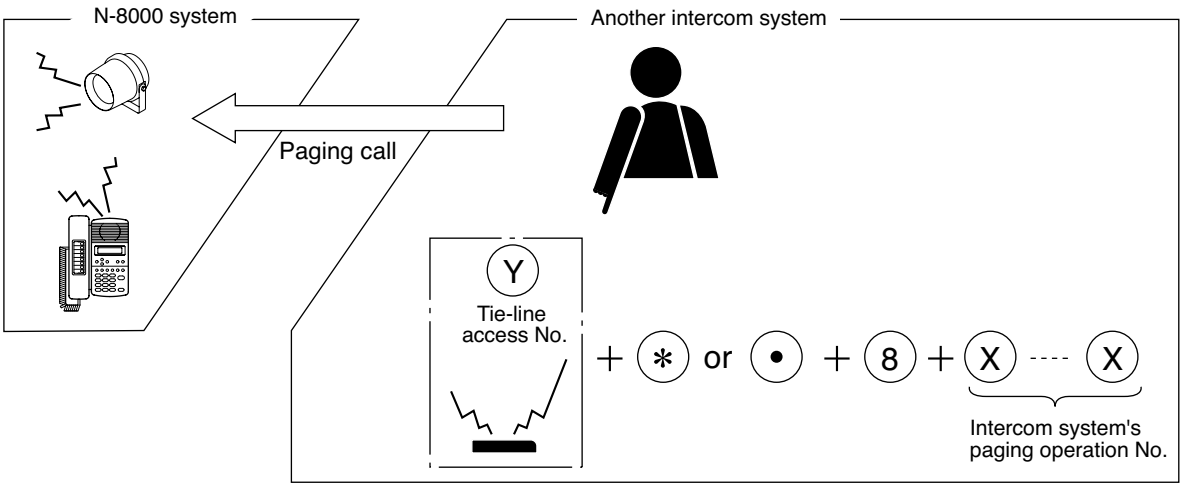


Note
Paging calls cannot be made simultaneously over both the N-8000 system and other intercom systems.

5.6.4. Being paged from another intercom system

Dialing the intercom access number, " ✻ " or " •," "8," and the N-8000 system's paging operation number in this order at the other intercom system's station permits paging calls to be made to the N-8000 system.
The method for responding a paging call at the N-8000 system's station is the same as when it is paged from the N-8000 system's station. (Note that paging response is valid only when the paging call is in progress.)

Note
The tie-line access number to be used by another intercom system's stations must be set at another intercom system side.



5.7. BGM (only when the N-8000MI is used)

Connecting playback components to the Multi interface unit permits Background music selectable from up to 8 programs to be heard from each station speaker while in standby mode.

It is possible to make or receive calls at the station even in BGM mode. In this event, BGM broadcasts are automatically interrupted.

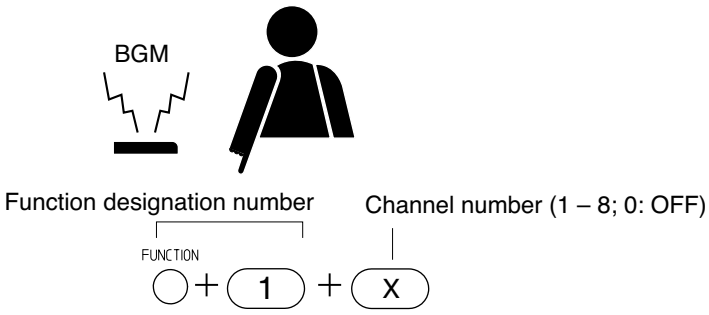
Interrupted BGM broadcasts are automatically restored after the conversation or paging is completed.

Notes

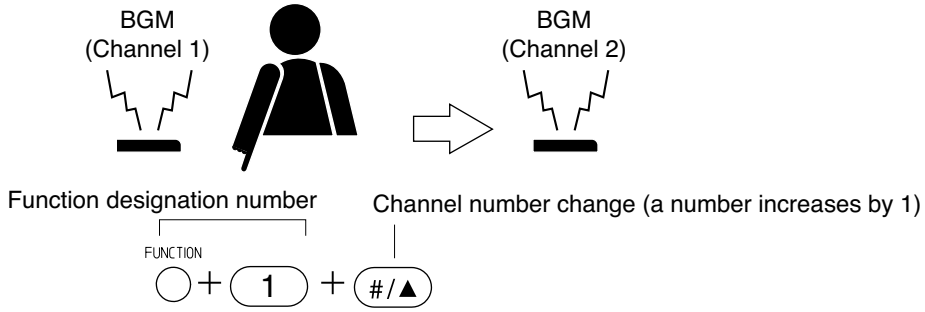
- Use the supplied N-8000 Setting Software to set the unit number and audio input number of the Multi interface unit with connected playback components, and the stations that can receive BGM broadcasts. (Refer to p. 5-36, 5-45, 5-63, 5-66, 5-80.)
- Since BGM is lower than conversations and paging in priority, BGM may be interrupted at a BGM-broadcast station even if the station performs no operation when other station makes a call or paging with all speech links busy. Especially for the N-8010EX, which has a small number of speech links, BGM interruption happens more frequently.
- For a Multi interface unit connected to playback components and exchanges connected to stations that select BGM, perform settings so that they can be connected to the network that enables multicast communications (Refer to p. 5-25) of high-quality mode (Refer to p. 5-33, 5-41, 5-61).
- Substations and telephones cannot access the background music function.

[Channel Selection]

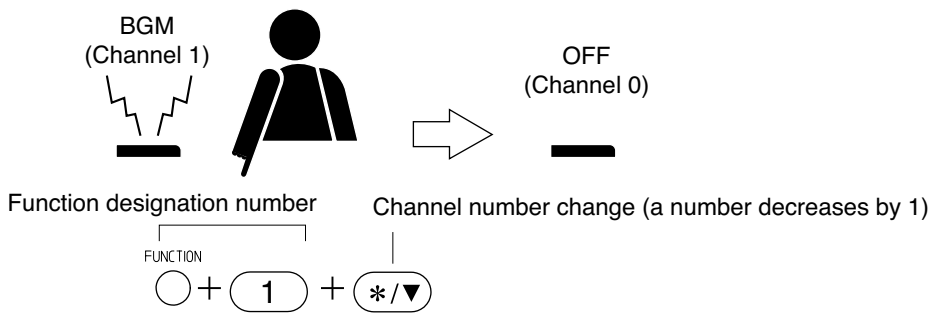
- Press [Function key][1][Channel number].



- Pressing [Function key][1][#/▲] increases the channel number by 1 (1 → 2 → ...7 → 8 → 0...).



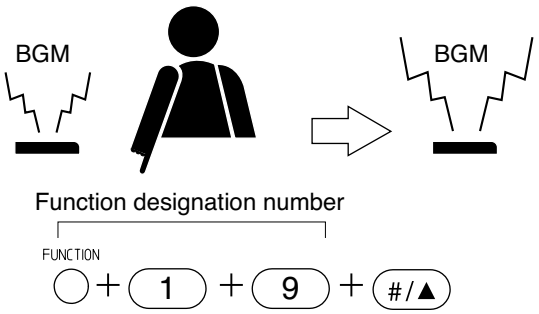
- Pressing [Function key][1][✻/▼] decreases the channel number by 1 (1 → 0 → 8 → 7...).



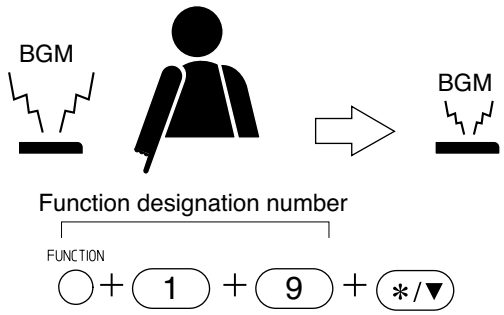
[BGM volume adjustment]

BGM volume can be adjusted in 5 increments.

- Press [Function key][1][9][#/▲] to increase the volume.



- Press [Function key][1][9][✻/▼] to decrease the volume.



5.8. External Equipment Control

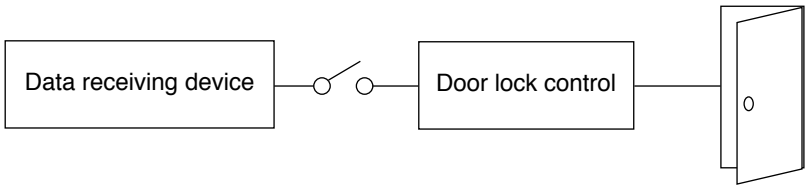
(only when the N-8000MI/8000DI/8000AF/8050DS/8540DS/8640DS/8650DS is used)

External equipment can be controlled by transmitting a one-shot make output signal (or make/break contact signal) to the contact of the designated Multi-Interface unit, Direct Select unit, or Audio Interface unit, or by manually causing the station to transmit a one-shot make output signal to the contact of the designated door station. Remote door lock control can be performed using the one-shot make output, and indication boards can be controlled using the make/break output.

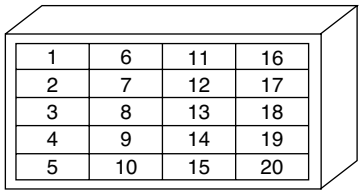
Note

Use the supplied N-8000 Setting Software to set the one-shot make duration, operation number digits, operation numbers, and the stations allowed to control external equipment. (Refer to p. 5-35, 5-43, 5-49 , 5-62, 5-67, 5-82, 5-106, 5-110, 5-114, 5-117.)

[Door remote control example using one-shot make output control]

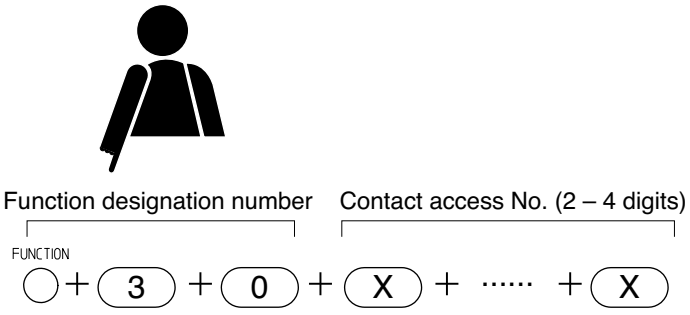


[Hospital waiting status indication board example using the make/break output]



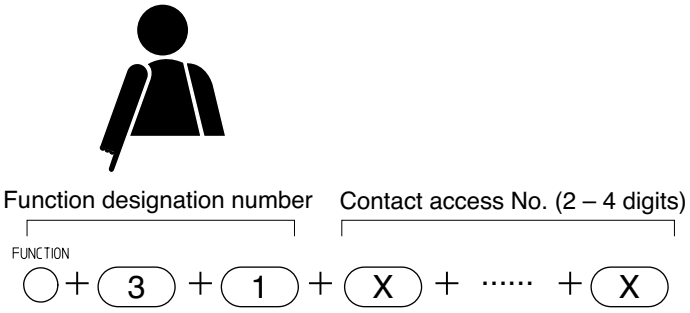
[One-shot make output operation]

Press [Function key][3][0], then the access number for the contact corresponding to the external equipment to be controlled.



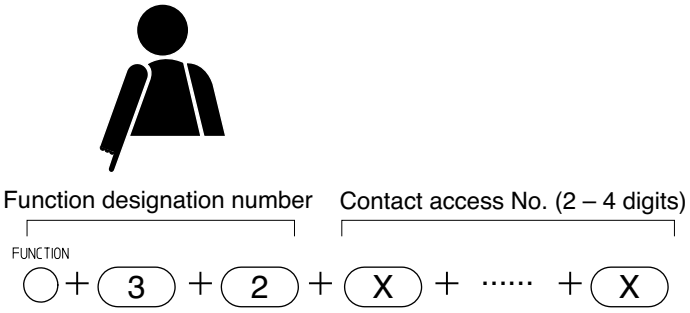
[Make output operation]

Press [Function key][3][1], then the access number for the contact corresponding to the external equipment to be controlled.



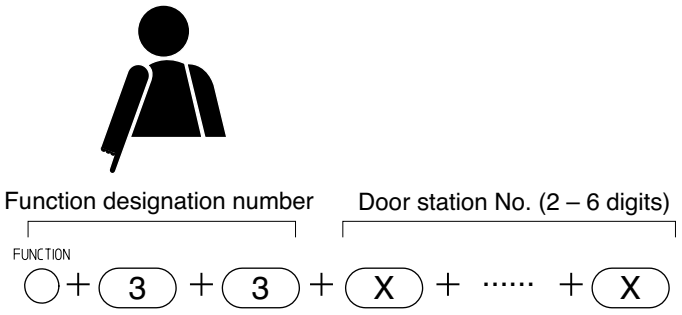
[Break output operation]

Press [Function key][3][2], then the access number for the contact corresponding to the external equipment to be controlled.



[Door station one-shot make output operation (when the N-8050DS/8540DS is used)]

Press [Function key][3][3], then the door station number to be controlled.



[Door station one-shot make output operation (when the N-8640DS/8650DS is used)]

The N-8640DS/8650DS has 5 contact outputs. Function designation number differs depending on the contact output to be controlled.
Press the function designation number corresponding to the contact output, followed by the door station number to be controlled.

Function designation number | Door station No. (2 – 6 digits)

To control the contact output 1: FUNCTION ○ + 3 + 3 + X + ····· + X

To control the contact output 2: FUNCTION ○ + 3 + 4 + X + ····· + X

To control the contact output 3: FUNCTION ○ + 3 + 5 + X + ····· + X

To control the contact output 4: FUNCTION ○ + 3 + 6 + X + ····· + X

To control the contact output 5: FUNCTION ○ + 3 + 7 + X + ····· + X

5.9. Door Remote Control

(only when the N-8050DS/8540DS/8640DS/8650DS/8000MI/8000DI/8000AF is used)

N-8050DS/8540DS/8640DS/8650DS's contact outputs can be shorted for a set period of time by the dial operation at the master station engaged in conversation with the N-8050DS Door Station or N-8540DS/8640DS/8650DS IP Door Station of which "Door station contact output" item is set to "Door remote control."
Similarly, the Multi interface unit's, Direct select unit's, or Audio interface unit's contact outputs can be shorted for a set period of time by the dial operation at the master station engaged in conversation with a station.
For example, a door lock can be controlled by connecting the contact outputs to an electronic lock system.
Use the supplied N-8000 Setting Software to perform settings for the Door station contact output, the one shot make duration and the N-8000MI's contact output corresponding to each station. (Refer to p. 5-35, 5-37, 5-62, 5-64, 5-66, 5-80, 5-97, 5-100.)

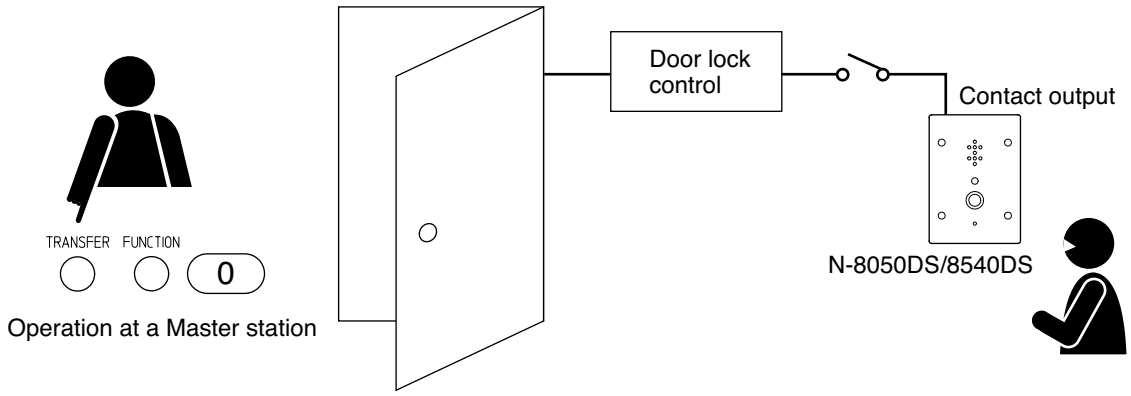
[Operation **(when using the contact outputs of the N-8050DS/8540DS/8000MI/8000DI/8000AF)**]

Step 1. Press the Transfer key during a conversation.
Current conversation is placed on hold, transmitting a hold tone to other party.

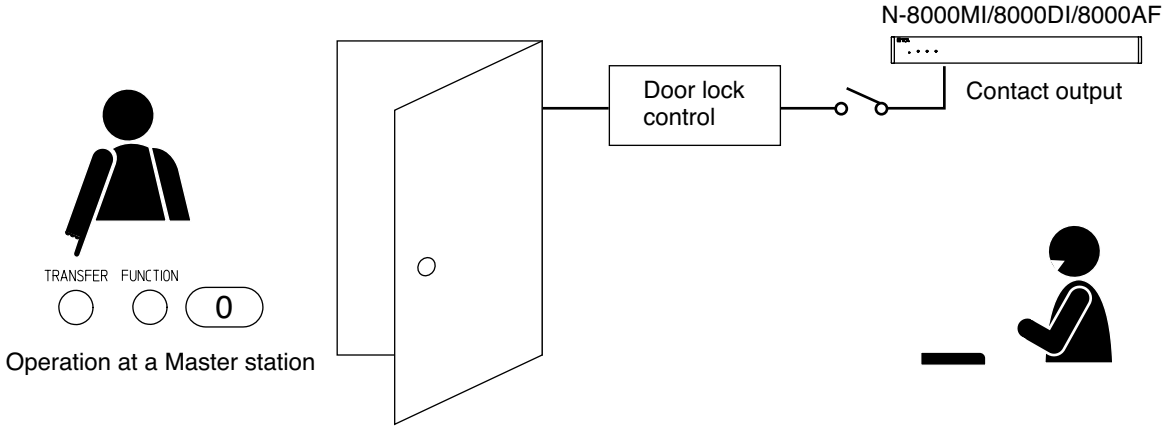
Step 2. Press the Function key and [0] key.
Contact outputs of N-8050DS/8540DS in conversation or the station's corresponding N-8000MI's, N-8000DI's, or N-8000AF's contact outputs can be shorted for a set period of time.
For example, the corresponding door lock can be released if contact outputs are connected to an electronic lock system.

Step 3. A confirmation tone sounds, and the original conversation is restored.

[Example of N-8050DS/8540DS operation]



[Example of N-8000MI/8000DI/8000AF operation]



[Operation (when using the contact outputs of the N-8640DS/8650DS)]

The N-8640DS/8650DS has 5 contact outputs. The contact output to be controlled can be selected through key operation.

Step 1. Press the Transfer key during a conversation.
Current conversation is placed on hold, transmitting a hold tone to other party.

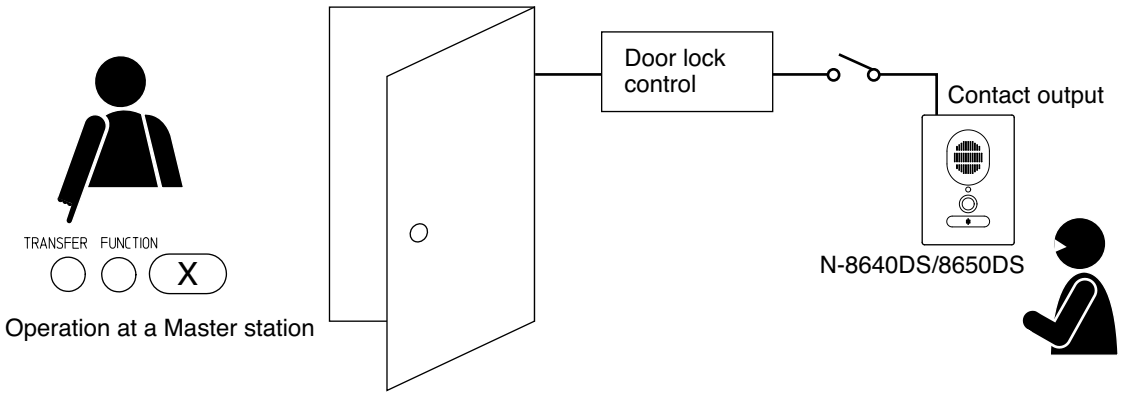
Step 2. Press the function key, followed by the designation number (0 – 4) for the contact output of the IP door station to be controlled.

Designation number for the contact output 1 (open collector) : 0
Designation number for the contact output 2 (open collector) : 1
Designation number for the contact output 3 (open collector) : 2
Designation number for the contact output 4 (open collector) : 3
Designation number for the contact output 5 (relay) : 4

Contact outputs of N-8640DS/8650DS in conversation can be shorted for a set period of time.
For example, the corresponding door lock can be released if contact outputs are connected to an electronic lock system.

Step 3. A confirmation tone sounds, and the original conversation is restored.

[Example of N-8640DS/8650DS operation]



X : Designation number for the contact output

Contact output 1	0
Contact output 2	1
Contact output 3	2
Contact output 4	3
Contact output 5	4

5.10. Message Pagings (available only when IP Master Stations are used)

Message pagings can be made using messages preprogrammed into the N-8500MS/8600MS Multi-Functional IP Master Station or N-8510MS Standard IP Master Station. The Message paging is output to the preset paging zones.

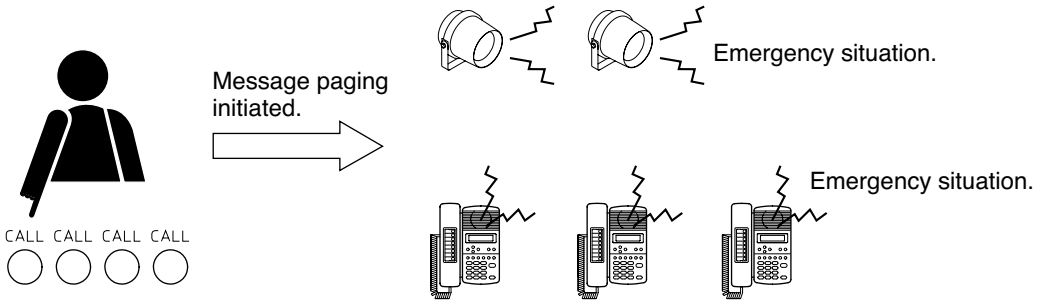
Notes

- Use the N-8000 Setting Software to set the activation method, paging zone numbers, number of repetitions and contact interlock control for the Message paging. (Refer to p. 5-70.)
- Use the N-8000 Setting Software to record messages on a PC and program the messages into the IP master station. (Refer to p. 5-129.)

5.10.1. Message paging operation

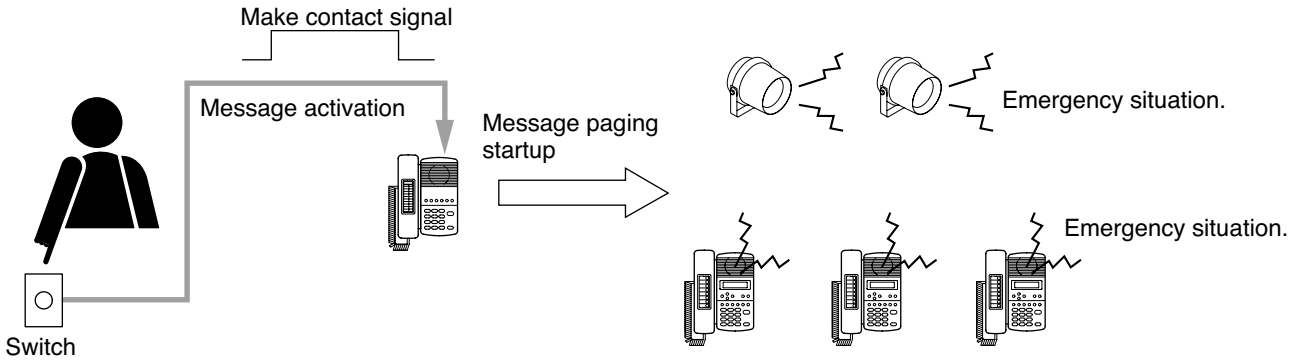
Step 1. Message Paging Activation
The following two startup methods are available.
Note
Use the N-8000 Setting Software to perform activation settings.

1-1. Activation by IP Master Station keys:
Press the Paging Call keys four times in a row.



Note
The Message paging cannot be initiated when the IP Master Station to be operated is currently in use. Wait until the station is in Standby mode. An exception to this is priority given to Message pagings initiated at an IP Master Station that is receiving a paging call in the system set for Call Priority mode.

1-2. Activation by Standard IP Master Station Message Activation Terminal (N-8510MS only):
The Message paging is initiated by a make contact signal transmitted from a switch or other external device connected to the Standard IP Master Station's Message Activation terminal. The station is freed to immediately start the Message paging, even when the IP Master Station that receives the make contact signal is busy. The external device make contact signal must be transmitted for at least 100 ms.



Step 2. Message Paging Termination
There are two termination methods.

2-1. Termination by IP Master Station key.
Press the Clear key.
Note
This operation forcibly terminates the Message Paging even if the number of broadcast repetitions is set.

2-2. Termination by Preset Repetitions
The broadcast automatically terminates when the message is played back the set number of broadcast repetitions.
Notes
- Use the N-8000 Setting Software to set the number of repetitions. (Refer to p. 5-70.)
- Even if the paging time has been limited (refer to p. 5-63), this has no effect on the Message paging.
- Opening the Standard IP Master Station's Message Activation terminal does not terminate the paging. To terminate, press the station's Clear key or set the number of paging repetitions.

5.10.2. Message paging priority level

The Message paging takes precedence over normal conversations and paging calls (except Emergency paging). When the station to which the Message is being transmitted is in operation, all such operations are forcibly terminated, allowing the Message paging to go through. Such terminated operations are not restored even after the Message paging is completed.

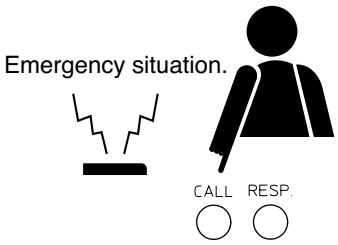
5.10.3. Contact interlock control

The N-8000MI/8000DI/8000AF unit's contact output terminal can be made to close in synchronization with the initiation of the Message paging. Two methods are available for this: one is to constantly keep the terminal closed during message paging and the other is to close the contact by means of a one-shot pulse only when the broadcast begins.

5.10.4. Programmed message confirmation

Messages programmed into the IP Master Station can be confirmed at that station.

Step 1. When the IP master station is in Standby mode, press the Paging Call key, followed by the Paging Response key.
The Message can be heard from the internal speaker or handset of the operated station.



Step 2. Press the Clear key.
Message playback completed.
Note
The message is repeatedly played back until the Clear key is pressed.

5.10.5 Muting Message pagings (N-8510MS only)

Only the master station (N-8510MS only) activating Message pagings can be set not to output Message pagings from its station speaker.
Other operations such as status indicator lighting, repetition of paging, and contact-related controls except Message paging output are the same as those when mute is not activated.
Audio signals are output as normal at the paging receiving stations.
When the operation other than Message paging activation is performed, sound source (like a call tone) corresponding to the operation is output.

Tip: Use the supplied N-8000 Setting Software for Message paging mute setting. (See p. 5-70.)

Notes
- The IP Remote Microphone Station cannot be set to mute Message pagings.
- Message pagings can be muted at the master station's built-in speaker only but not at its handset speaker.
- While a Message paging is activated, sound sources such as an error tone other than a message, even if produced, will be muted. However, these sounds are not muted unless Message pagings are activated.

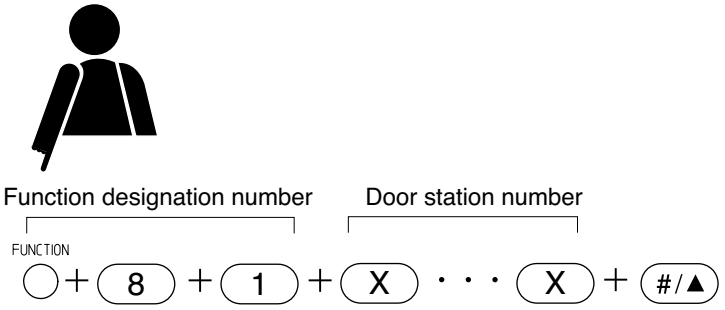
5.11. Audio Trigger Function Settings (only when the N-8050DS/8640DS/8650DS is used)

Audio Trigger function settings for the N-8050DS Door Station and the N-8640DS/8650DS IP Door station can be performed at the Master Station (refer to p. 2-120).

5.11.1. Enabling the audio trigger

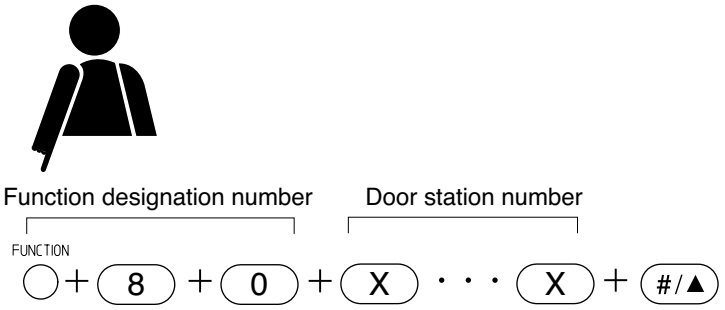
The Audio Trigger can be enabled at any station by designating the Door Station.

Notes
- Only the N-8000EX Exchange can support this function, and up to four Door Stations that enable Audio Trigger alarm operation can be connected per Exchange.
- The Audio Trigger function cannot be used for stations that are set to receive background music.



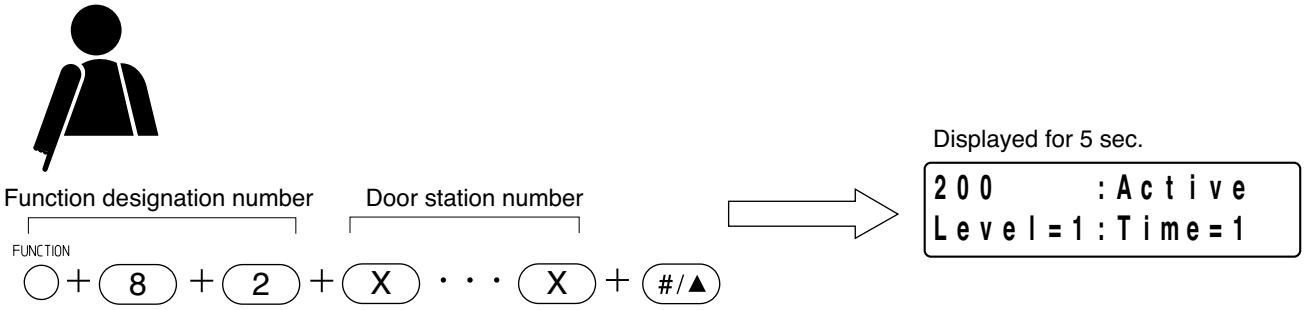
5.11.2. Disabling the audio trigger

The Audio Trigger can be disabled at any station by designating the Door Station.



5.11.3. Confirming audio trigger setting status (N-8000MS/8500MS/8600MS only)

The setting status of the Audio Trigger function can be confirmed at any Multi-Functional Master Station by designating a Door Station.



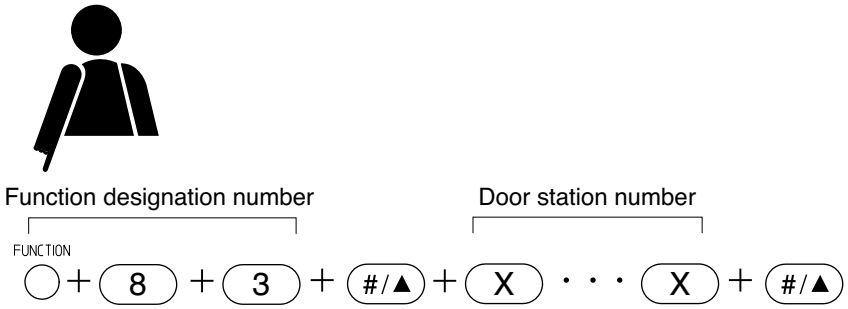
5.11.4. Adjusting the effectiveness of Audio Trigger Function

The effectiveness of Audio Trigger function can be adjusted by designating a Door Station at any station and changing the setting value of the alarm detection conditions.

[Making the Audio Trigger function less effective]

If the Audio Trigger function works when not needed, change the setting value following the operation below.

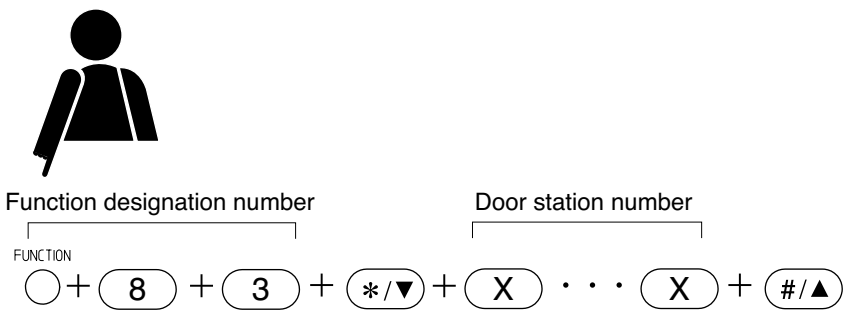
- When the alarm detection method is set to “Level detection,” the sound pressure level of the specified Door station’s Audio Trigger function can be increased by 3 dB through the operation shown below.
- When the alarm detection method is set to “Audio detection,” the set sensitivity value of the specified Door station’s Audio Trigger function can be increased by one step through the operation shown below.



[Making the Audio Trigger function more effective]

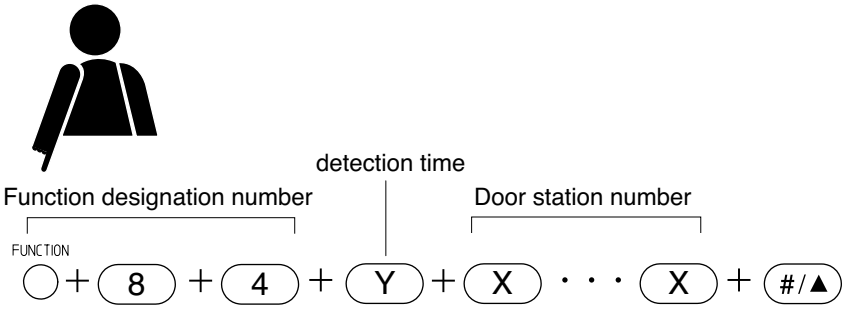
If the Audio Trigger function does not work when needed, change the setting value following the operation below.

- When the alarm detection method is set to “Level detection,” the detection level of the specified Door station’s Audio Trigger function can be decreased by 3 dB through the operation shown below.
- When the alarm detection method is set to “Audio detection,” the set sensitivity value of the specified Door station’s Audio Trigger function can be decreased by one step through the operation shown below.



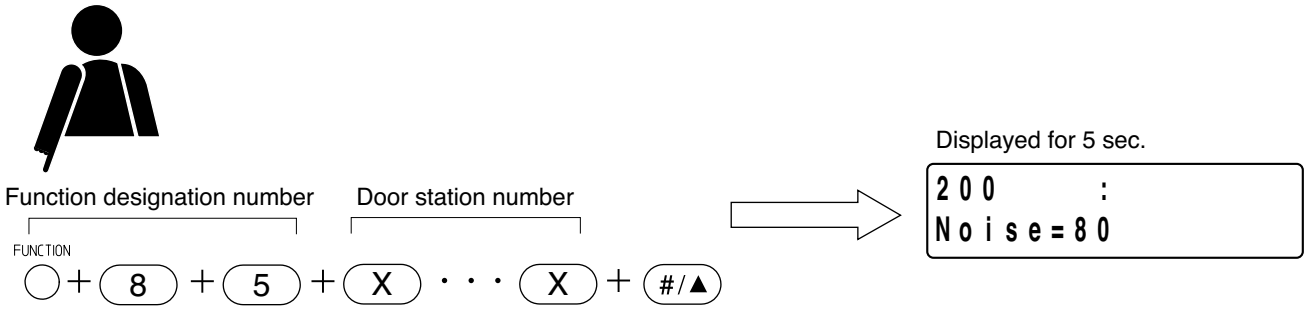
5.11.5. Changing the audio trigger detection time

The time interval for detecting sound to activate the alarm function can be changed at any station by designating a Door Station. Set the detection time using the dial keys 1 – 9. The larger the number becomes, the longer the detection time becomes.



5.11.6. Ambient noise display (N-8000MS/8600MS only)

By designating a Door Station, its ambient noise level can be displayed on any Multi-Functional Station's LCD screen. Values displayed are reference values in units of dB SPL.

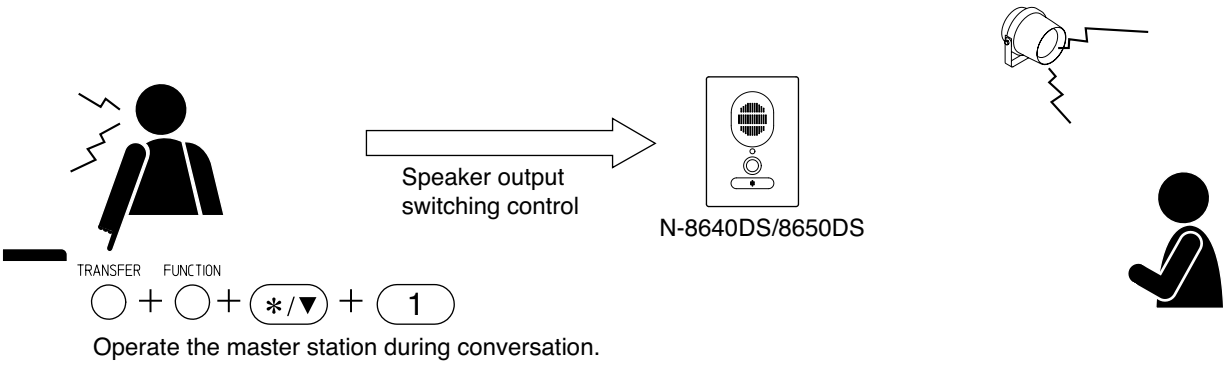


5.12. IP Door Station's Speaker Output Switching Control
(only when the N-8640DS/8650DS is used)

The audio output destination of the N-8640DS/8650DS IP door station engaged in conversations with its master station can be switched to either the internal speaker or the speaker connected to the external speaker terminal by the master station's dial operation.
The switched audio output destination reverts to the speaker designated on the N-8000 Setting Software when the conversations terminate or when interrupted by paging with higher priority.

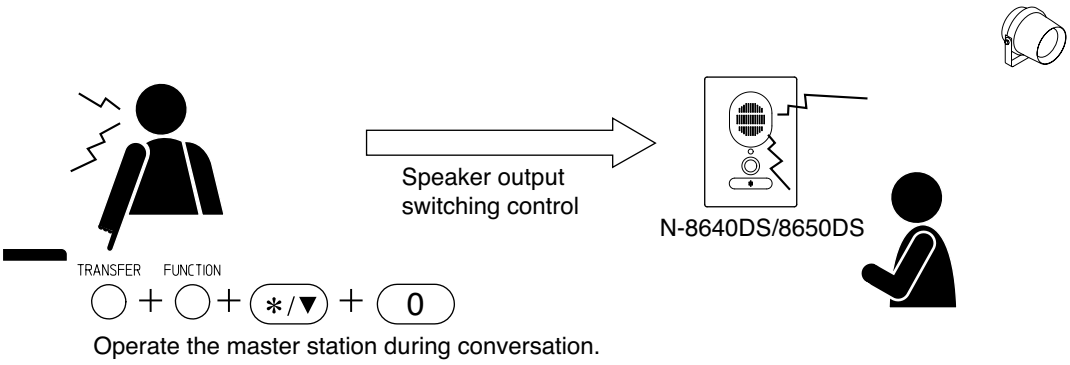
Notes
- If the called IP door station does not have this function, an error tone sounds at the master station that made a dial operation, and the state returns to the conversation mode.
- The internal and external speakers cannot be used simultaneously.

5.12.1. When switching to the external speaker



Operate the master station during conversation.

5.12.2. When switching to the internal speaker



Operate the master station during conversation.

5.13. Access Code Authentication (except N-8500MS/8510MS)

Usage of the master station can be restricted when the access code authentication is enabled.
Entering a preprogrammed 4-digit access code number before each function key number permits the master station to be used as usual. Incorrect access code number entry will cause an access error.
Following are restricted functions: Functions to activate at the master station such as calls, paging calls and scan monitoring, and functions to control through dial operations such as external equipment control and setting change for the original station.
Call receiving and remote response can be executed without the need for access code number entry.
Emergency paging call activation and Message paging activation functions, which have higher priority, can be used without entering an access code number.
Operation not in standby mode such as manual call transfer during conversation can be executed without entering an access code number.

Tip: Use the supplied N-8000 Setting Software for access code authentication and access code number setting. (See p. 5-66, 5-81)

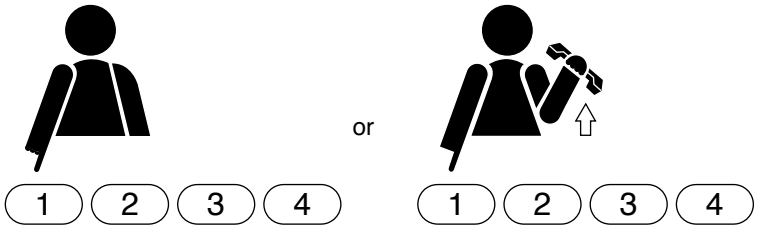
Notes
- The N-8500MS Multi-functional IP Master Station, M-8510MS Standard IP Master Station, and stations at the Tie-line side or PBX side connected to the N-8000MI Multi-interface unit cannot use Access code authentication function.
- When initiating calls by One-touch dialing or Remote dialing, the access code number is required. When registering the number, include the access code number before the dial key number to activate function such as station number.
- When access code authentication is enabled, redial function cannot be used.
- Access code authentication cannot be performed by auto-dialing.

5.13.1. Operation

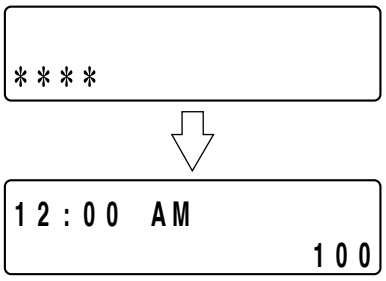
The steps below show an example of making station call when access code authentication is enabled.

Step 1. Press the access code number (4-digit number).
In this case, the station's handset may be either lifted or in place.

(Access code number: Example when the password is 1234)

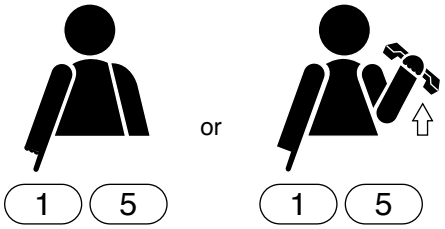


Tip
The entered digit of password will be displayed as an asterisk (*) at the master station equipped with an LCD screen, then all asterisks are cleared after a 4-digit input is completed.



Step 2. Press the station number to call.

(Example when station number is 15)



6. MASTER STATION OPERATION TABLE

Function		Item	Operation	Remarks
Call		Call	Dial station No. [X][X] ··· [X]	Station No: 2 – 6 digits
		Redialing	Press the [Redial] key	
		Recall	Press the [#/▲] key	
		Voice Calling	Voice a call to a called party by pressing the [PTT] key as the continuous call tone sounds.	
Response (Sequential response mode)			Press any key or lift the handset.	
Response (Selective response mode)		Call station display selection	Press the [▲] or [▼] key. (Arrow key)	
		First call station display	Press the [◀] key. (Arrow key)	
		Last call station display	Press the [▶] key. (Arrow key)	
		Selective response	Press the [PTT] key, or lift the handset.	
		Handset conversation	Conversation can be made by lifting the handset.	
Conversation		Hands-free conversation	Conversation can be made without lifting the handset.	
		PTT conversation	Press the [PTT] key during a hands-free conversation.	
Speed dialing	Auto-dialing	Operation	Press the Auto-dialing key ([1] – [8].)	N-8000MS/8500MS /8600MS only
	One-touch dialing	Operation	Press [7] , [8] , [9] , [0] or lift the handset.	
		Programming	Dial [Function] [6] [the one-touch dialing key] [the dial to be programmed] [PTT] keys. • The one-touch dialing key represents the [7], [8], [9], [0], or [PTT] key, which is used for one-touch function. • Press the [PTT] key when enabling the Off-Hook function for one-touch key operation. • The dial to be programmed is up to 32 digits. • Enter one-touch dialing key using the Dial keys (12 keys), Paging key, Paging response key, Transfer key, and/or Function key.	
		Erasure	Dial [Function] [6] [the one-touch dialing key] [PTT] keys.	
	Dial pattern activation	Operation	Dial [Function] [2] [Function] [dial pattern No.] keys.	N-8600MS only Dial pattern No.: 01 – 54
Hold		Mic Off	Continuously hold down any key ([0] – [9]) during a conversation.	
		Call hold	Press the [Hold] key during a conversation.	
		Call hold release	Press the [Hold] key during hold.	
Call transfer		Call transfer	Press the [Transfer] key during a conversation. →The other party is placed on hold. Dial the third party's station number. →Conversation with the third party. (Original conversation party is placed on hold). Either press the [C] key or replace the handset. →Call transfer completion	
		Returning to the original conversation	Press the [Transfer] key during a conversation. →The other party is placed on hold. Dial the third party's station number. →Conversation with the third party. (The original conversation party is placed on hold). Press the [Transfer] key again. →Return to the original conversation. (The original conversation is restored).	
Automatic call transfer	Call forwarding	Programming at your station	Dial [Function] [4] [1] [the designated station No.] [#/▲] keys.	Station No: 2 – 6 digits
		Erasure at your station	Dial [Function] [4] [1] [your station No.] [#/▲] keys.	
		Programming at the designated station	Dial [Function] [4] [2] [your station No.] [#/▲] keys.	
	Time-based call forwarding	Programming	Dial [Function] [4] [3] [the designated station No.] [#/▲] keys.	
		Erasure	Dial [Function] [4] [3] [your station No.] [#/▲] keys.	
	Absence transfer	Programming	Dial [Function] [4] [4] [the designated station No.] [#/▲] keys.	
		Erasure	Dial [Function] [4] [4] [your station No.] [#/▲] keys.	
	Group hunting	Programming	Dial [Function] [4] [5] [the designated station No.] [#/▲] keys.	
		Erasure	Dial [Function] [4] [5] [your station No.] [#/▲] keys.	

Function		Item	Operation	Remarks
C/O line automatic call transfer	Call forwarding	Programming at your station	Dial [Function] [4] [1] [✻/▼] [the C/O line interface access number] [#/▲] keys.	Station No: 2 – 6 digits
		Erasure at your station	Dial [Function] [4] [1] [your station No.] [#/▲] keys.	
	Absence transfer	Programming at your station	Dial [Function] [4] [4] [✻/▼] [the C/O line interface access number] [#/▲] keys.	
		Erasure at your station	Dial [Function] [4] [4] [your station No.] [#/▲] keys.	
	Group hunting	Programming at your station	Dial [Function] [4] [5] [✻/▼] [the C/O line interface access number] [#/▲] keys.	
		Erasure at your station	Dial [Function] [4] [5] [your station No.] [#/▲] keys.	
	Time-based call forwarding	Programming	Dial [Function] [4] [3] [✻/▼] [the C/O line interface access number] [#/▲] keys.	
		Erasure	Dial [Function] [4] [3] [your station No.] [#/▲] keys.	
Remote response		Response	When call is received to the station assigned to the same group, press the [PTT] key.	
		New programming	Dial [Function] [7] [0] [#/▲] keys.	Stations currently set for other Remote Response groups can not establish a different Remote Response group.
		Member addition	Dial [Function] [7] [1] [member station No.] [#/▲] keys.	Stations currently set for other Remote Response groups cannot join a different Remote Response group as a member station.
		Erasure	Dial [Function] [7] [2] [#/▲] keys.	
		Member erasure	Dial [Function] [7] [2] [member station No.] [#/▲] keys.	Stations currently set for other Remote Response groups cannot erase from a member station of the Remote Response group.
Executive priority			If a called station is busy, press the [9] key.	
Scan monitor		Start	Dial [✻/▼] [2] [Monitor group No.] [Monitor group No.] ··· [#/▲] keys. or Dial [✻/▼] [2] [✻/▼] [Monitored station No.] [✻/▼] [Monitored station No.] ··· [#/▲] keys.	Monitor group No.: 1 – 4 Monitored station No.: 2 – 6 digits
		Stop/Restart	Press [0] to stop. Press [0] again to restart.	Dial during monitoring
		Advancing Scan	Press [#/▲] key to advance the scan by one station.	
		Reverse Scan	Press [✻/▼] key to move the scan back one station.	
		Voice transmission	Press [PTT] to establish conversation.	
		End	Either press the [C] key or replace the handset.	
Paging		Zone paging	Dial [Paging] [Zone No.] keys.	Zone No.: 1 – 3 digits
		Selectable paging	Dial [Paging] [✻/▼] [Zone No.] [✻/▼] [Zone No.] [✻/▼] ··· [Zone No.] [#/▲] keys.	
		Selectable paging to zones and zone pattern-set zones	Dial [Paging] [zone or zone pattern selection]···[zone or zone pattern selection] [#/▲] keys. • Zone selection: Dial [✻/▼] [zone No.]. • Zone pattern selection: Dial [✻/▼] [Function] [paging zone pattern No.].	N-8600 only Zone No.: 1 – 3 digits Paging zone pattern No.: 001 – 216
		All-call paging	Dial [Paging] [0] keys.	
		Emergency paging	Press [✻/▼] [✻/▼] [✻/▼] [✻/▼] keys.	
Paging Response		Automatic Response	Press [Paging Response] key.	
		Zone number dialing	Dial [Paging Response] [Zone No.] keys.	Zone No.: 1 – 3 digits
Station speaker output settings		Increase volume	Press [#/▲] key during a conversation.	
		Decrease volume	Press [✻/▼] key during a conversation.	

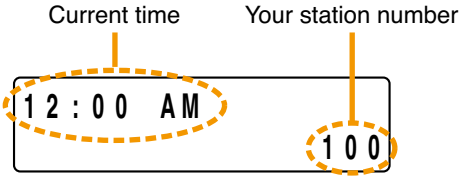
Function	Item	Operation	Remarks
3-party conference	2-party conversation	Dial [Function] [5] [1] [second party station No.].	Conference-Originating Station Operation
	3-party conversation	Dial [Transfer] [third party station No.].	
	Switching from 2-party conversation to 3-party conference	Dial [Transfer] [Function] [5] [1] [third party station No.] during a conversation.	
	Switching from 3-party conference to 2-party conversation	Dial [Transfer] [conference ending station No.].	
	End of conference	Either press the [C] key or replace the handset.	
Broadcast to SX-2000 system or other activation operation (N-8600MS only)	Selected zone broadcast	Dial [Paging] [zone or zone pattern selection]···[zone or zone pattern selection] [＃/▲] keys. • Zone selection Dial [✻/▼] [Transfer] [SX-2000 system ID] [zone No.]. • Zone pattern selection Dial [✻/▼] [Transfer] [SX-2000 system ID] [Function] [zone pattern No.].	SX-2000 system ID No.: 01 – 08 Zone No.: 001 – 256 Zone pattern No.: 001 – 216
	General broadcast activation	Dial [Function] [✻/▼] [Transfer] [SX-2000 system ID] [Function] [1] [Function] [control input (for general broadcast pattern activation) pattern No.] [＃/▲] keys.	Control input pattern No.: 001 – 162
	General broadcast termination	Dial [Function] [✻/▼] [Transfer] [SX-2000 system ID] [Function] [2] [Function] [control input (for general broadcast pattern activation) pattern No.] [＃/▲] keys.	
	BGM broadcast change	Dial [Function] [✻/▼] [Transfer] [SX-2000 system ID] [Function] [5] [Function] [control input (for BGM change) No.] [＃/▲] keys.	
	BGM broadcast end	Dial [Function] [✻/▼] [Transfer] [SX-2000 system ID] [Function] [5] [Function] [control input (for BGM change) No.] [＃/▲] keys.	Equipment No.: 1 – 5 Equipment ID No.: 00 – 32 Control input No.: 01 – 32 Control output No.: 01 – 32 Control output pattern No.: 001 – 162
	Control output activation	Dial [Function] [control output or control output pattern selection]···[control output or control output pattern selection] [＃/▲] keys. • Control output pattern selection Dial [✻/▼] [Transfer] [SX-2000 system ID] [Function] [3] [Function] [control output pattern No.] keys.	
	Control output deactivation	Dial [Function] [control output or control output pattern selection]···[control output or control output pattern selection] [＃/▲] keys. • Control output pattern selection Dial [✻/▼] [Transfer] [SX-2000 system ID] [Function] [4] [Function] [control output pattern No.] keys.	
	Multi-operation activation (Selected zone broadcast and control output pattern activation)	Dial [Paging] [zone or zone pattern selection]···[zone or zone pattern selection] [control output pattern selection]···[control output pattern selection] [＃/▲] keys. • Zone selection Dial [✻/▼] [Transfer] [SX-2000 system ID] [zone No.]. • Zone pattern selection Dial [✻/▼] [Transfer] [SX-2000 system ID] [Function] [zone pattern No.]. • Control output pattern selection Dial [✻/▼] [Transfer] [SX-2000 system ID] [Function] [3] [Function] [control output pattern No.] keys.	

Function	Item	Operation	Remarks
Broadcast to SX-2000 system or other activation operation (N-8600MS only)	Multi-operation activation (N-8000 paging call, SX-2000 selected zone broadcast, and control output pattern activation.)	Dial [Paging] [N-8000 zone or zone pattern selection, SX-2000 zone or zone pattern selection]··· [N-8000 zone or zone pattern selection, SX-2000 zone or zone pattern selection] [control output pattern selection]··· [control output pattern selection] [#/▲] keys. • N-8000 zone selection Dial [∗/▼] [paging zone N0.]. • N-8000 zone pattern selection Dial [∗/▼] [Function] [zone pattern No.]. • SX-2000 zone selection Dial [∗/▼] [Transfer] [SX-2000 system ID] [zone No.]. • SX-2000 zone pattern selection Dial [∗/▼] [Transfer] [SX-2000 system ID] [Function] [zone pattern No.]. • Control output pattern selection Dial [∗/▼] [Transfer] [SX-2000 system ID] [Function] [3] [Function] [control output pattern No.] keys.	N-8000 paging zone No.: 1 – 3 digits N-8000 paging zone pattern No.: 001 – 216 SX-2000 system ID No.: 01 – 08 SX-2000 zone No.: 001 – 256 SX-2000 zone pattern No.: 001 – 216 Control output pattern No.: 001 – 162
Time signal	Changing time signal schedules	Dial [Function] [9] [0] [schedule No.] keys.	Schedule No.: 01 – 16
	Suspending time signal schedules	Dial [Function] [9] [0] [0] [0] keys.	
	Manually trigger time signal	Dial [Function] [9] [1] [sound source No.] [external control] [zone No.] keys.	Zone No.: 1 – 3 digits Sound source No.: 1 – 9 External control: 0 (no handshaking), 1 (controlled)
	Manually trigger selectable time signal	Dial [Function] [9] [1] [sound source No.] [external control] [zone No.] [∗/▼] [zone No.] [∗/▼] ··· [zone No.] [#/▲] keys.	
	Time signal schedule confirmation	Dial [Function] [9] [2] keys.	Multi-functional Master station only
	Temporary exception programming	Dial [Function] [9] [3] [∗/▼] [station No.] [∗/▼] [station No.] [∗/▼] ··· [station No.] [#/▲] keys.	Station No.: Exception intended station
	Temporary exception cancellation	Dial [Function] [9] [4] [#/▲] keys.	
	Schedule reservation	Dial [Function] [9] [5] [Reserved day] [Schedule No.] keys.	Reserved day: 1 – 9 Schedule No.: 01 – 16
	Reserved schedule cancellation	Dial [Function] [9] [5] [∗/▼] keys.	
	Reserved schedule confirmation	Dial [Function] [9] [6] keys.	Multi-functional Master station only
Audio trigger	Enabling audio trigger	Dial [Function] [8] [1] [Door station No.] [#/▲] keys.	
	Disabling audio trigger	Dial [Function] [8] [0] [Door station No.] [#/▲] keys.	
	Confirming audio trigger setting status	Dial [Function] [8] [2] [Door station No.] [#/▲] keys.	
	Increasing detection level	Dial [Function] [8] [3] [#/▲] [Door station No.] [#/▲] keys.	
	Decreasing detection level	Dial [Function] [8] [3] [∗/▼] [Door station No.] [#/▲] keys.	
	Changing audio trigger detection time	Dial [Function] [8] [4] [detection time] [Door station No.] [#/▲] keys.	
	Ambient noise display	Dial [Function] [8] [5] [Door station No.] [#/▲] keys.	
Door remote		(When using the N-8050DS/8540DS) Dial [Transfer] [Function] [0] keys during a conversation. (When using the N-8640DS/8650DS) Dial [Transfer] [Function] [Designation number for the contact output No.] keys during a conversation.	Designation number for the contact output: Contact output 1 = 0 Contact output 2 = 1 Contact output 3 = 2 Contact output 4 = 3 Contact output 5 = 4

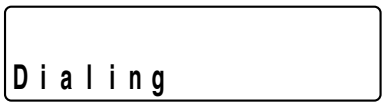
Function	Item	Operation	Remarks
BGM	Channel selection	Dial [Function] [1] [channel number] keys.	Channel number: 0 – 8
		Dial [Function] [1] [#/▲] keys.	Increasing a number by 1
		Dial [Function] [1] [✻/▼] keys.	Decreasing a number by 1
	Volume up	Dial [Function] [1] [9] [#/▲] keys.	
	Volume down	Dial [Function] [1] [9] [✻/▼] keys.	
External equipment control	One-shot make output	Dial [Function] [3] [0] [contact access number] keys.	Contact access number: 2 – 4 digits
	Make output	Dial [Function] [3] [1] [contact access number] keys.	
	Break output	Dial [Function] [3] [2] [contact access number] keys.	
	Door station one-shot make output	(When using the N-8050DS/8540DS) Dial [Function] [3] [3] [Door station No.] keys. (When using the N-8640DS/8650DS) Dial [Function] [3] [Designation number for the contact output No.] [Door station No.] keys.	Designation number for the contact output: Contact output 1 = 3 Contact output 2 = 4 Contact output 3 = 5 Contact output 4 = 6 Contact output 5 = 7
	Speaker output switching control	(When switching to the internal speaker) Dial [Transfer] [Function] [✻/▼] [0] keys during a conversation with the N-8640DS/8650DS. (When switching to the external speaker) Dial [Transfer] [Function] [✻/▼] [1] keys during a conversation with the N-8640DS/8650DS.	
Access code authentication		Dial [Access code number] before performing key operation.	Access code number: 4-digit number

7. MULTIFUNCTIONAL MASTER STATION'S LCD DISPLAY TABLE

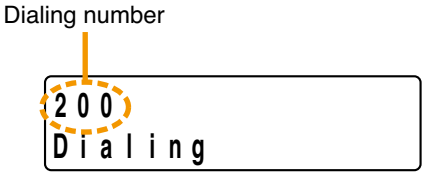
Standby mode



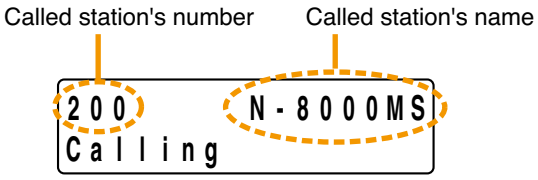
Dial status display 1 (Off-hook)



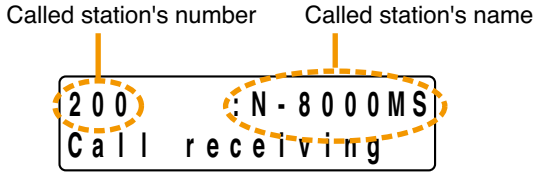
Dial status display 2 (Dialing)



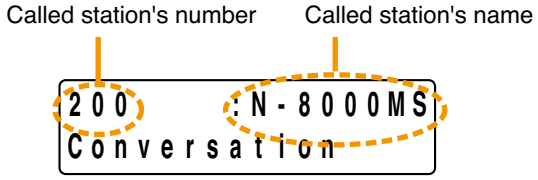
Calling (individual, group, recall or voice call)



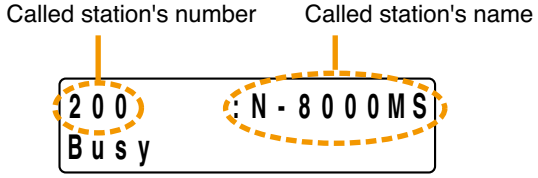
Call received



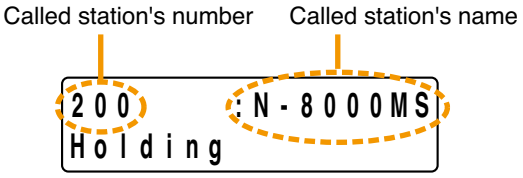
Conversation mode



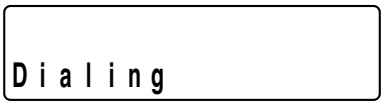
Busy mode



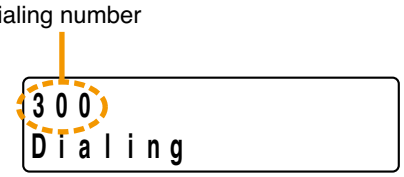
Holding



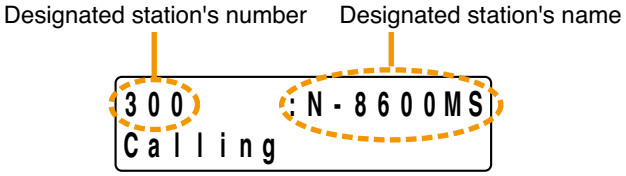
Dial status display 3 (when the Transfer key is pressed)



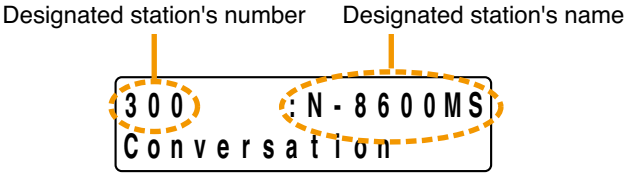
Dialing mode 4 (dialed after Transfer key depression)



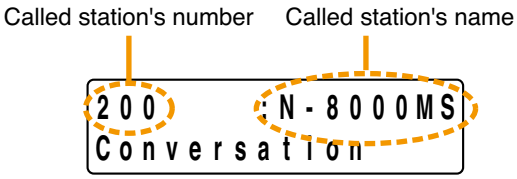
Calling (transfer mode)



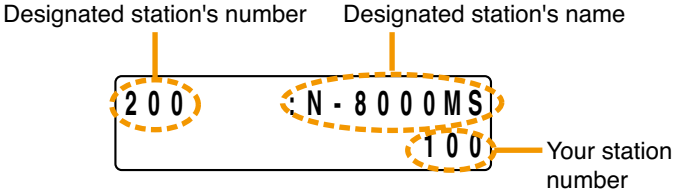
Conversation mode (transfer mode)



Call hold



Call forwarding



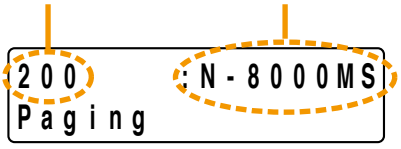
Paging

Paging zone number　Paging zone name

Note: For selectable Paging, the zone selected first is displayed.

Paging receiving

Paging operation station number　Paging operation station name

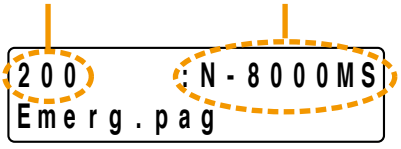


Emergency paging

Paging zone number

Emergency paging receiving

Paging operation station number　Paging operation station name



Time signal receiving

Equipment No. : Line No.　Schedule name

Scan monitor

Monitored station number　Monitored station name

Recall

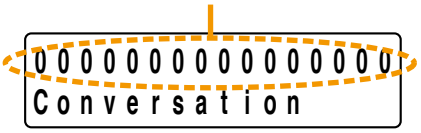
Dialing data

Redial

Dialing data

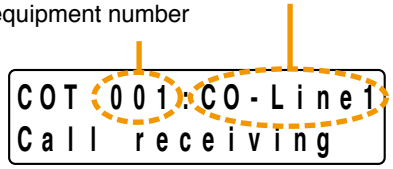
Outside line dialing

N-8000CO's outside line telephone number (Last 16 digits)



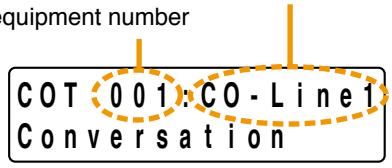
Outside line call received

N-8000CO's equipment number　N-8000CO's name



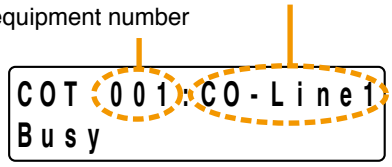
Outside line conversation mode

N-8000CO's equipment number　N-8000CO's name



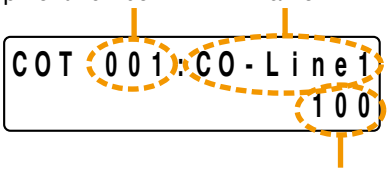
Outside line busy mode

N-8000CO's equipment number　N-8000CO's name



Outside line call forwarding

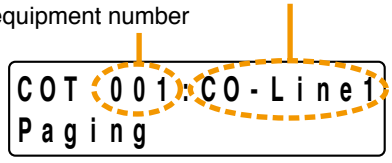
Designated N-8000CO's equipment number　Designated N-8000CO's name



Your station number

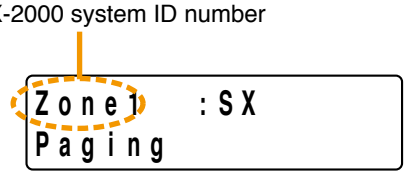
Outside line paging receiving

N-8000CO's equipment number　N-8000CO's name



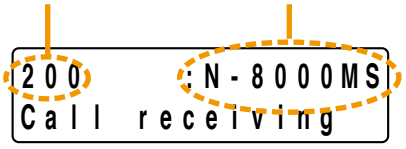
Selected zone broadcast

SX-2000 system ID number



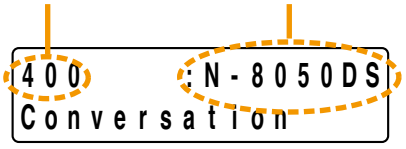
Audio Trigger alarm received

Called station's number Called station's name



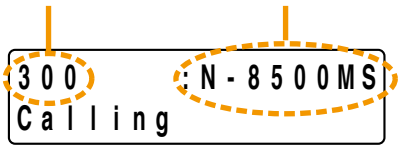
Response to Audio Trigger alarm

Called station's number Called station's name



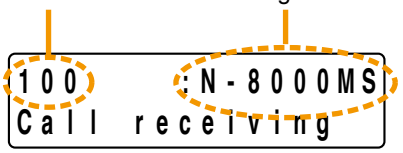
Making a 3-party conference call (originator)

Called party's station number Called party's station name



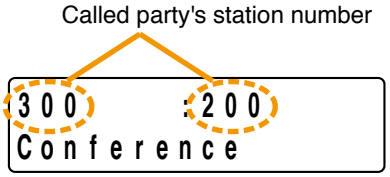
Receiving call for 3-party conference (called party)

Originator's station number Originator's station name



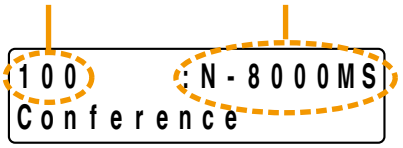
3-party conference call established (originator)

Called party's station number



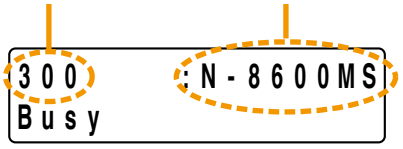
3-party conference call established (called party)

Originator's station number Originator's station name



3-party conference in progress (originator)

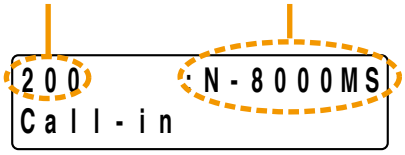
Called party's station number Called party's station name



Selective Response

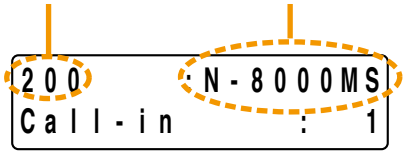
• Call in (no waiting call)

Called station's number Called station's name



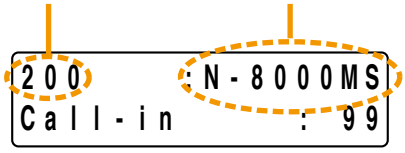
• Call in (1 waiting call)

1st call station's number 1st call station's name



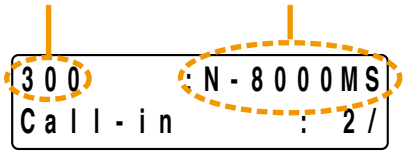
• Call in (99 waiting calls)

1st call station's number 1st call station's name



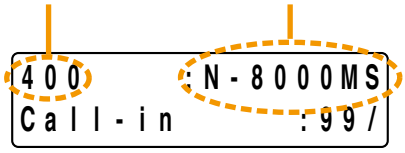
• Third call displayed (all normal calls)

3rd call station's number 3rd call station's name



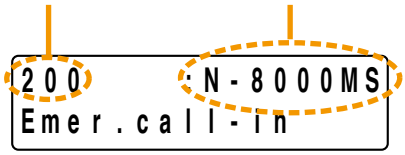
• 100th call displayed (all normal calls)

100th call station's number 100th call station's name



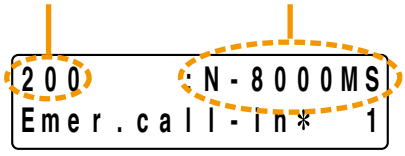
• Emergency call received (no waiting call)

Called station's number Called station's name



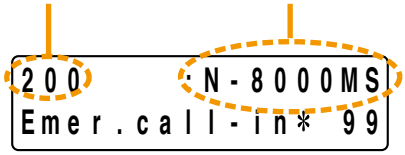
• Emergency call received
(1 waiting call including Emergency Call)

1st call station's number 1st call station's name



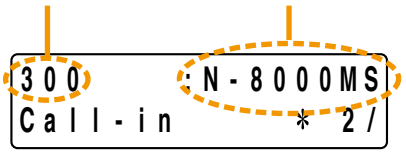
• Emergency call received
(99 waiting calls including Emergency Calls)

1st call station's number 1st call station's name



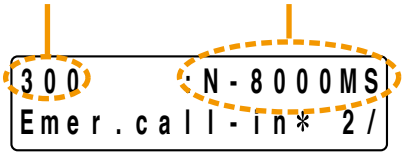
• Third call displayed (Third received call is normal, but an Emergency call precedes it.)

3rd call station's number 3rd call station's name



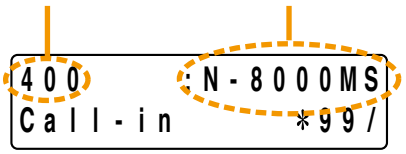
• Third call displayed (Third received call is Emergency.)

3rd call station's number 3rd call station's name



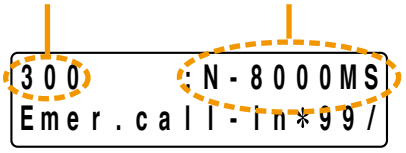
• 100th call displayed (100th received call is normal, but an Emergency call precedes it.)

100th call station's number 100th call station's name



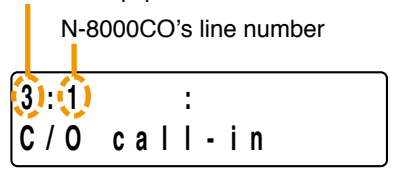
• 100th call displayed (100th received call is Emergency.)

100th call station's number 100th call station's name



• Outside line call in (no waiting call)

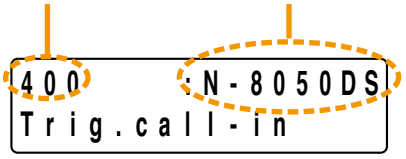
N-8000CO's equipment number
N-8000CO's line number



Note
Displays for busy status waiting calls, etc. are as shown in other examples.

• Audio trigger call in (no waiting call)

Called station's number Called station's name



Note
Displays for busy status waiting calls, etc. are as shown in other examples.

REMOTE MICROPHONE STATION'S FUNCTIONS AND OPERATION

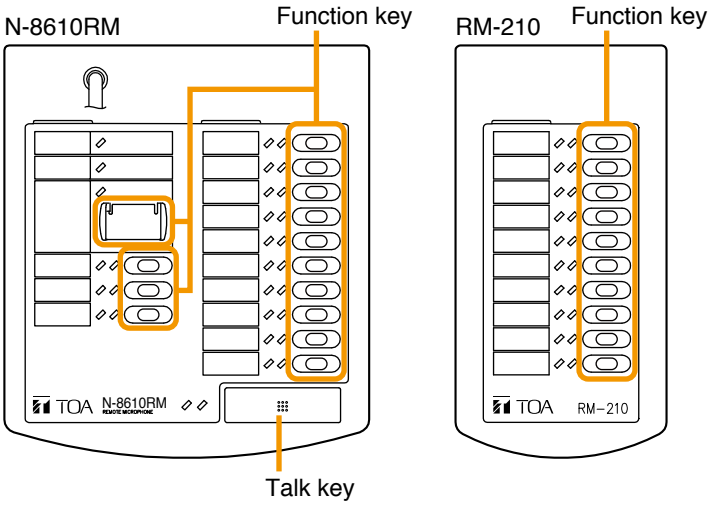
1. FUNCTIONS ASSIGNABLE TO THE FUNCTION KEY

Any one of the functions shown in the table below can be assigned to the Function keys on the N-8610RM Remote microphone station and RM-210 Remote microphone expansion unit.

When the IP Master station's key function has been assigned to the Remote microphone station, it is possible to realize the same function as that available for the IP Master station except for the functions relating to the handset and LCD.

For the same functions and operation as those of the IP Master station, refer to "MASTER STATION'S FUNCTIONS AND OPERATION." on p. 2-2.

The remote microphone station's distinct functions and operation will be detailed later. Hereinafter, Function keys are named with the assigned function names. (Example: Paging zone key)



Assignable function		Function description
N-8000 System function	Paging zone selection	Selects the zone or paging zone pattern to be paged.
	All zone clear	Clears all zone selections made at the time of paging calls.
	Dial (0 – 9, ✻/▼, #/▲), C, Paging, Paging response, Hold, Transfer, Function, Redial	Same functions as those assignable to the N-8000 system's station keys.
	PTT	Used when responding to paging calls.
	Volume +	Increases the station's built-in speaker volume during conversation.
	Volume –	Decreases the station's built-in speaker volume during conversation.
	Privacy	Used when rejecting incoming calls. Some specifications differ from those of the RS-140 Switch panel's privacy function.
	Station number (Station call)	Calls or responds to the designated station.
	Dial pattern	Activates a dial pattern.
	Sift key	Used in combination with other key. (Refer to p. 2-115.)
	Mic Indicator	Switches the broadcast status indicator to microphone indicator.
SX-2000 System function	Zone selection	Selects the zone or zone pattern to be broadcast when making broadcast to the SX-2000 system. Control output pattern can also be included.
	All zone clear	Clears all zone selections made when making broadcast to the SX-2000 system.
	General broadcast pattern	Activates or terminates SX-2000 General broadcast pattern.
	BGM pattern change	Activates SX-2000 BGM pattern.
	BGM pattern end	Terminates SX-2000 BGM pattern.
	Control output	Activates or deactivates SX-2000 Control output.

Note: Use the supplied N-8000 Setting Software to assign the functions. (Refer to p. 5-73)

2. FUNCTIONS ENABLED WITH THE REMOTE MICROPHONE STATION

Function		Operation (reference page)	Remarks
Functions available exclusively for the Remote microphone station (or functions to be performed exclusively)	Calling (Station number)	p. 2-95	Assign each individual function other than a dial key to the function key.
	Sequential response	p. 2-96	
	Selective response	p. 2-97	
	End of conversation	p. 2-95, 2-96, 2-97	
	Paging	p. 2-102	
	Station speaker volume change	p. 2-98	
	Dial pattern start	p. 2-100	
	Privacy	p. 2-101	
	Selected zone broadcast	p. 2-106	
	Mic indicator	p. 2-115	
	General broadcast pattern start	p. 2-110	
	BGM pattern change/end	p. 2-111	
	Control output activation	p. 2-111	
	Multi-operation Activation	p. 2-112	
Same functions as those available for the Master station	Calling (Individual calls)	p. 2-2	When a dial key has been assigned to the function key, it is possible to realize functions described at left which are the same ones available for the master station.
	One-touch dialing	p. 2-100	
	Hold	p. 2-14	
	Call transfer	p. 2-15	
	Automatic transfer	p. 2-17	
	Remote response (Sequential response)	p. 2-22	
	Executive priority (Sequential response)	p. 2-24	
	Paging	p. 2-25	
	Paging response	p. 2-31	
	Scan monitor	p. 2-44	
Same functions as those available for the N-8600MS IP Master station	Dial pattern start	p. 2-13	When a dial key has been assigned to the function key, it is possible to realize functions described at left which are the same ones available for the N-8600MS IP Master station.
	SX-2000 selected zone broadcast	p. 2-33	
	SX-2000 General-purpose broadcast (General broadcast pattern start/end)	p. 2-34	
	SX-2000 BGM broadcast (BGM pattern change/end)	p. 2-35	
	SX-2000 Control output activation/ deactivation	p. 2-37	
	Multi-operation activation	p. 2-39	

3. FUNCTION COMPARISON TABLE BETWEEN N-8610RM AND RM-200SA

The table below shows the difference between the functions assignable to the N-8610RM Remote microphone station and RM-200SA Remote microphone regarding broadcasts to the SX-2000 system.

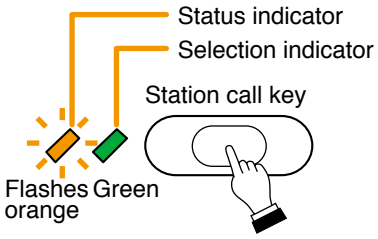
Type of broadcast made to SX-2000	N-8610RM Remote microphone station	RM-200SA Remote microphone
Selected zone broadcast	✓	✓
BGM pattern change/end	✓	✓
General broadcast pattern start	✓	✓
General EV broadcast	–	✓
Emergency broadcast	–	✓

4. CONVERSATION FUNCTIONS AND OPERATION

4.1. Calling

4.1.1. Using a station call key

Step 1. Press the station call key into which the station call number to be called is programmed.



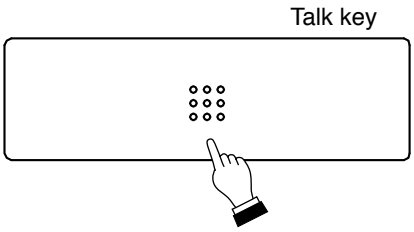
The call tone is heard through the calling station's internal speaker.

Note
When a busy tone is heard, wait till the line becomes free, and you are automatically connected to the called party.

Step 2. Speak into the microphone when the call tone stops and the called party answers.

Note
When the system is set to "Sequential Response*" and the called station set to "Automatic Connection Mode*," it is possible to start conversations after a brief ring tone is sounded once. In other settings, the call tone continues to sound and stops when the called party answers, allowing conversations to start.

Step 3. To finish conversations, press the Talk key.



* Use the supplied N-8000 Setting Software to perform Sequential response and Incoming call mode setting. (Refer to p. 5-26, 5-65.)

Note
If the system has been set for call time-out or conversation time-out, the call or conversation automatically stops after the specified time limit. The specific length of this time-out (between 10 and 990 seconds in 10-second units) is preprogrammed into individual exchanges or IP stations using the supplied N-8000 Setting Software. (Refer to p. 5-63.)

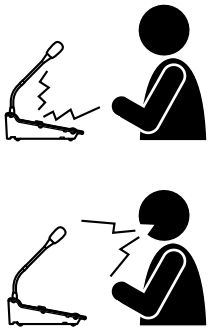
4.1.2. Using dial keys

When dial keys are assigned to the Function keys, calls can be made through the same dial operation as that for individual calls from the Master station.

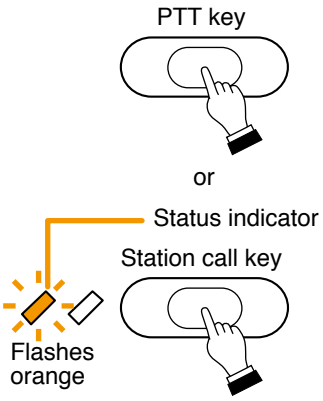
4.2. Receiving a Call (when the system is set to "Sequential Response" mode)

Step 1. Answer a received call.

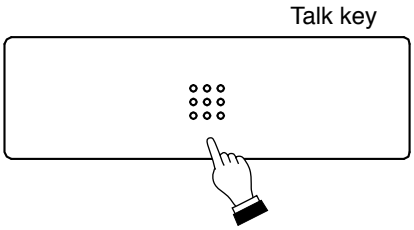
1-1. When the called station's incoming call mode is set to "Automatic Connection Mode*," the call tone sounds only once, after which the calling party's voice is heard immediately through the internal speaker. Answer by speaking into the microphone.



1-2. When the called station's incoming call mode is set to "Continuous call tone mode*," the call tone keeps on sounding.
Speak into the microphone after pressing the PTT key.
If a station call key is assigned a calling station number, the key's status indicator flashes.
Press the PTT key or the station call key of which status indicator is flashing, then speak into the microphone.



Step 2. To finish conversations, press the Talk key.



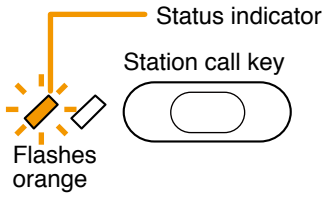
* Use the supplied N-8000 Setting Software to perform Incoming call mode setting. (Refer to p. 5-65.)

4.3. Receiving a Call (when the system is set to "Selective Response" mode)

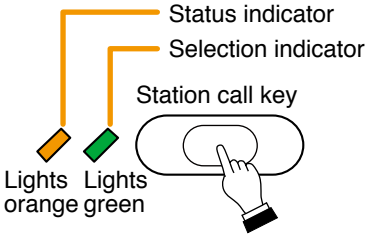
Note: Only continuous call tones is available in "Selective Response" mode.

Step 1. Answer a received call.

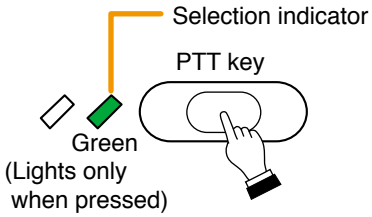
1-1. When responding by selecting the station
When a call is received, the status indicator of the calling station's station call key flashes.



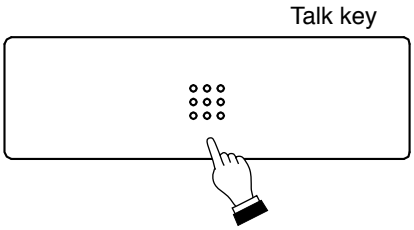
Press the station call key, then speak into the microphone.
When calls from 2 or more stations are received, press the station call key for the station to respond to.



1-2. When responding to the station with the highest priority
Press the PTT key, then speak into the microphone.



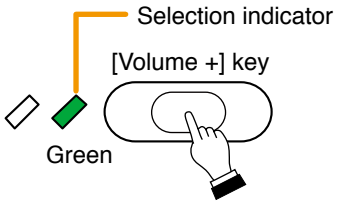
Step 2. To finish conversations, press the Talk key.



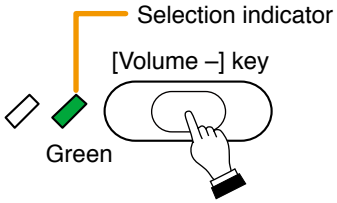
4.4. Station Speaker Volume

The station speaker volume can be preset using the supplied N-8000 Setting Software, however it can also be adjusted at the station.
The speaker volume level can be changed in 5 steps (in 3 dB per step).

• Pressing the [Volume +] key during conversation increases the volume.



• Pressing the [Volume –] key during conversation decreases the volume.



4.5. Speech Method

4.5.1. Hands-free conversation

Permits conversations to be made without using the handset when a call is made without lifting a handset or received in automatic connection mode.

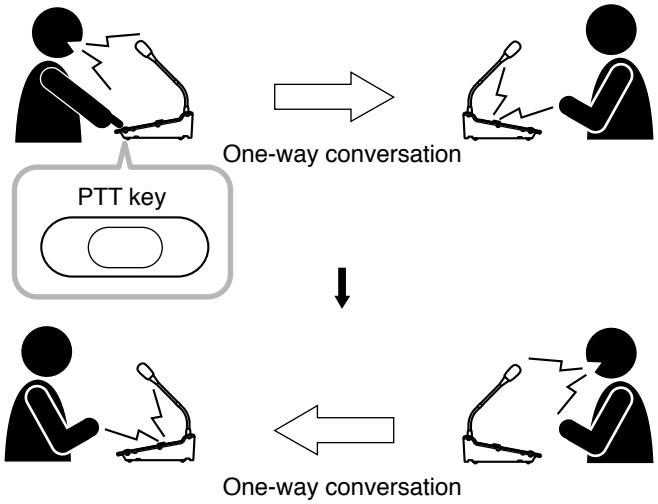
[Operation when both stations are engaged in hands-free conversation]
When both stations (except the N-8410MS) are engaged in hands-free conversation, either full duplex conversation by way of an echo canceller* or half duplex conversation by way of a voice switch is made depending on conditions. (Refer to p. 8-2, "FULL DUPLEX AND HALF DUPLEX CONVERSATIONS.")
During this conversation, station's internal settings (parameters relating to the condition of sound reflection) are constantly updated in response to the change in sound collected by the built-in microphone, allowing for optimum hands-free conversation.
When both stations make hands-free conversation after either one has been moved in a new environment or the environment surrounding the station has significantly changed, this may cause acoustic feedback. In this case, continue the conversation and the situation will soon return to the normal condition.
If acoustic feedback cannot be removed, adjust the microphone sensitivity and speaker output volume of the station.

Note
Use the supplied N-8000 Setting Software (refer to p. 5-65) to set the microphone sensitivity and speaker output volume.

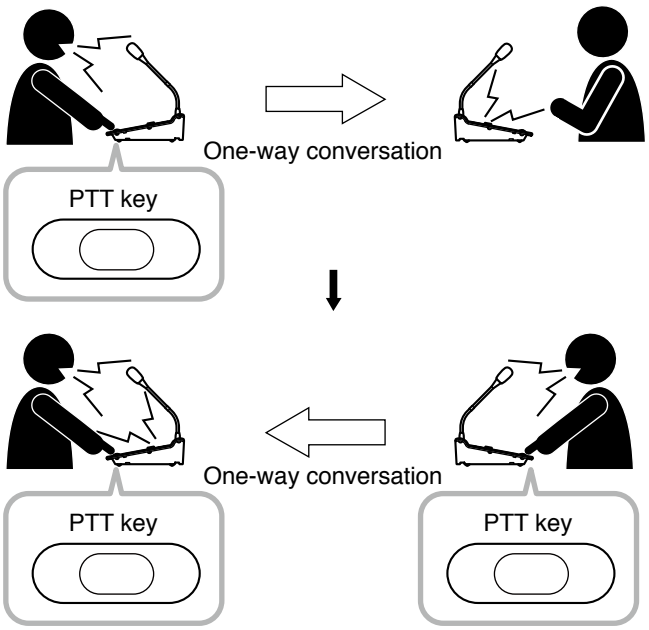
* An echo canceller is used to eliminate acoustic feedback caused when the voice outputs from the station's speaker are picked up by the same station's microphone. As acoustic feedback cannot be eliminated thoroughly, the echo canceller is usually used in conjunction with a voice switch.

4.5.2. PTT conversation

This function makes announcements and conversations possible to areas with a high ambient noise level. Pressing the PTT key during a hands-free conversation enables one-way conversation from the party who pressed the PTT key. Conversation flow reverses when the key is released.



When both parties have pressed the PTT key, the party who pressed the button last is given precedence to speak.

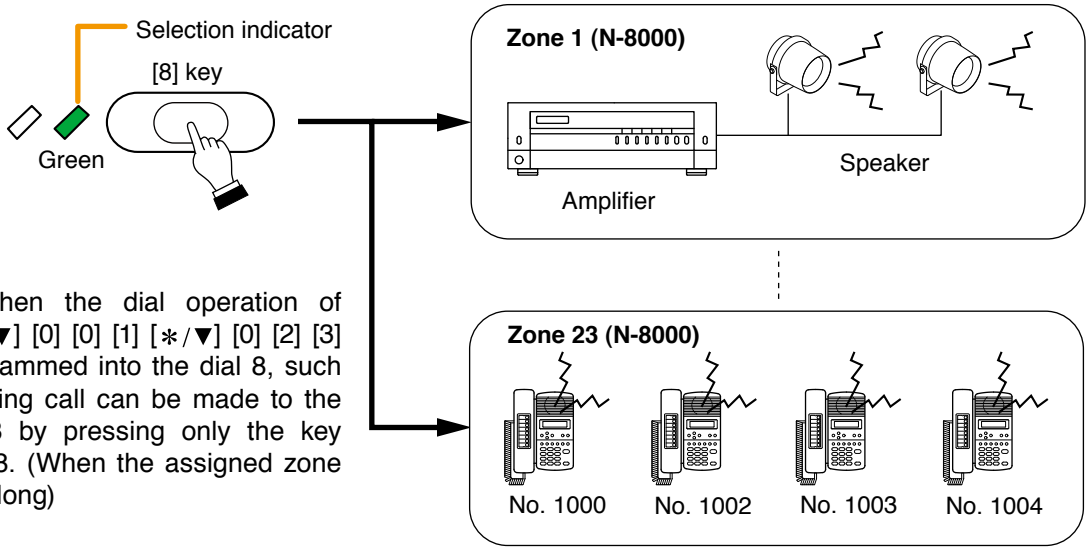


4.6. One-touch dialing

Programming the dial operation* (up to 32-digit numbers) into the station's [7], [8], [9], or [0] key allows paging or other operation to be performed by one-touch dialing.

* [0] – [9] keys,∗/▼ key, #/▲ key, Paging key, Paging response key, Hold key, Transfer key, and Function key.

(Example)



For example, when the dial operation of [Paging call] [∗/▼] [0] [0] [1] [∗/▼] [0] [2] [3] [#/▲] is preprogrammed into the dial 8, such programmed paging call can be made to the Zones 1 and 23 by pressing only the key assigned to dial 8. (When the assigned zone number is 3-digit long)

Note

The one-touch programming can be performed by using the supplied N-8000 Setting Software. (Refer to p. 5-68.)

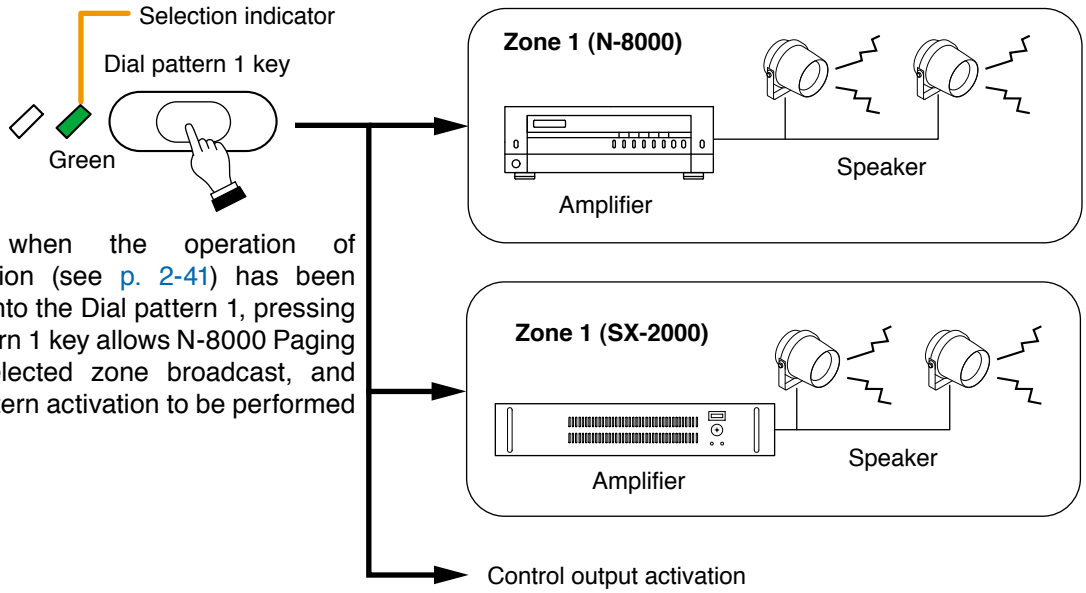
4.7. Dial Pattern Activation

4.7.1. Using a dial pattern

When dial operations (up to 380-digit numbers) have been preprogrammed as a dial pattern, assigning the dial pattern key number to the dial pattern key allows paging or other operation to be performed by one-touch dialing.

Press the Dial pattern key.

(Example)



For example, when the operation of combined activation (see p. 2-41) has been preprogrammed into the Dial pattern 1, pressing only the Dial pattern 1 key allows N-8000 Paging call, SX-2000 selected zone broadcast, and control output pattern activation to be performed at the same time.

Notes

- Program a dial pattern using the Dial keys (12 keys), Paging key, Paging response key, Hold key, Transfer key, and/or Function key.
- The dial pattern programming can be performed by using the supplied N-8000 Setting Software. (Refer to p. 5-77.)

4.7.2. Using dial keys

When dial keys are assigned to the Function keys, a dial pattern can be activated through the same dial operation as that for dial pattern activation from the N-8600MS Master station.

5. USING THE PRIVACY FUNCTION

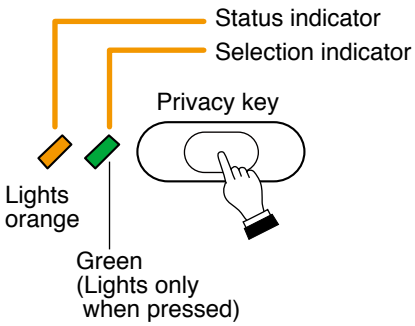
The Privacy function refuses all paging, scan monitor, and station calls except Emergency paging calls.

Note
The Privacy mode can be set or reset only when the Remote Microphone Station is placed in the state below.
- Standby mode
- Paging (except Emergency paging calls) being received
- BGM being received

During dial operation, call receiving, conversation, or paging call, Privacy mode setting becomes invalid even if operated.

5.1. Privacy Mode Settings

Press the Privacy key when its Status indicator is unlit.
The Remote Microphone Station is placed in Privacy mode and the Status indicator lights.

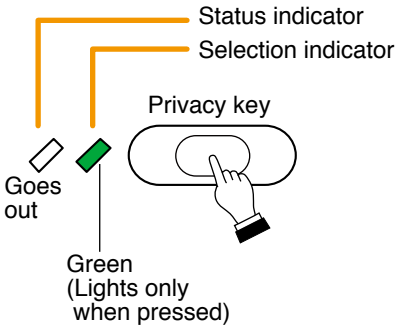


Notes
- Pressing the station call key calls the preprogrammed Master Station or telephone to enable conversation even when the Remote Microphone Station is in Privacy mode. The original Privacy mode is restored as soon as the conversation is completed.
- Call receiving is rejected when in privacy status. When the master station or telephone calls the remote microphone station placed in privacy status, an error tone sounds at the master station or telephone and the call is automatically terminated. Neither an error tone nor a call tone sounds at the remote microphone station.
- If the Remote Microphone Stations in Privacy mode are included in the group call member stations, a call is received at the representative station and member stations except these Remote Microphone Stations.
- If the Remote Microphone Stations in Privacy mode are included in the paging output destinations, paging can be made to the paging output destination stations except these Remote Microphone Stations.
- When scan-monitoring the Remote Microphone Station in Privacy mode from the master station or telephone, a busy tone is heard at the master station or telephone, skipping to the next station to monitor.

5.2. Resetting the Privacy Mode

Press the Privacy key when its Status indicator is lighting.

The privacy mode is cancelled and the Status indicator goes out.



6. PAGING FUNCTION AND OPERATION

6.1. Paging Call

Paging stations are preprogrammed.
Paging duration can be limited by preprogramming the time limit (between 10 and 990 seconds in 10-second units) for each station.

Note
Use the supplied N-8000 Setting Software to enable or disable the paging operation and to set paging duration. (Refer to p. 5-63, 5-67.)

6.1.1. Using the N-8000 zone selection key

Paging calls can be made to the preprogrammed zones (Paging zones and Paging zone patterns*).

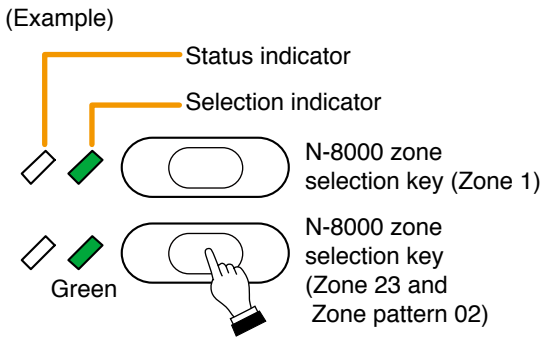
* A pattern into which multiple paging zones are grouped.

Note: Use the supplied N-8000 Setting Software to perform zone settings. (Refer to p. 5-121.)

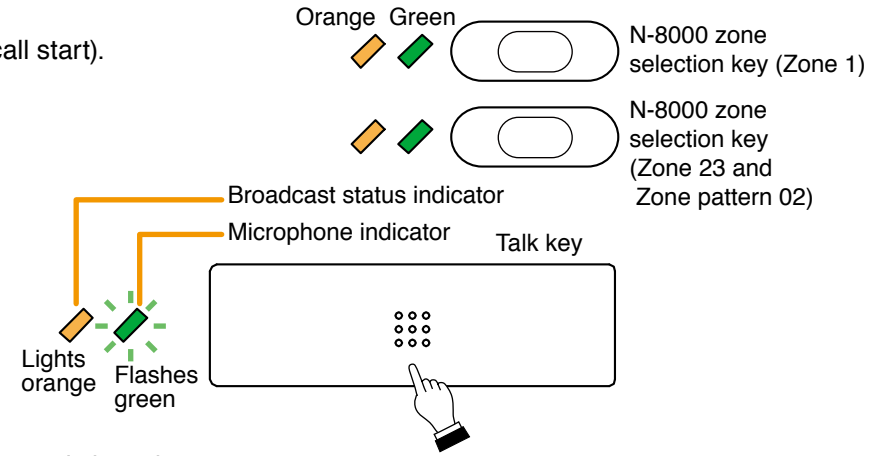
[When the Talk key is set to "LOCK"]

Step 1. Press the N-8000 zone selection key. (N-8000 zone selection).
Paging zones and Paging zone patterns can be selected in combination by pressing 2 or more keys in sequence.
The selection indicator of the selected key lights green.

Tips
- To clear selection, press the N-8000 zone selection key again.
- To clear selection of all zones simultaneously, press the All zone clear key.



Step 2. Press the Talk key. (Paging call start).



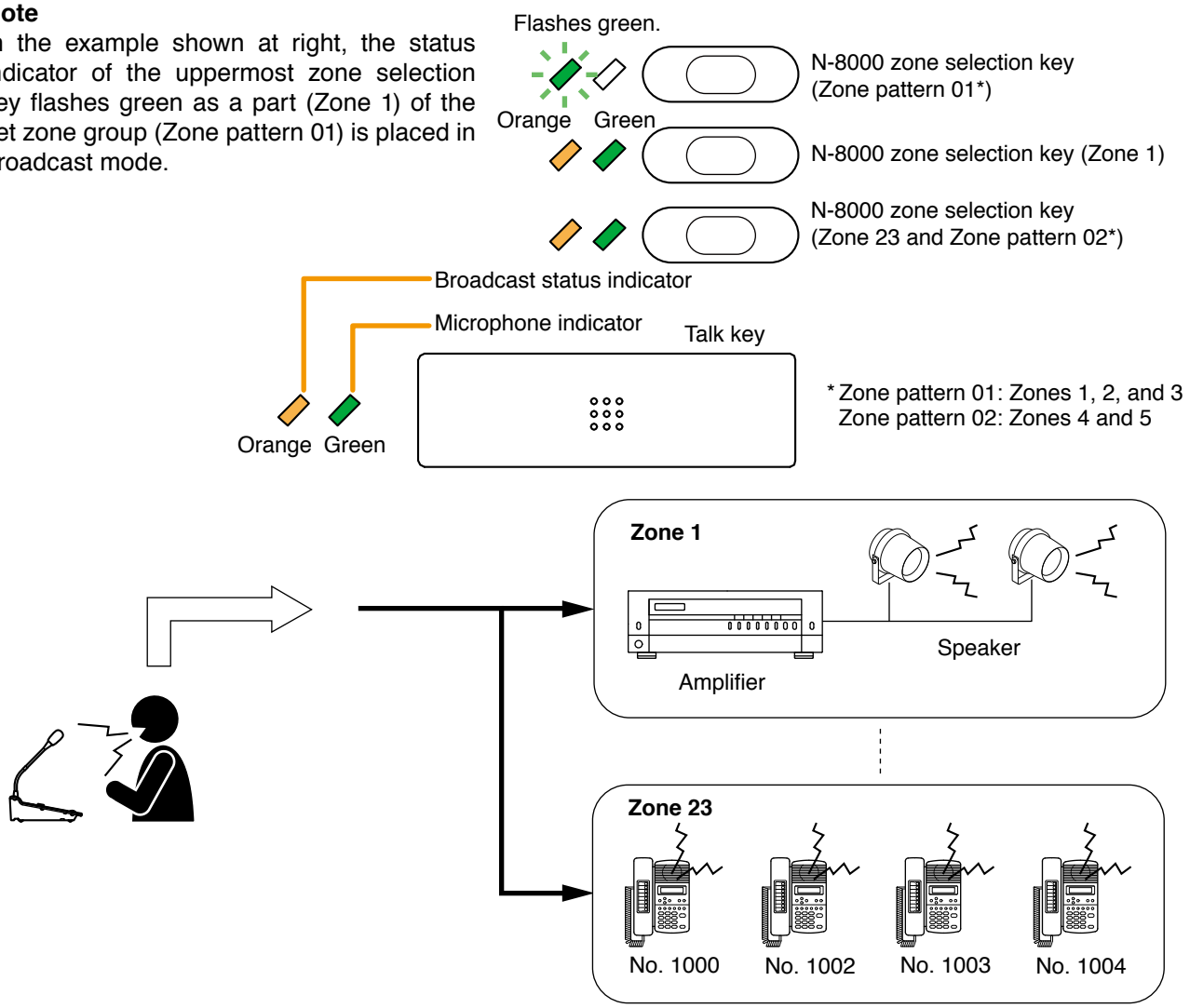
A pre-announcement paging tone is broadcast.
In this event, the paging pre-announcement tone is heard through the station's built-in speaker.
The microphone indicator of the Talk key flashes green while the paging pre-announcement tone is being sounded.

Note
A pre-announcement paging tone can be set to "Disable." Use the supplied N-8000 Setting Software to perform paging tone setting. (Refer to p. 5-63.)

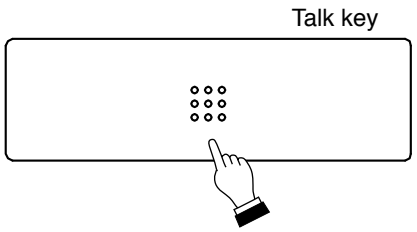
Step 3. Speak into the microphone when the microphone indicator of the Talk key begins to light green.

Tip
When a part of the zones being broadcast to is assigned to the N-8000 zone selection key other than the key pressed in Step 1, the status indicator of so assigned zone selection key flashes green.

Note
In the example shown at right, the status indicator of the uppermost zone selection key flashes green as a part (Zone 1) of the set zone group (Zone pattern 01) is placed in broadcast mode.

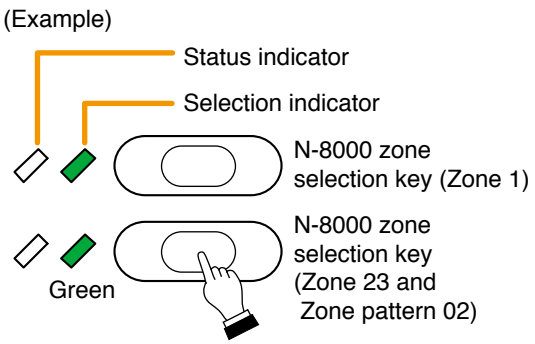


Step 4. Press the Talk key. (Paging call end)



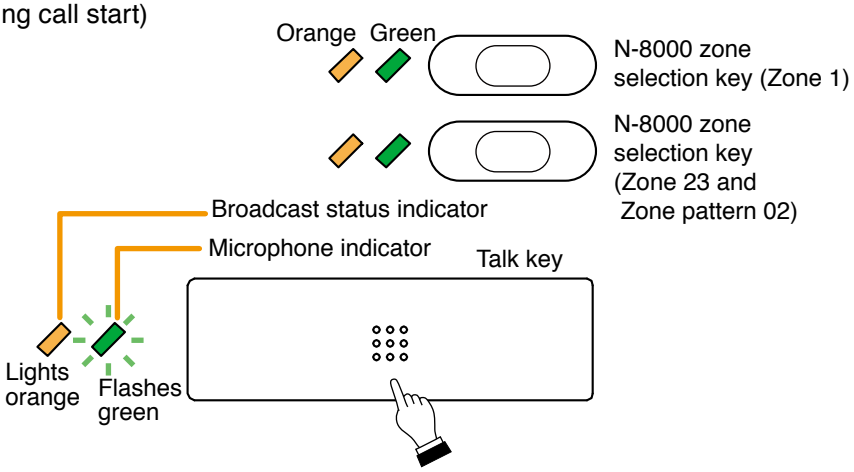
[When the Talk key is set to "PTT"]

Step 1. Press the N-8000 zone selection key. (N-8000 zone selection).
Paging zones and Paging zone patterns can be selected in combination by pressing 2 or more keys in sequence.
The selection indicator of the selected key lights green.



Tips
- To clear selection, press the N-8000 zone selection key again.
- To clear selection of all zones simultaneously, press the All zone clear key.

Step 2. Hold down the Talk key. (Paging call start)



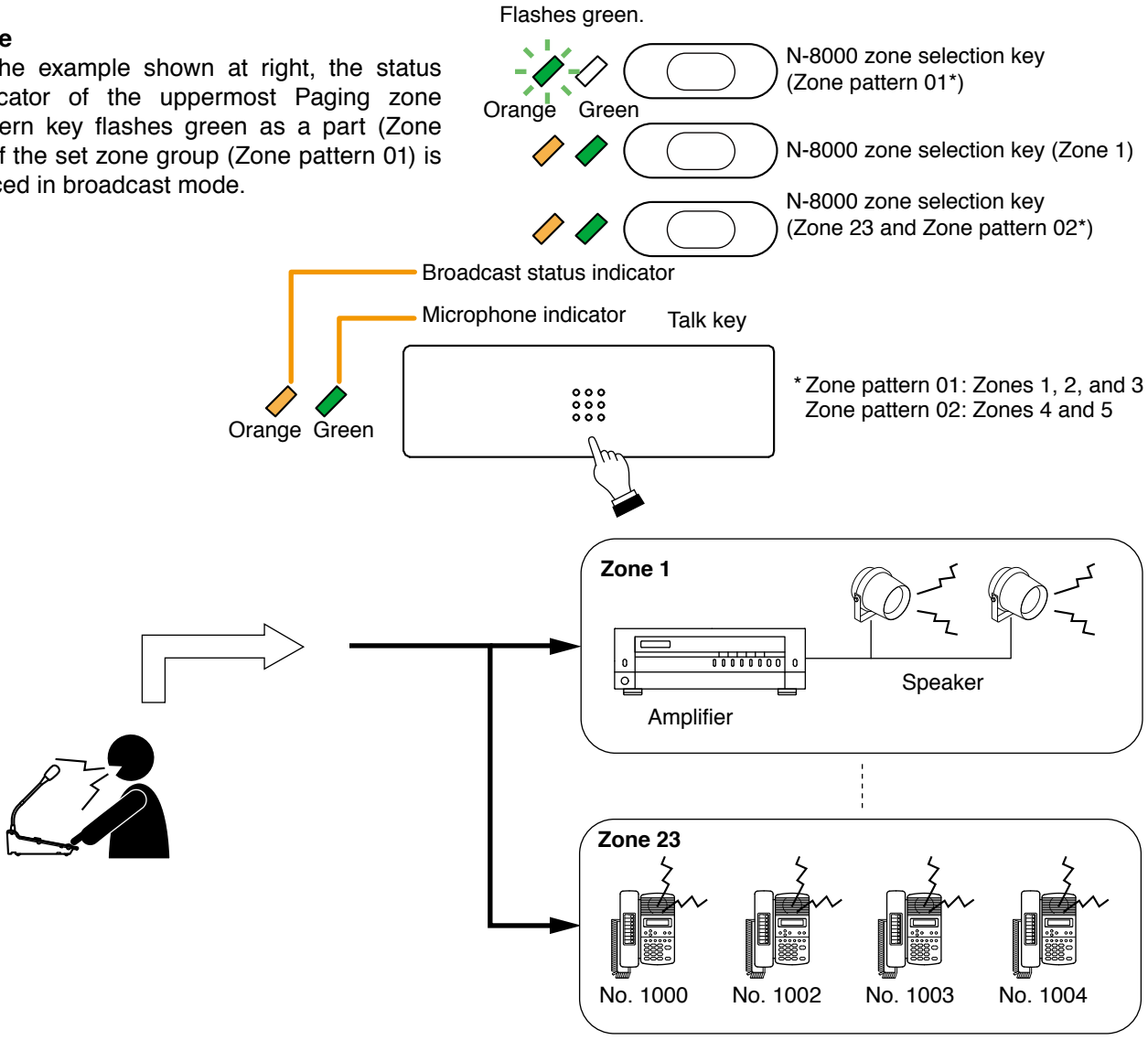
The paging pre-announcement tone is broadcast.
In this event, the paging pre-announcement tone is heard through the station's built-in speaker.
The microphone indicator of the Talk key flashes green while the paging pre-announcement tone is being sounded.

Note
The paging pre-announcement tone can be set to "Disable." Use the supplied N-8000 Setting Software to perform paging pre-announcement tone setting. (Refer top. 5-63.)

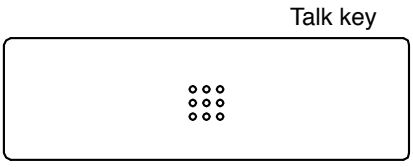
Step 3. Speak into the microphone while holding down the Talk key when the microphone indicator of the Talk key begins to light green.

Tip
When a part of the zones being broadcast to is assigned to the N-8000 zone selection key other than the key pressed in Step 1, the status indicator of so assigned zone selection key flashes green.

Note
In the example shown at right, the status indicator of the uppermost Paging zone pattern key flashes green as a part (Zone 1) of the set zone group (Zone pattern 01) is placed in broadcast mode.



Step 4. Release the Talk key. (Paging call end)



6.1.2. Using dial keys

When dial keys are assigned to the Function keys, paging calls can be made with the same dial operation (p. 2-26) as that of the Master station's selectable paging.

6.2. Responding to Paging

If the paged party performs a response operation at the nearest station, it can call and begin conversations with the paging party. Paging response operation can be performed with the Paging response key in the same manner as the master station.
For operation details, read "Responding to Paging" at the master station. (Refer to p. 2-31.)

7. BROADCAST TO SX-2000 SYSTEM (only when using SX-200IP)

7.1. Selected Zone Broadcast

Broadcasts can be made to the zone(s), or zones assigned to a zone pattern* within the SX-2000 system. Broadcast durations can be limited by preprogramming the time limit (between 1 and 20 minutes in 1-minute units) for each station. (Only when the Talk key is set to "LOCK")

* A pattern into which multiple zones are grouped.

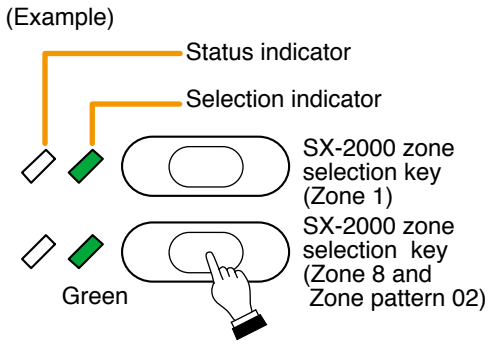
Tips
- Perform zone pattern settings using the N-8000 Setting Software. You can also import and use the output zone pattern having been set on the SX-2000 Setting Software. (Refer to p. 5-77.)
- Set the time limit (Time out) using the supplied N-8000 Setting Software. (Refer to p. 5-72.)

7.1.1. Using the SX-2000 zone selection key

Paging calls can be made to the preprogrammed zones (zone and zone broadcast pattern).

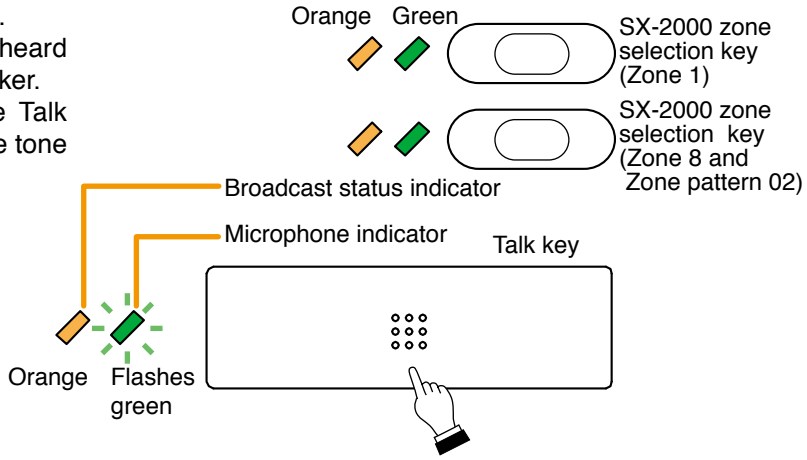
[When the Talk key is set to "LOCK"]

Step 1. Press the SX-2000 zone selection key. (Zone selection)
Multiple zones and zone patterns can also be selected in combination by pressing 2 or more keys in sequence.
The selection indicator of the selected key lights green.



Tips
- When the status indicator is flashing green, broadcast is being made by other equipment to a part or all of the zones set to the SX-2000 zone selection key.
- To clear selection, press the SX-2000 zone selection key again.
- To clear selection of all zones simultaneously, press the All zone clear key.

Step 2. Press the Talk key. (Broadcast start)
The chime tone will be broadcast.
In this event, the chime tone is heard through the station's built-in speaker.
The microphone indicator of the Talk key flashes green while the chime tone is being sounded.

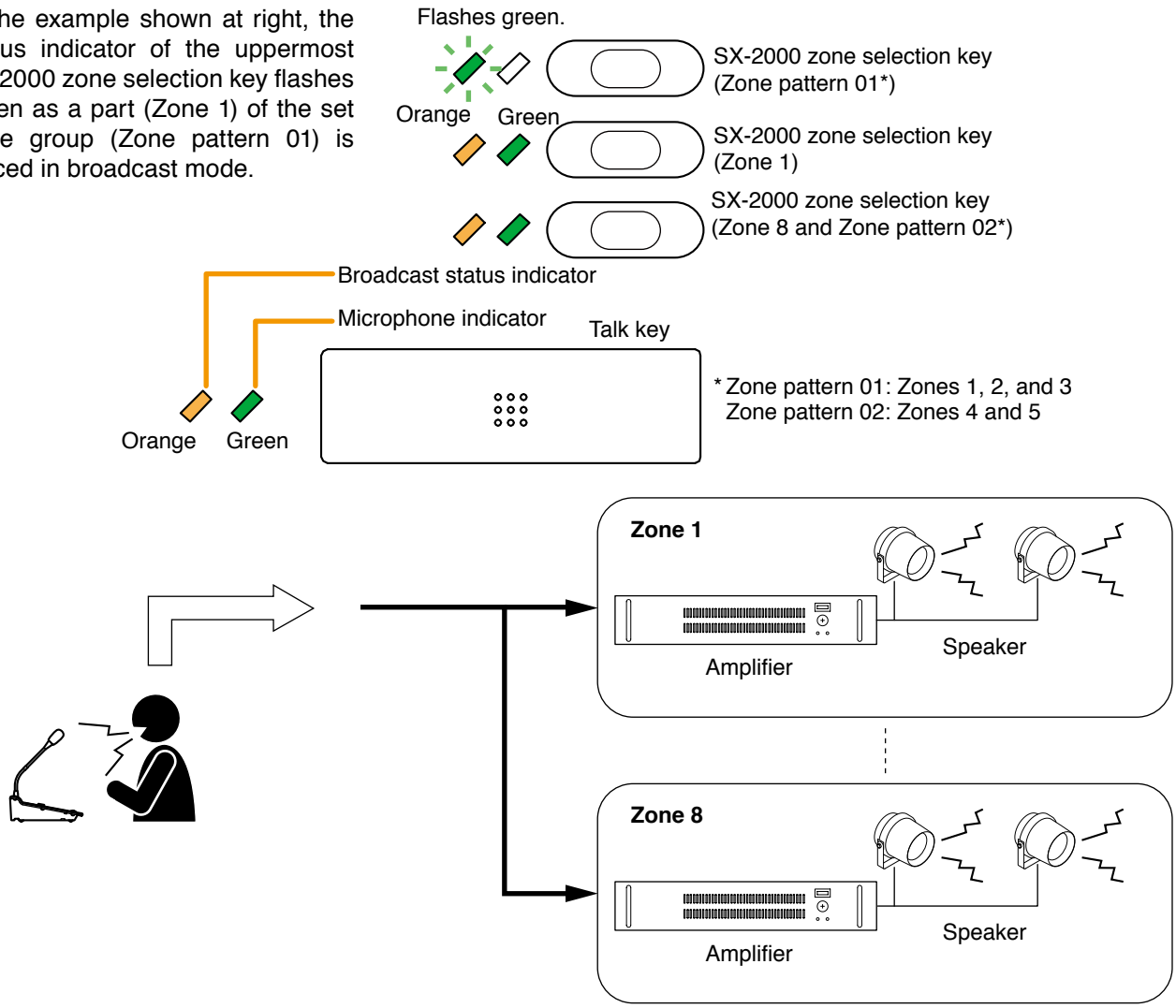


Note
The chime tone can be set to "None."
Use the supplied N-8000 Setting Software to perform chime tone setting. (Refer to p. 5-72.)

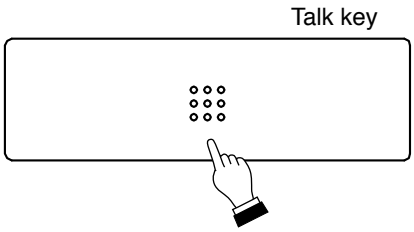
Step 3. Speak into the microphone when the microphone indicator of the Talk key begins to light green.

Tip
When a part of the zones being broadcast to is assigned to the SX-2000 zone selection key other than the key pressed in Step 1, the status indicator of so assigned zone selection key flashes green.

Note
In the example shown at right, the status indicator of the uppermost SX-2000 zone selection key flashes green as a part (Zone 1) of the set zone group (Zone pattern 01) is placed in broadcast mode.

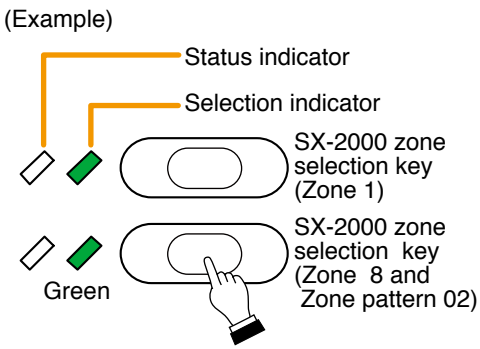


Step 4. Press the Talk key. (Broadcast end)
The chime tone will be broadcast.
In this event, the chime tone is heard through the station's built-in speaker.



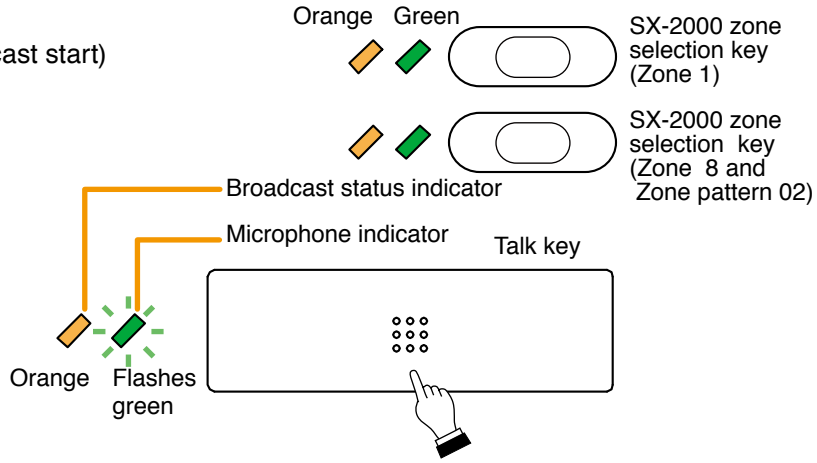
[When the Talk key is set to "PTT"]

Step 1. Press the SX-2000 zone selection key. (Zone selection)
Multiple zones and zone patterns can also be selected in combination by pressing 2 or more keys in sequence.
The selection indicator of the selected key lights green.



Tips
- When the status indicator is flashing green, broadcast is being made by other equipment to a part or all of the zones set to the SX-2000 zone selection key.
- To clear selection, press the SX-2000 zone selection key again.
- To clear selection of all zones simultaneously, press the All zone clear key.

Step 2. Hold down the Talk key. (Broadcast start)



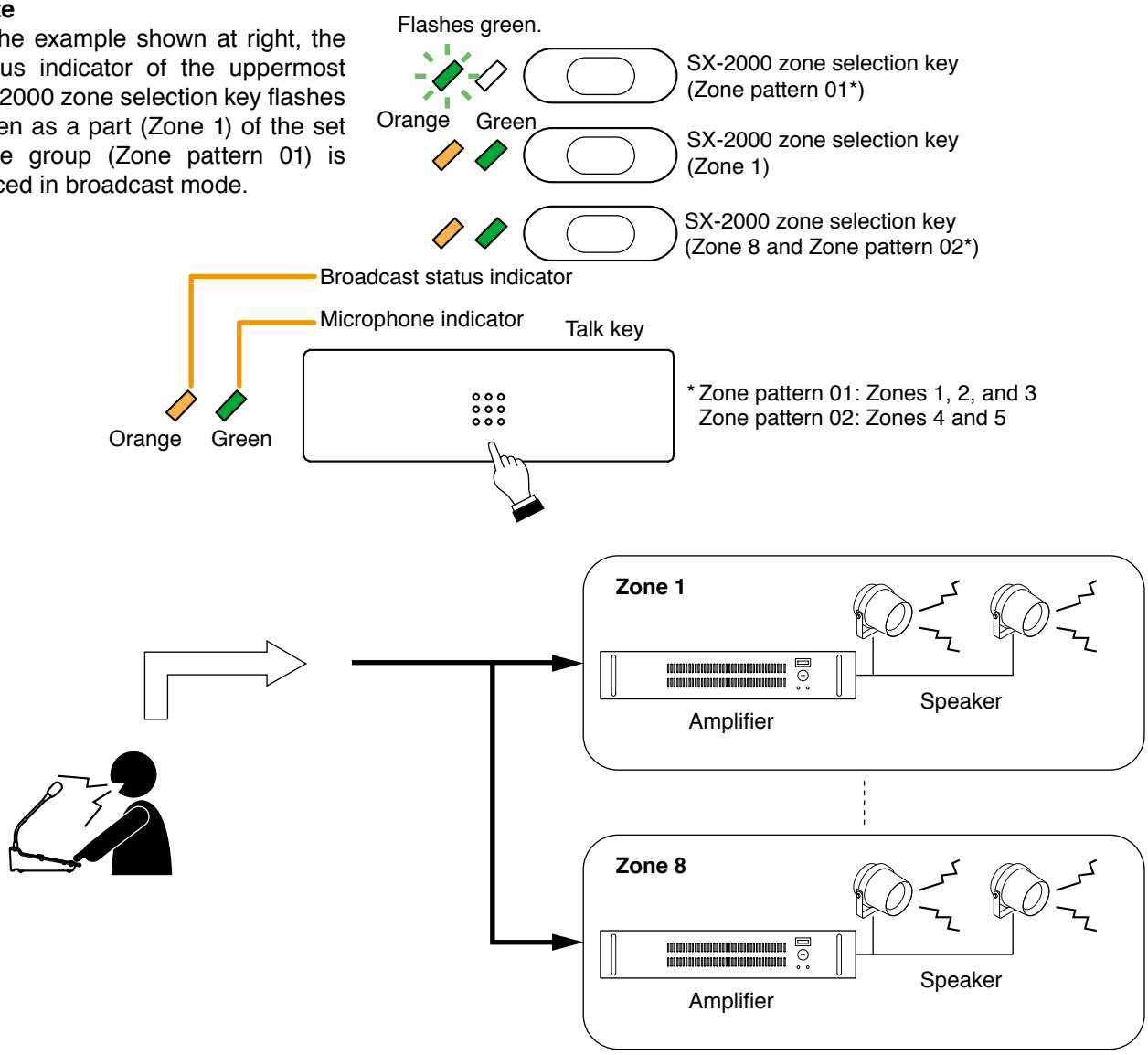
The chime tone will be broadcast.
In this event, the chime tone is heard through the station's built-in speaker.
The microphone indicator of the Talk key flashes green while the chime tone is being sounded.

Note
The chime tone can be set to "None." Use the supplied N-8000 Setting Software to perform chime tone setting. (Refer to p. 5-72.)

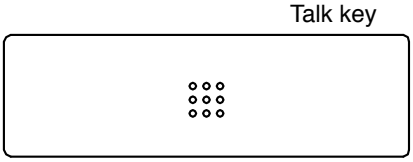
Step 3. Speak into the microphone while holding down the Talk key when the microphone indicator of the Talk key begins to light green.

Tip
When a part of the zones being broadcast to is assigned to the SX-2000 zone selection key other than the key pressed in Step 1, the status indicator of so assigned Zone pattern key flashes green.

Note
In the example shown at right, the status indicator of the uppermost SX-2000 zone selection key flashes green as a part (Zone 1) of the set zone group (Zone pattern 01) is placed in broadcast mode.



Step 4. Release the Talk key. (Broadcast end)
The chime tone will be broadcast.
In this event, the chime tone is heard through the station's built-in speaker.



7.1.2. Using dial keys

When dial keys are assigned to the Function keys, selected zone broadcast can be made with the same dial operation (p. 2-26) as that of the N-8600MS's selected zone broadcast.

7.2. General-Purpose Broadcast

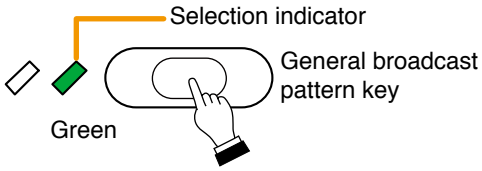
General broadcast patterns* having been set in the SX-2000 system can be activated.

* Contain the preset broadcast sound sources, output zones, and other settings. For details, refer to the SX-2000 Setting Software Instructions.
  In the N-8000 system, you can import the SX-2000 system setting and use it as a control pattern using the N-8000 Setting Software. (Refer to p. 5-77.)

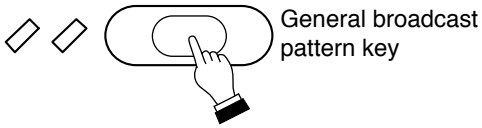
Note
The SX-2000 system's general broadcast pattern that can be activated by the N-8000 system's station is only the one set as "General broadcast (Level)" assigned to each unit's control input in the Event setting.

7.2.1. Using the General broadcast pattern key

Step 1. Press the General broadcast pattern key
A set general broadcast pattern is selected and activated.
The selection indicator of the General broadcast pattern key lights green.



Step 2. Press the General broadcast pattern key again.
The General broadcast pattern stops by pressing the currently selected Function key again.
The selection indicator of the General broadcast pattern key goes out.



7.2.2. Using the General broadcast pattern key

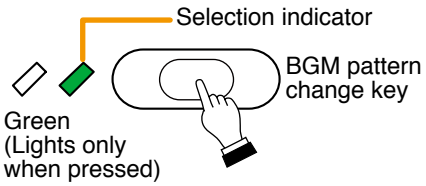
When the dial key is assigned to each key, general broadcast pattern can be activated with the same dial operation (p. 2-34) as that of the N-8600MS's general broadcast patter start.

7.3. BGM Broadcast

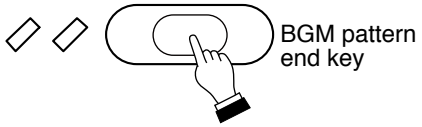
The BGM pattern* having been set in the SX-2000 system can be activated.
* A broadcast pattern containing BGM source, output zone, and other preset items. For details, refer to the SX-2000 Setting Software Instructions.

7.3.1. Using the BGM pattern change key

Step 1. Press the BGM pattern change key.
The set BGM pattern is selected and activated.
(When other BGM is being broadcast, it is stopped and replaced with the BGM pattern assigned to the pressed key.)



Step 2. Press the BGM pattern end key.
BGM is terminated.
All indicators go out.



Tip
Assign the key different from the BGM pattern change key as the BGM pattern end key in advance.

7.3.2. Using dial keys

When dial keys are assigned to the Function keys, BGM broadcast pattern can be activated with the same dial operation (p. 2-35) as that of the N-8600MS's BGM pattern start.

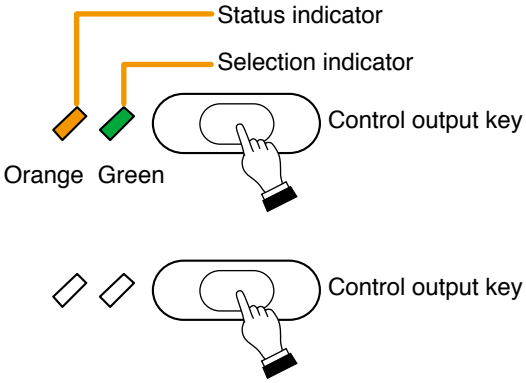
7.4. Control Output Activation

The SX-2000 Control output can be activated.

7.4.1. Using the Control output key

Step 1. Press the Control output key.
The set SX-2000 control output is activated.
The selection indicator lights green and the status indicator lights orange.

Step 2. Press the Control output key again.
Control output is deactivated.
All indicators go off.



7.4.2. Using dial keys

When dial keys are assigned to the Function keys, control output can be activated with the same dial operation (p. 2-37) as that of the N-8600MS's control output activation.

7.5. Multi-Operation Activation

7.5.1. Simultaneously activating selected zone broadcast and control output pattern

When the control output pattern is programmed into the zone selection key, broadcasts to the SX-2000 zone (zone and zone pattern*1) and SX-2000 control output activation can be made simultaneously. The control output will be deactivated simultaneously with the completion of Zone broadcast.
Broadcast durations can be limited by preprogramming the time limit (between 1 and 20 minutes in 1-minute units) for each station. (Only when the Talk key is set to "LOCK")
* A pattern into which multiple zones are grouped.

Note
Use the supplied N-8000 Setting Software for control output pattern*2 programming, Zone pattern*2 setting, and time limit (Time out) setting. (See p. 5-77, 5-72.)

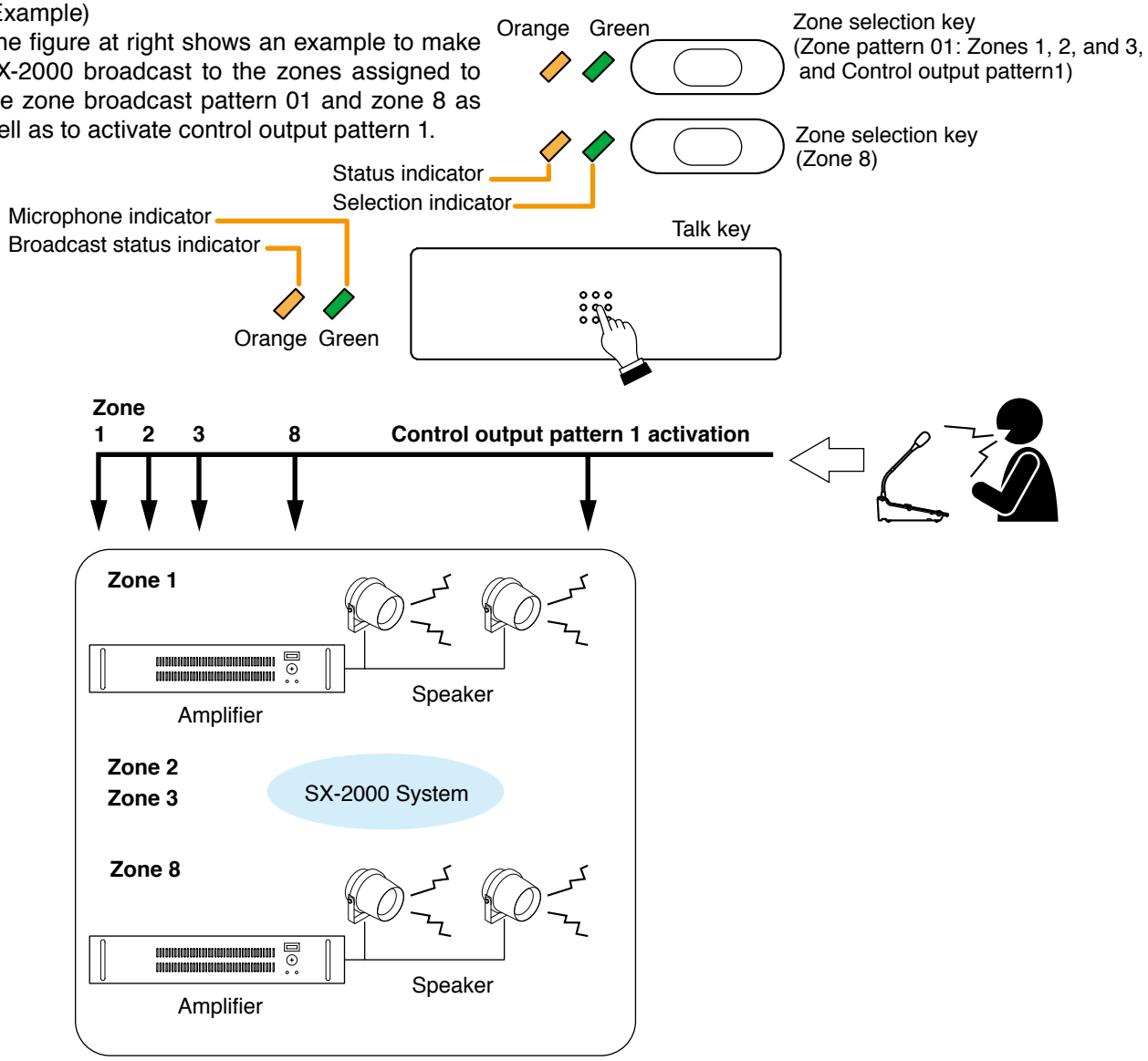
*2 You can also import the control output patterns or output zone pattern settings performed using the SX-2000 Setting Software.

[Operation]

Operations are the same as those of the Selected zone broadcast (see 2-106).

Note
Control output activation or deactivation cannot be interlocked with the Selected zone broadcast using the Control output key.
Pressing the Zone key followed by the Control output key immediately activates only the control output.

(Example)
The figure at right shows an example to make SX-2000 broadcast to the zones assigned to the zone broadcast pattern 01 and zone 8 as well as to activate control output pattern 1.



7.5.2. Simultaneously activating paging, selected zone broadcast, and control output pattern

Broadcasts to the N-8000 paging zone (paging zone and paging zone pattern) and the SX-2000 zone (zone and zone pattern) can be made at the same time.
When the control output pattern is programmed into the Zone key, SX-2000 control output activation and each broadcast can be made at the same time. The control output will be deactivated simultaneously with the completion of broadcast.
Broadcast durations can be limited by preprogramming the time limit (10 – 990 seconds in 10-second units or 1 – 20 minutes in 1-minute units) for each station.

Notes

- Set the paging zone, each time limit (Time out), and priority level using the supplied N-8000 Setting Software. (Refer to p. 5-121, 5-63, 5-72.)
- Perform SX-2000 zone pattern* settings and program control output pattern* using the N-8000 Setting Software. (Refer to p. 5-77.)

  * You can also import the control output pattern or output zone pattern having been set on the SX-2000 Setting Software.

Tip

When making N-8000 Paging call and SX-2000 Selected zone broadcast at the same time, the same operations regarding pre-announcement paging tone, chime tone, or other paging-related functions are performed to both systems.
Determine which setting to choose, N-8000 system setting or SX-2000 system setting by the priority settings (p. 5-73) in the N-8000 Setting software.
The table below shows the operations depending on the priority setting.

Priority setting	Operation
N-8000	Operates according to the settings of the N-8000 pre-announcement paging tone, paging delay time, and paging time limit in addition to the Paging call and Selected zone broadcast. A pre-announcement paging tone instead of a chime tone is also broadcast to the SX-2000 system zone.
SX-2000	Operates according to the settings of the SX-2000 chime tone, waiting time, and time out in addition to the Paging calls and Selected zone broadcast. A chime tone instead of a pre-announcement paging tone is also broadcast to the N-8000 system zone.

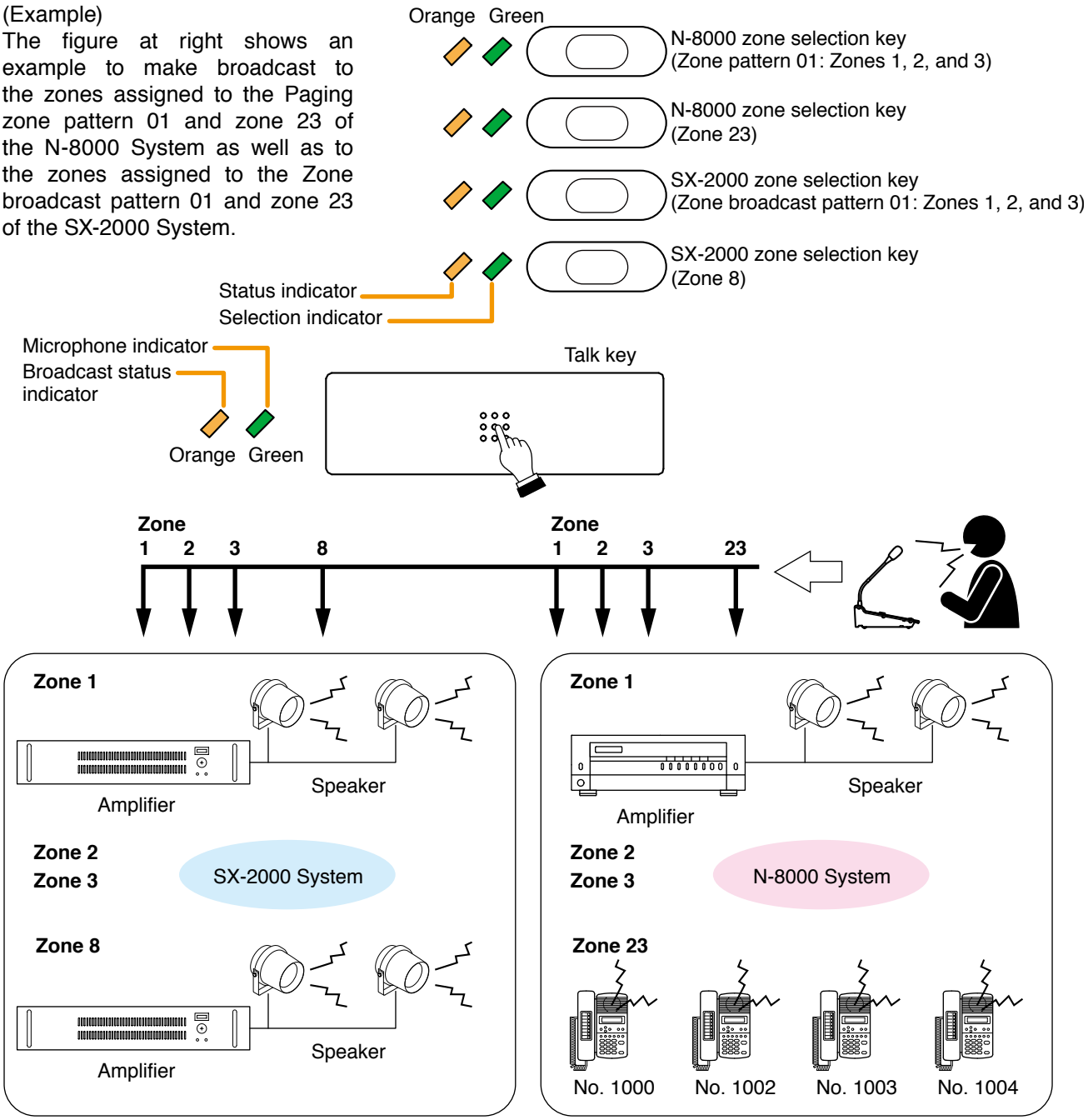
It is not possible to operate on each different setting that a pre-announcement paging tone is broadcast to the N-8000 system and a chime tone to the SX-2000 system.

[Operation]

Basic operations are the same as those when making paging calls (p. 2-102) and zone selectable broadcast (p. 2-106).
Multiple keys including the N-8000 zone selection key, SX-2000 zone selection key, and Control output key can be selected in random order at the time of zone (N-8000) and zone (SX-2000) selection.

Note
Control output activation or deactivation cannot be interlocked with the N-8000 paging and SX-2000 selected zone broadcast using the Control output key.
Pressing the N-8000 zone selection key or SX-2000 zone selection key followed by the Control output key immediately activates only the control output.

(Example)
The figure at right shows an example to make broadcast to the zones assigned to the Paging zone pattern 01 and zone 23 of the N-8000 System as well as to the zones assigned to the Zone broadcast pattern 01 and zone 23 of the SX-2000 System.



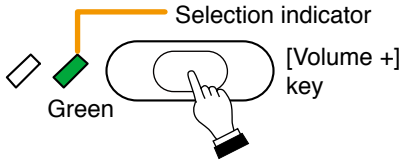
8. OTHER FUNCTIONS

8.1. Using the Shift Key

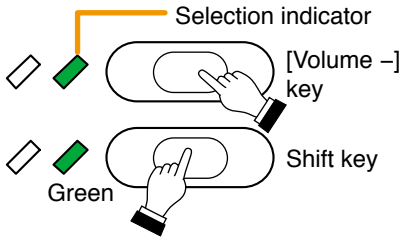
Following 2 different functions can be assigned to the Remote microphone station's key in advance: one activated with a single key operation and another activated with key operation in conjunction with the Shift key.

(Example)
For example, set a function for a single key operation to [Volume + (Volume increase)] and a function for key operation in conjunction with the Shift key to [Volume – (Volume decrease)], then operate the keys as follows.

- To increase the volume, press the [Volume +] key during conversation.



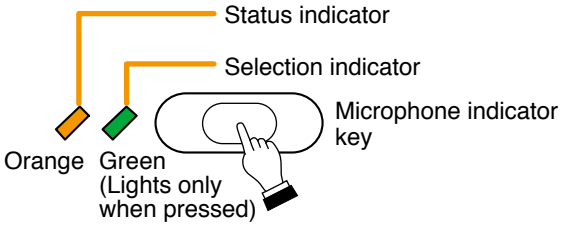
- To decrease the volume, press both the [Volume –] key and Shift key simultaneously during conversation.



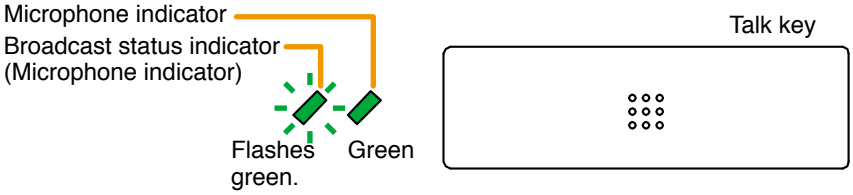
8.2. Using the Microphone Indicator Function

The broadcast status indicator on the left side of the Talk key can be switched to act as a microphone indicator.

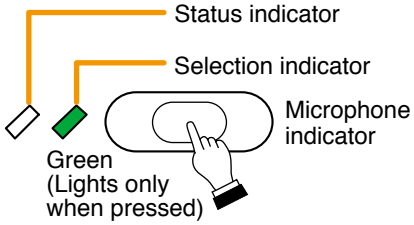
Step 1. Press the Microphone indicator key.
The broadcast status indicator switches to the microphone indicator.



Step 2. Speak into the microphone.
The broadcast status indicator flashes.
It flashes green when audio signals are input from the microphone. It flashes red when an over peak level signal is input.



Step 3. Press the Microphone indicator key again.
The indicator reverts to its original broadcast status indicator function.



9. REMOTE MICROPHONE STATION OPERATION TABLE

The table below shows the remote microphone station's exclusive operations.
For the same operations as those of the master station, refer to "MASTER STATION OPERATION TABLE" on p. 2-83.

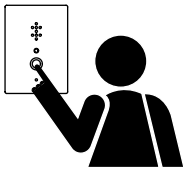
Function		Operation	Remarks
Call		Press the station key.	
Response (Sequential response mode)		(Continuously called station response mode) Speak into the microphone. (Continuous call mode) Press the PTT key, then speaker into the microphone.	
Response (Selective response mode)		(Response by selecting the station) Press the key of the station to respond to among the station's keys of which status indicators are flashing, then speak into the microphone. (Responding to the station with the highest priority) Press the PTT key, then speak into the microphone.	
Conversation end		Press the Talk key.	
Station's speaker volume setting	Increase volume	Press the [Volume +] key during conversation.	
	Decrease volume	Press the [Volume –] key during conversation.	
Conversation	Hands-free conversation	Conversation can be made without lifting the handset.	
	PTT conversation	Press the PTT key during hands-free conversation.	
Speed dialing	One-touch dialing	Press [7], [8], [9], or [0] key.	
	Dial pattern activation	Press the Dial pattern key.	
Privacy	Privacy ON	Press the Privacy key while the status indicator of the Privacy key remains unlit.	
	Privacy OFF	Press the Privacy key while the status indicator of the Privacy key is lighting.	
Paging call		(Start) Press the N-8000 zone selection key, followed by the Talk key. **Note:** When the Talk key is set to "PTT", speak into the microphone while holding down the Talk key. (End) When the Talk key is set to "LOCK": Press the Talk key again. When the Talk key is set to "PTT": Release the Talk key.	Multiple zone selection keys can be selected.
Broadcast to SX-2000 System	Selected zone broadcast	(Start) Press the SX-2000 zone selection key, followed by the Talk key. **Note:** When the Talk key is set to "PTT", speak into the microphone while holding down the Talk key. (End) When the Talk key is set to "LOCK": Press the Talk key again. When the Talk key is set to "PTT": Release the Talk key.	Multiple zone selection keys can be selected.
	General broadcast	(Start) Press the General broadcast pattern key. (End) Press the General broadcast pattern key again.	
	BGM broadcast	(Start) Press the BGM pattern change key. (End) Press the BGM pattern end key.	
	Control output activation	Press the Control output key.	
	Control output deactivation	Press the Control output key again.	
	Multi-operation activation (SX-2000 selected zone broadcast and control output pattern activation)	(Activation) Press the Zone selection key, followed by the Talk key. **Note:** When the Talk key is set to "PTT", speak into the microphone while holding down the Talk key. (Deactivation) When the Talk key is set to "LOCK": Press the Talk key again. When the Talk key is set to "PTT": Release the Talk key.	Multiple zone selection keys can be selected. Control output pattern needs to be programmed into the Zone selection key.
	Multi-operation activation (N-8000 paging call, SX-2000 selected zone broadcast, and control output pattern activation)	Press the N-8000 zone selection key, SX-2000 zone selection key, followed by the Talk key.	Multiple keys including the N-8000 zone selection key and SX-2000 zone selection key can be selected in random order. To activate the control output pattern, program it into the SX-2000 zone selection key.
Microphone indicator		(Function ON) Press the Microphone indicator key. (Function OFF) Press the Microphone indicator key again.	

DOOR STATION'S FUNCTIONS AND OPERATION

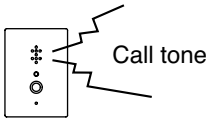
1. CALLING FROM A DOOR STATION

1.1. Calling from a Door Station
(when the system is set to "Sequential Response" mode)

Step 1. Press the call button to call the pre-programmed master station or telephone.



The call tone is heard through the calling station's internal speaker.
- If the door station is not set to door station mode, a busy tone is heard when the called master station is busy. When a busy tone is heard, wait till the line becomes free, and you are automatically connected to the called party.



[When the door station is set to door station mode]
The call tone sounds only once regardless of the called station's connection mode settings.
When no response is made to a call within 30 seconds, the call automatically stops, as the call timeout is limited to 30 seconds in this mode.

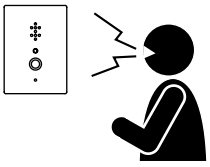
[When the door station is not set to door station mode]
When the called master station is set to Automatic connection mode, it is possible to start conversations after a brief call tone is sounded once.
When the called master station is set to Continuous call tone mode, the call tone continues to sound and stops when the called party answers, allowing conversations to start.

Note
Calls cannot be terminated at the door station.

Step 2. Start conversation when the called party answers.

[When the door station is set to door station mode]
Conversation automatically terminates in 30 seconds, as the conversation timeout is limited to 30 seconds.

Tip
This 30-second limit becomes invalid when lifting the handset, or pressing the hold key or transfer key at the master station.



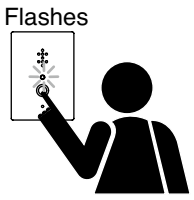
[When the door station is not set to door station mode]
Conversation mode continues until the called party replaces the handset of the master station or telephone, or presses the Clear key.

Note
Conversation cannot be terminated at the door station.

Notes
- Preprogram the master station or the telephone to call to.
  Programming can be performed by dialing operation of the multifunctional master station (refer to p. 7-9) or using the supplied N-8000 Setting Software (refer to p. 5-68, 5-83).
- Use the supplied N-8000 Setting Software to perform Door station mode setting. (Refer to p. 5-67, 5-82.)

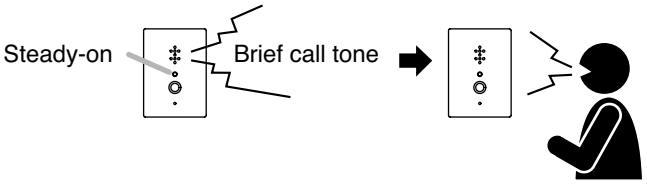
1.2. Calling from a Door Station
(when the system is set to "Selective Response" mode)

Step 1. Press the call button to call the pre-programmed master station or telephone. The status indicator flashes.



Note
When the call time limit has been set, if no response is made within a set period of time, the call is automatically terminated.

Step 2. If the master station or the telephone responds, a brief call tone is sounded. Speak toward the panel.
Note
The status indicator mode changes from flashing to steady-on state.



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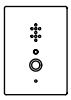
Conversation is terminated if the called party replaces the handset of the master station or telephone, or presses the Clear key.
Note: The status indicator goes out when the conversation ends.



Notes
- Preprogram the master station or the telephone to call to.
  Programming can be performed by dialing operation of the multifunctional master station (refer to p. 7-9) or using the supplied N-8000 Setting Software (refer to p. 5-68, 5-83).
- Use the supplied N-8000 Setting Software to perform call time-out function setting. (Refer to p. 5-36, p. 5-63.)

2. MAKING AN EMERGENCY CALL

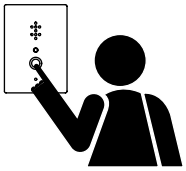
(only possible when system is set for "Selective Response")

Emergency Calls take precedence over other calls. If the Master Station or telephone responds to the Emergency Call, the conversation becomes an Emergency Conversation and is handled with a higher priority than other conversations and paging calls.

Notes

- Only Door Stations that are set to be capable of making an Emergency Call when the system response mode is set to "Selective Response" can initiate the Emergency call.
- If the Master Station or telephone responds to an Emergency Call when all speech links are occupied, a lower-priority conversation or paging call will be interrupted for the Emergency Conversation to begin.

Step 1. Press the call button twice or more in rapid succession (under 400 ms interval).
If a Master Station is called, the Emergency Call tone is sounded.
If a Multi-Functional Master Station is called, the Emergency Call indication is displayed and the Emergency Call tone sounded.
Note
Call time limits are not applicable to the Emergency Call.



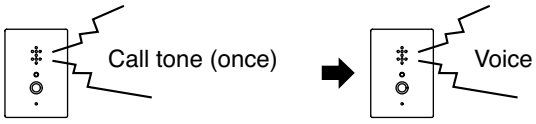
Step 2. Begin the conversation if the called station responds. (Emergency Conversation)
The conversation can continue until terminated by the called master station or telephone.
Note
Call time limits are not applicable to the Emergency Conversation.

Notes

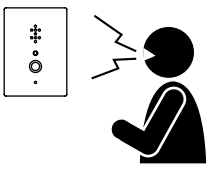
- Preprogram the master station or the telephone to call to.
  Programming can be performed by dialing operation of the multifunctional master station (refer to p. 7-9) or using the supplied N-8000 Setting Software (refer to p. 5-68, 5-83).
- Door Stations must be set to allow Emergency Call.
- Use the N-8000 Setting Software to enable or disable Emergency Call operation for the Door Station. (Refer to p. 5-67, 5-82.)
- Use the N-8000 Setting Software to set the system's response mode. (Refer to p. 5-26.)

3. RECEIVING A CALL

Step 1. When receiving a call from the master station, the call tone sounds only once, after which the calling party's voice is heard immediately through the internal speaker.



Step 2. Answer by speaking into the door station.



Step 3. Conversation is terminated if the called party replaces the handset or presses the Clear key.
Note
Conversation termination operation cannot be executed at the door station.
Conversation can be terminated by the termination operation at the master station or telephone, or after the preset time limit.

4. AUDIO TRIGGER FUNCTION (N-8050DS/8640DS/8650DS only)

Alarm operation is activated if audio that enters the preprogrammed N-8050DS Door Station's and N-8640DS/8650DS IP Door station's microphone meets set conditions.

Notes

- This function may accidentally be activated in response to ambient sounds (e.g. rain, wind, music, traffic noise).
- When the alarm detection method is set to "Audio detection" (see p. 2-121), audio signals may not be detected depending on circumstances.

Tips

- Use the supplied N-8000 Setting Software to perform audio trigger function setting. (Refer to p. 5-67, 5-81.)
- Portions of the setting contents can be changed with manual Master Station operation. (Refer to p. 2-78.)

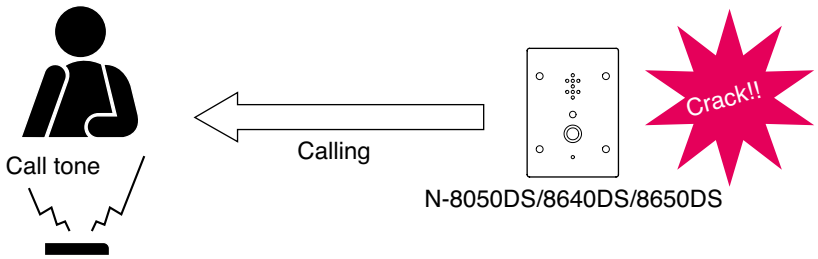
[Door Stations capable of Audio Trigger alarm operation]

- When using this function by the N-8050DS, only the N-8000EX Exchange can support this function, and up to four Door Stations that enable Audio Trigger alarm operation can be connected per Exchange.
- The Audio Trigger does not work for Door Stations set to receive background music.
- The Door Station detects audio input when it is in standby mode.

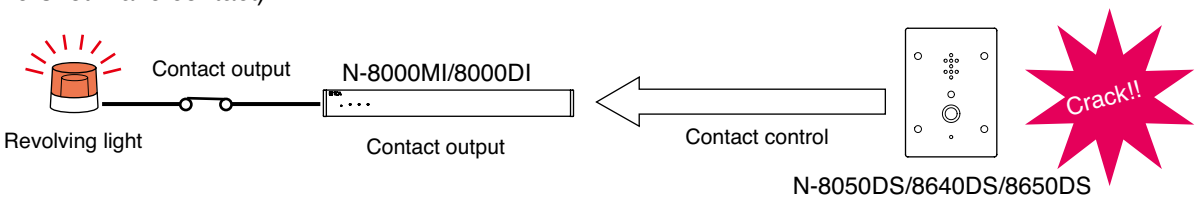
[Alarm operation]

Alarm operations can be selected from the options.

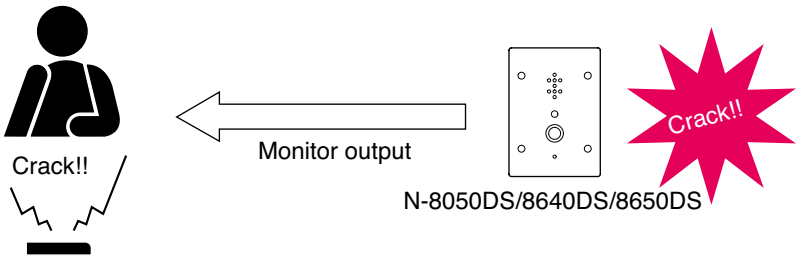
- Calls to Master Station
  Calls the preprogrammed master station.



- N-8000MI/N-8000DI Contact Control
  Closes the preprogrammed contact input of the N-8000MI Multi Interface or N-8000DI Direct Select unit. (One-shot make contact)



- Monitor Output
  Audio from the Door Station is output from the preprogrammed Master Station's hands-free speaker for a preset period of time after Audio Trigger detection.



[Alarm detection method]

One of the following 2 methods can be selected for the Alarm detection method.

- Level detection
  Activates alarm if a sound pressure level exceeding the set level is detected for a specified period of time.
- Audio detection
  Activates alarm if a human voice is detected.
  Allows only the human voices to be detected from the input sound by filtering characteristic frequency components contained in the human voice's vowels.
  Notes
  - Audio detection may be activated in response to sounds like music, siren, and engine having a similar frequency range to that of the human voice.
  - Audio signals may not be detected in such cases where an ambient noise is louder than them.

[Alarm detection conditions]

- Level detection
  Duration (level): Sets the time interval till sounds are detected.
  Setting range: 1 – 9 seconds (9 steps, in 1-second units)
  Level: Sets a sound pressure threshold.
  Setting range: 73 – 97 dB* (9 steps, in 3-dB units)
  * The unit is dB (SPL), and the value is for reference only.
- Audio detection
  Duration (audio): Sets the duration of vowels of the human voice to detect.
  Setting range: 100 – 500 ms (9 steps, in 50-ms units)
  Sensitivity: Sets the detection sensitivity of the human voice.
  Setting range: 1 – 9 (9 steps, 1: Most likely to detect, 9: Least likely to detect)

[Trigger time settings]

The time range during which the alarm can be activated in a day can be limited. If the start and end times are set, audio is only detected during that period to trigger the alarm.

[Audio Trigger call priority]

- When the call response mode is set to "Sequential Response":
  As with normal calls, if the connected Master Station is busy, a busy tone is heard at the Door Station. The Master Station is called as soon as the conversations terminate.

- When the call response mode is set to "Selective Response":
  Audio Trigger calls take precedence over normal calls. (Refer to Call Priorities on p. 2-177.)

5. CALL BUTTON RESTRICTION (N-8050DS/8640DS/8650DS only)

(only when the system is used to "Sequential Response" mode)

Enabling the Call button restriction function changes the usage of the Call button. Pressing the Call button 3 times within 3 seconds performs calling operation. This function will prevent calls by accidental depression of the button.
Immediately after the Call button is pressed 3 times within 3 seconds, the preprogrammed master station or telephone is called.
When receiving a call, the station is called with a call tone, and engaged in conversation even if the call button restriction is enabled.

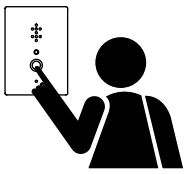
Tip: Use the supplied N-8000 Setting Software for call button restriction setting. (See p. 5-67, p. 5-82)

Notes

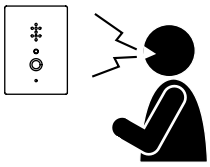
- Activation method by means of the N-8640DS's and N-8650DS's external contact input remains unchanged.
- Functions interlocked with the calling operations such as Calling station indication/CCTV interlock and Call/Conversation sync contact output (Door station contact output) work immediately after the Call button is pressed 3 times within 3 seconds.
- The status indicator lights immediately after the Call button is pressed 3 times within 3 seconds.

5.1. Making a Call

Step 1. Press the Call button 3 times within 3 seconds.
Immediately after the Call button is so pressed 3 times, the preprogrammed master station or telephone is called.



Step 2. Start conversation when the called party answers.



6. DOOR STATION OPERATION TABLE

Function	Operation
Call	Press the call button.
Conversation	No dial operations are required since incoming calls are automatically connected.
Emergency call	Press the call button twice or more in rapid succession (under 400 ms interval).
Call button restriction (N-8050DS/8640DS/8650DS only)	Press the Call button 3 times within 3 seconds.

SUBSTATION/SWITCH PANEL'S FUNCTIONS AND OPERATION

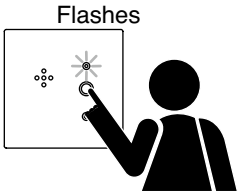
This section describes the functions and operations of the substation, switch panel, and switch board to be connected to the Substation Interface Unit. Hereinafter, these connected devices are collectively called "Substation."

1. CALLING FROM A SUBSTATION

1.1. Operation Using the Call Button

(when the system is set to "Sequential Response" mode)

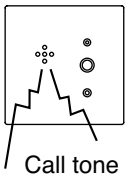
Step 1. Press the call button to call the pre-programmed master station or telephone. The status indicator flashes (RS-140/180/480 only).



A call tone is heard from the substation's internal speaker (external speaker in the case of RS-140). The call tone continues to sound until conversation begins.

Note

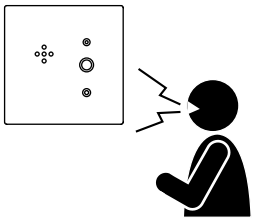
When the called Master Station is busy, a busy tone is heard at the Door Station. In such cases, simply wait. The master station is called as soon as the conversations terminate.

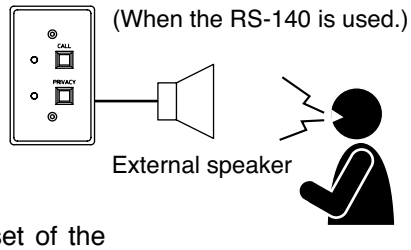


Step 2. Speak toward the panel when the called party answers. (Speak toward the external speaker in the case of the RS-140/142/143/144.)

Notes

- The status indicator mode changes from flashing to steady-on state (RS-140/180/480 only).
- Lifting the handset permits handset conversation when the RS-141 is combined with the RS-140/142/143/144 or when the RS-481 is combined with the RS-442/480.





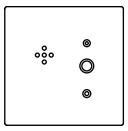
Step 3. Terminate the conversation.

Conversation is terminated if the called party replaces the handset of the master station or telephone, or presses the Clear key.

Replacing the handset terminates handset conversation when the RS-141 is combined with the RS-140/142/143/144 or when the RS-481 is combined with the RS-442/480.

Note

The status indicator goes out when the conversation terminates (RS-140/180/480 only).



Tips

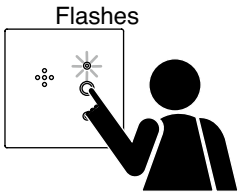
- The RS-142 has 2 call buttons, and RS-442 has 3 call buttons. No change occurs if other call button is pressed during calls or conversations made using one call button.
- Operation using the RS-144's Emergency Call button is the same as that described above.

Notes

- Preprogram the master station or the telephone to call to.
- Programming can be performed by dialing operation of the multifunctional master station (refer to p. 7-9) or using the supplied N-8000 Setting Software (refer to p. 5-35).

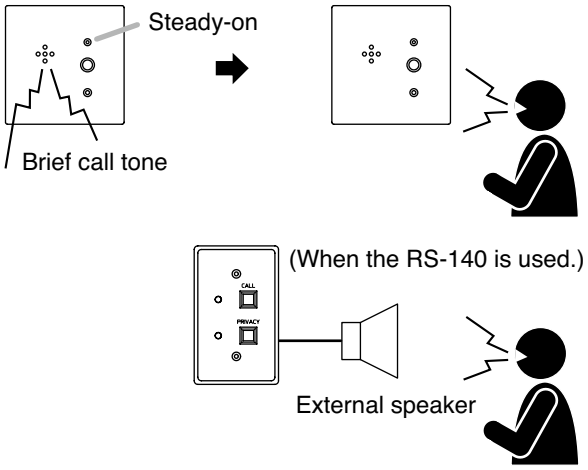
1.2. Operation Using the Call Button
(when the system is set to "Selective Response" mode)

Step 1. Press the call button to call the pre-programmed master station or telephone. The status indicator flashes (RS-140/180/480 only).



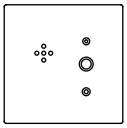
Note
When the call time limit has been set, if no response is made within a set period of time, the call is automatically terminated.

Step 2. Speak toward the panel when a call tone is heard. (Speak toward the external speaker in the case of the RS-140/142/143/144.)



Notes
- The status indicator mode changes from flashing to steady-on state (RS-140/180/480 only).
- Lifting the handset permits handset conversation when the RS-141 is combined with the RS-140/142/143/144, or when the RS-442/481 is combined with the RS-480.

Step 3. Terminate the conversation.
Conversation is terminated if the called party replaces the handset of the master station or telephone, or presses the Clear key.
Replacing the handset terminates handset conversation when the RS-141 is combined with the RS-140/142/143/144, or when the RS-442/481 is combined with the RS-480.



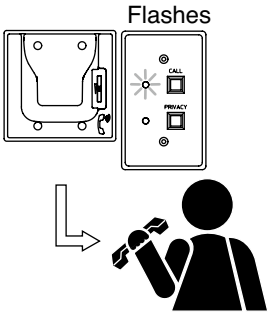
Note
The status indicator goes out when the conversation terminates (RS-140/180/480 only).

Notes
- The RS-142 has 2 call buttons, and RS-442 has 3 call buttons. When other call button is pressed during calls made using one call button, these calls currently in progress are cancelled, permitting the later calls to go through if the call button pressed later has a higher priority than that pressed earlier.
- The RS-144 has the call and Emergency Call buttons. When the Emergency Call button is pressed during calls made using the call button, these calls currently in progress are cancelled, permitting the emergency calls to go through.
- Preprogram the master station or the telephone to call to.
  Programming can be performed by dialing operation of the multifunctional master station (refer to p. 7-10) or using the supplied N-8000 Setting Software (refer to p. 5-56).
- Use the supplied N-8000 Setting Software to perform call time-out function setting. (Refer to p. 5-54.)

1.3. Calling by Lifting the Handset (only when the RS-141 is combined with the RS-140/142/143/144, and when the RS-481 is combined with the RS-442/480.)

Step 1. Lift the handset.
Calls the preprogrammed master station or telephone.
The status indicator flashes (RS-140/480 only).

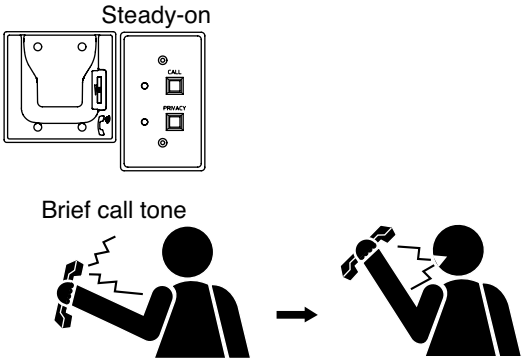
Note
When the call time limit has been set, if no response is made within a set period of time, the call is automatically terminated.



Note
The figure shows an example when the RS-141 is combined with the RS-140.

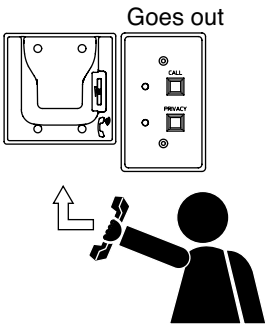
Step 2. Speak into a handset when a call tone is heard.
The brief call tone sounds when the called party at the master station or telephone answers.

Note
The status indicator mode changes from flashing to steady-on state (RS-140/480 only).



Step 3. To terminate the conversation, replace the handset.
The RS-140/480's status indicator goes out.

Note
Replacing the handset at the master station or the telephone, or pressing the Clear key also terminates the conversation.



Tip
Lifting the handset in standby mode when the RS-142/144 is used in combination with the RS-141 calls the master station, or the telephone connected to the N-8000AL, both programmed as "Call 1" on the N-8000 Setting Software.
The stations' call buttons corresponding to "Call 1" or "Call 2" serve as function buttons as listed in the table 1.
Lifting the handset during a call or conversations switches the mode from external speaker conversation to handset conversation.
The status remains unchanged if the call button is pressed during a call or conversations.
The table 2 shows the operation when the handset is lifted (off hook).

[Table 1]

	RS-142	RS-144
Call 1	Call button 1	Emergency call button (Emergency)
Call 2	Call button 2	Call button (Normal)

[Table 2]

State just before off hook	Operation when off hook
Standby	Calls "Call 1."
Making a call to "Call 1"	The calling tone can be heard from the handset. A call to "Call 1" continues.
Making a call to "Call 2"	The calling tone can be heard from the handset. A call to "Call 2" continues.
Making conversations with "Call 1"	Switches to handset conversation. Conversations with "Call 1" continue.
Making conversations with "Call 2"	Switches to handset conversation. Conversations with "Call 2" continue.

Notes
- Preprogram the master station or the telephone to call to.
  Programming can be performed by dialing operation of the multifunctional master station (refer to p. 7-10) or using the supplied N-8000 Setting Software (refer to p. 5-56).
- Use the supplied N-8000 Setting Software to perform call time-out function setting. (Refer to p. 5-54.)

2. MAKING AN EMERGENCY CALL

(only when system response mode is set for "Selective Response")

Emergency Calls take precedence over other calls. If the Master Station or telephone responds to the Emergency Call, the conversation becomes an Emergency Conversation and is handled with a higher priority than other conversations and paging calls.

Notes

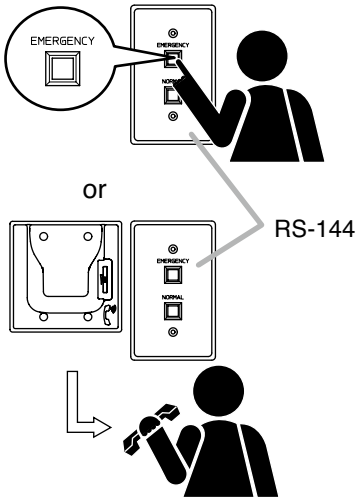
- Only Substations that are set to be capable of making an Emergency Call when the system response mode is set to "Selective Response" can initiate the Emergency call.
- In the case of the N-8010RS, if the Master Station or telephone responds to an Emergency Call when all speech links are occupied, a lower-priority conversation, paging call, or scan monitor will be interrupted for the Emergency Conversation to begin.
- Substations must first be set to allow Emergency Call.
- Use the N-8000 Setting Software to enable or disable Emergency Call operation for the Substation. (Refer to p. 5-57.)
- Use the N-8000 Setting Software to set the system's response mode. (Refer to p. 5-26.)

2.1. Using the Emergency Call Button

The RS-144 is equipped with a dedicated Emergency Call button.
The call buttons on other substations are also made to have the same function as the Emergency Call button by changing the priority order settings in advance.

Note

It is also possible to set the RS-144's Emergency Call button not to initiate the emergency calls by changing the priority order settings.



Step 1. Press the Emergency Call button or lift the handset*.
* When the RS-144 and RS-141 are used in combination

If a Master Station is called, the Emergency Call tone is sounded.
If a Multi-Functional Master Station is called, the Emergency Call indication is displayed and the Emergency Call tone sounded.

Note

Call time limits are not applicable to the Emergency Call.

Step 2. Begin the conversation if the called station responds. (Emergency Conversation)

Note

Call time limits are not applicable to the Emergency Conversation.

⬇

Conversation is terminated if the called party replaces the handset or presses the Clear key.

Note

The substations cannot terminate conversations except when handset conversations are made using the RS-140/142/143/144 in combination with the RS-141 or using the RS-442/480 in combination with the RS-481.

Notes

- Preprogram the master station or the telephone to call to.
  Programming can be performed by dialing operation of the multifunctional master station (refer to p. 7-10) or using the supplied N-8000 Setting Software (refer to p. 5-56).
- Use the N-8000 Setting Software to set the call priority order. (Refer to p. 5-56.)

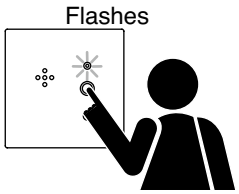
2.2. Using the Call Button with a Lower Priority

The call button assigned a lower priority can also initiate the emergency calls through the operation described below.

Notes
- The RS-140/180/480 is not capable of initiating Emergency Calls through the operation described below, but can initiate Emergency Calls by changing the call priority order settings.
- The RS-144's call button can initiate the emergency calls through the operation described below.

Step 1. Press the call button twice or more in rapid succession (under 400 ms interval).
If a Master Station is called, the Emergency Call tone is sounded.
If a Multi-Functional Master Station is called, the Emergency Call indication is displayed and the Emergency Call tone sounded.

Note
Call time limits are not applicable to the Emergency Call.



Step 2. Begin the conversation if the called station responds. (Emergency Conversation)
The conversation can continue until terminated by the called master station or telephone.

Note
Call time limits are not applicable to the Emergency Conversation.

⬇

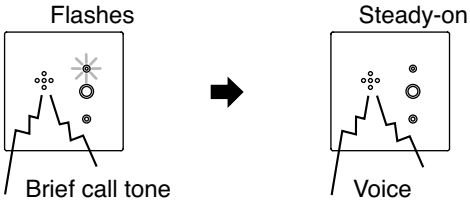
Conversation is terminated if the called party replaces the handset or presses the Clear key.

Note
The substations cannot terminate conversations except when handset conversations are made using the RS-140/142/143/144 in combination with the RS-141 or using the RS-442/480 in combination with the RS-481.

Notes
- Preprogram the master station or the telephone to call to.
  Programming can be performed by dialing operation of the multifunctional master station (refer to p. 7-10) or using the supplied N-8000 Setting Software (refer to p. 5-56).
- Use the N-8000 Setting Software to set the call priority order. (Refer to p. 5-56.)

3. RECEIVING A CALL

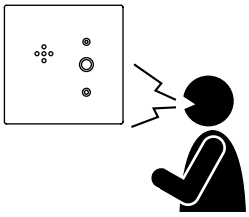
Step 1. When receiving a call from the master station, the call tone sounds only once, after which the calling party's voice is heard immediately through the internal speaker.



Step 2. Speak toward into the door station.

Note

Lifting the handset permits handset conversation when the RS-141 is combined with the RS-140, or when the RS-481 is combined with the RS-442/480.

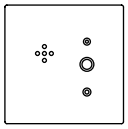


Step 3. Terminate the conversation.

Conversation is terminated if the called party replaces the handset or presses the Clear key.

Tip

Replacing the handset terminates the conversation when the handset conversations are made using the RS-141 in combination with the RS-140/142/143/144, or using the RS-481 in combination with the RS-442/480.

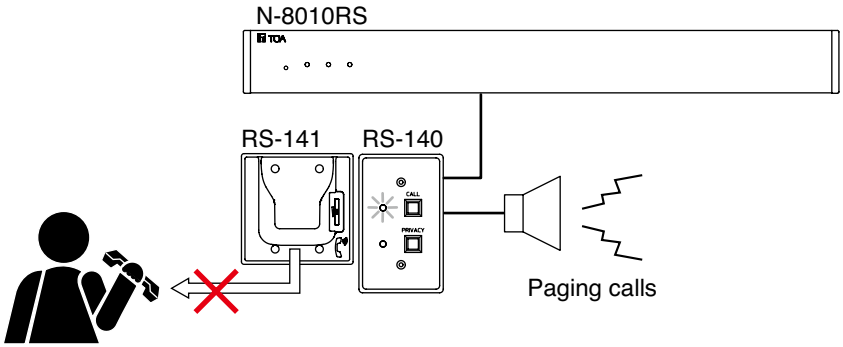


Note

Conversation cannot be terminated at the substation, except for handset conversations made from the RS-140/143/144 (Switch Panel)/142 (Switch Board)/RS-141 (Optional Handset) or RS-442 (Switch Board)/480 (Substation)/RS-481 (Optional Handset) Combined Substation. Conversations are terminated by the termination operation at the master station or telephone or when the preset conversation time elapses.

4. NOTE ON RECEIVING PAGING CALLS

Do not lift the handset during paging calls only when the N-8010RS Substation Interface Unit, RS-140/142/143/144 Switch Panel, and RS-141 Option Handset are used in combination.
Paging calls cannot be correctly heard if the handset is lifted.

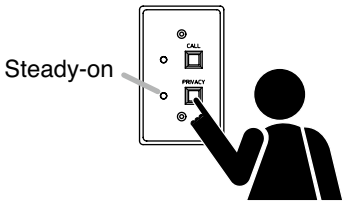


5. USING THE PRIVACY FUNCTION (RS-140 only)

The Privacy function refuses all paging and station calls except Emergency paging calls.

5.1. Privacy Mode Settings

Press the Privacy button on the RS-140 Switch Panel when the Privacy indicator is unlit.
The Switch Panel is placed in Privacy mode and the Privacy indicator lights.

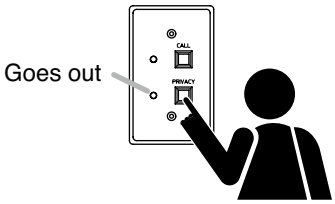


Notes

- Pressing the call button calls the preprogrammed Master Station or telephone to enable conversation even when the Switch Panel is in Privacy mode. The original Privacy mode is restored as soon as the conversation is completed.
- If the RS-140 Switch Panel in Privacy mode is called by a Master Station or telephone, a Privacy tone is heard at the Master Station or telephone. (A call tone is not sounded at the RS-140.)
- Pressing the Master Station's Push-to-talk key while the Privacy tone is sounded allows the Master Station to make a voice call.

5.2. Resetting the Privacy Mode

Press the Privacy button on the RS-140 Switch Panel when the Privacy indicator is lighting. The privacy mode is cancelled and the Privacy indicator goes out.



Notes

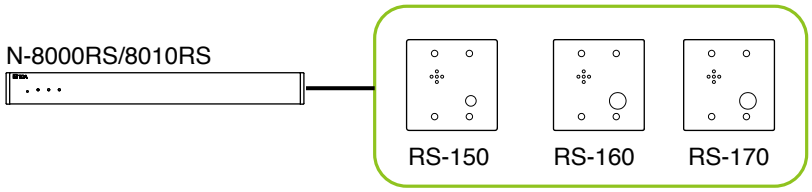
- The Privacy mode can be reset even during a conversation.
- When the Privacy reset operation is performed during a conversation or voice call, it is accomplished after conversation completion.

6. CALL BUTTON RESTRICTION

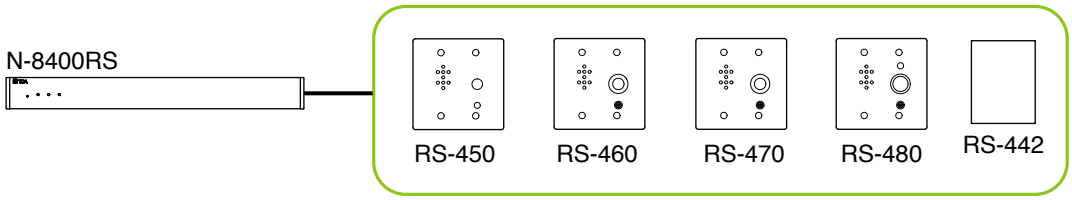
(only when the system is used to "Sequential Response" mode)

6.1. Stations to Which the Call Button Restriction Function can be Programmed

- RS-150/160/170 only of the substations to be connected to the N-8000RS/8010RS

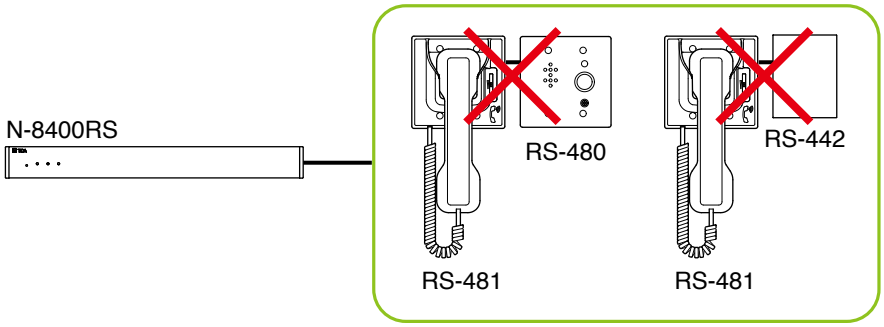


- All the substations and switch board to be connected to the N-8400RS



Note

This function cannot be used for the RS-480 and RS-442 when combined with the RS-481.



6.2. Function Description

Enabling the Call button restriction function changes the usage of the Call button. Pressing the Call button 3 times within 3 seconds performs calling operation. This function will prevent calls by accidental depression of the button.
Immediately after the Call button is pressed 3 times within 3 seconds, the preprogrammed master station or telephone is called.
When receiving a call, the station is called with a call tone, and engaged in conversation even if the call button restriction is enabled.

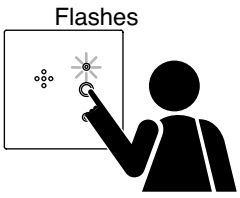
Tip: Use the supplied N-8000 Setting Software for call button restriction setting. (See p. 5-57)

Notes

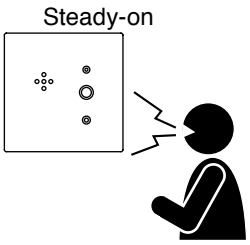
- Functions interlocked with the calling operations such as Calling station indication/CCTV interlock work immediately after the Call button is pressed 3 times within 3 seconds.
- The status indicator lights immediately after the Call button is pressed 3 times within 3 seconds.

6.3. Making a Call

Step 1. Press the Call button 3 times within 3 seconds.
Immediately after the Call button is so pressed 3 times, the preprogrammed master station or telephone is called.



Step 2. Start conversation when the called party answers.



7. SUBSTATION OPERATION TABLE

Function		Operation
Call		Press the call button.
Conversation		No dial operations are required since incoming calls are automatically connected.
Emergency call		Press the emergency call button. (RS-144 only)
		Press the call button twice or more in rapid succession (under 400 ms interval).
Privacy (RS-140 only)	Privacy mode setting	Press the Privacy button when the Privacy indicator is unlit.
	Resetting privacy mode	Press the Privacy button when the Privacy indicator is lighting.
Call button restriction (RS-150/160/170 /450/460/470/480*/442* only)		Press the Call button 3 times within 3 seconds.

* This function cannot be used for the RS-480 and RS-442 when combined with the RS-481.

N-8000AL TELEPHONE INTERFACE CONNECTED TELEPHONE FUNCTIONS AND OPERATION

1. BASIC USAGE

1.1. Calling from a Telephone (Individual Calls)

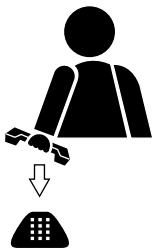
Step 1. Lift the handset and press the station number to be called.

The calling station's handset speaker sounds an audible call tone.
When a busy tone is heard, wait till the line becomes free, and you are automatically connected to the called party.

Step 2. Start conversations when the call tone stops and the called party answers.

Note
When the system is set to "Sequential Response*" and the called station set to "Automatic Connection Mode*," it is possible to start conversations after a brief call tone is sounded once. In other settings, the call tone continues to sound and stops when the called party answers, allowing conversations to start.

Step 3. To finish conversations, replace the handset.

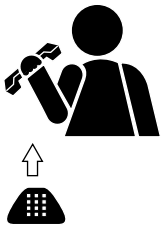


* Use the supplied N-8000 Setting Software to perform Sequential response and Incoming call mode setting. (Refer to p. 5-26.)

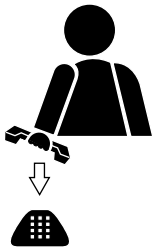
Notes
- If the system has been set for call time-out or conversation time-out, the call or conversation automatically stops after the specified time limit. The specific length of this time-out (in 10-second units between 10 and 990 seconds) is preprogrammed into individual N-8000ALs using the supplied N-8000 Setting Software. (Refer to p. 5-98.)
- Conversations are not possible between the N-8000AL-connected telephone and an outside line telephone.
- Conversations are not possible between the N-8000AL-connected telephone and the PBX extension telephone via the N-8000MI or tie-line connected intercom stations.
- Set the N-8000AL-connected telephone so that it outputs a PB signal. (The N-8000AL does not operate on DP10 or DP20 signals.)

1.2. Receiving a Call

Step 1. When a call is received, lift the handset to answer the call.



Step 2. To finish conversations, replace the handset.



2. CONVERSATION FUNCTIONS AND OPERATION

2.1. Calling

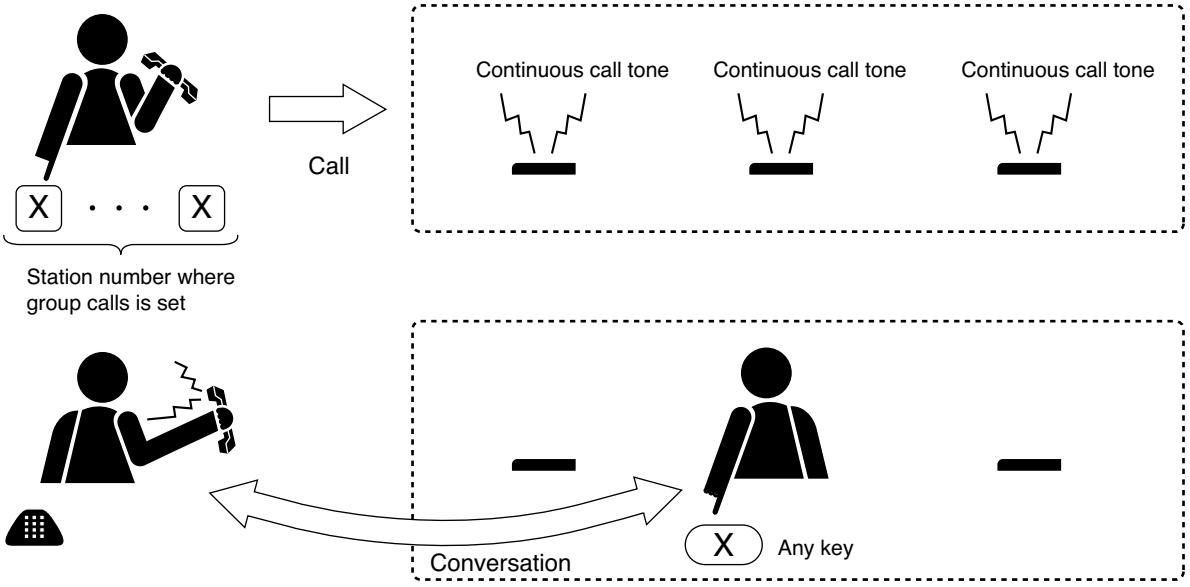
2.1.1. Individual calls

- To call a station, lift the handset, then press its station number.
- Conversation can begin when the called party answers and the call tone stops.
- A busy tone indicates that the called party is already engaged on another line. Connection to the called party will be made as soon as the busy line is freed.

2.1.2. Group calls

- When a station is assigned to group call member station, if the station is called, this station (representative station) and all member stations are simultaneously called by a continuous call tone regardless of their call receiving mode settings.
- Even when the representative station is busy, all of the associated member stations within the same group are called by means of a continuous call tone. This continuous call tone stops when any one of the associated stations responds to the call.

Notes
- Use the supplied N-8000 Setting Software to perform the group call member station setting. (Refer to p. 5-99.)
- The N-8050DS Door Station, N-8540DS/8640DS/8650DS IP Door Station, RS-150/160/170/180/450/460/470/480 Substation, RS-140/143/144 Switch Panel, and RS-142/442 Switch Board cannot be assigned to the group call representative station nor member station.

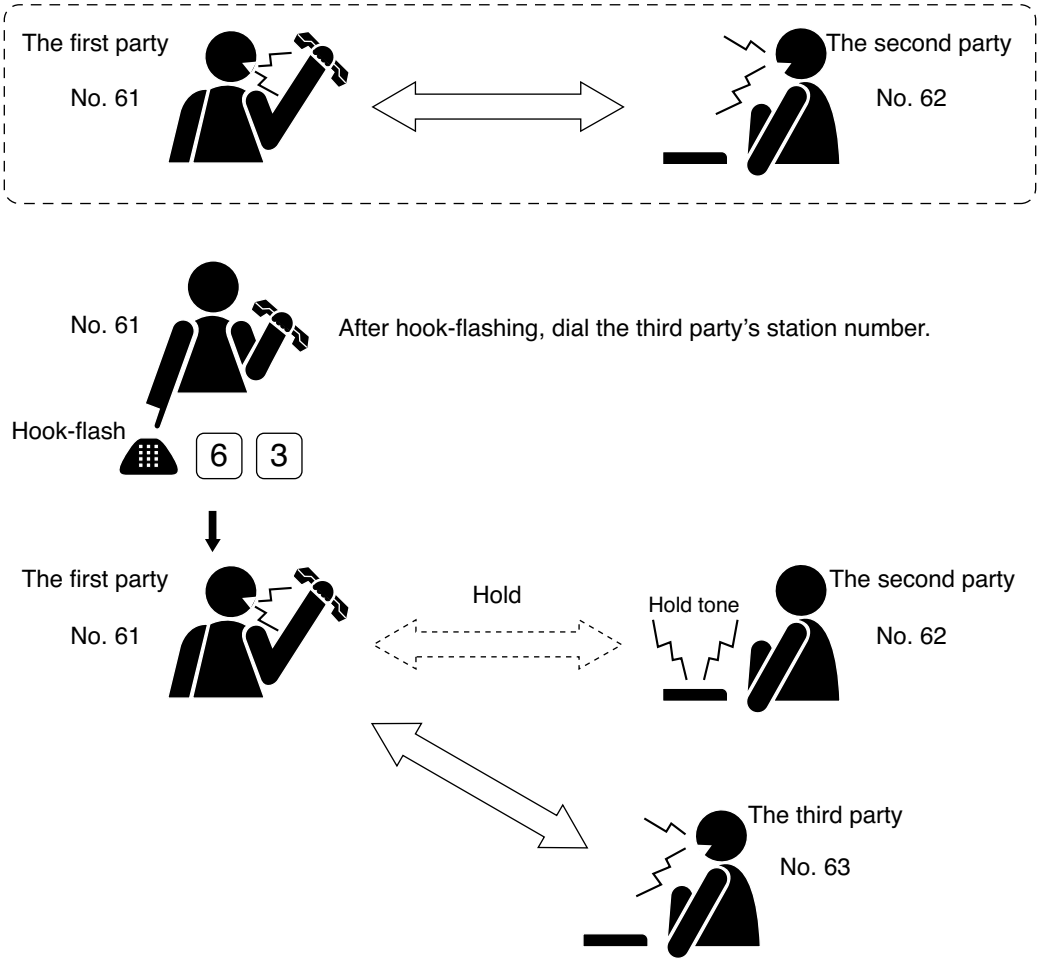


2.2. Call Transfer

Either party engaged in two-party conversation can call the third party to make conversation with (placing the original conversation partner on hold). After the conversation ends, it is possible to restore the original two-party conversation or transfer the conversation with the third party to the original conversation partner.

Step 1. Hook-flash* during a two-party conversation.
The current conversation is placed on hold, sending a hold tone to the other party.
* Momentarily depressing the receiver switch.

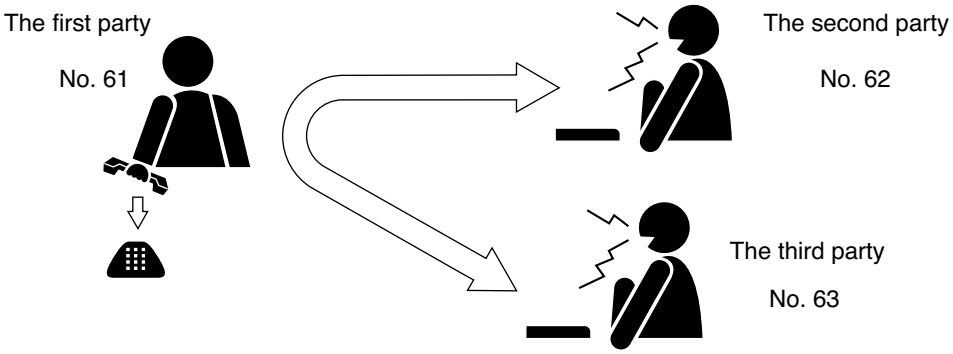
Step 2. Dial the third party's station number, for example [6][3]. If the third party answers, the first party can speak with the third party while keeping the original conversation on hold.



After completing the conversation with the third party, the first party can transfer the original conversation to the third party or return to the original conversation.

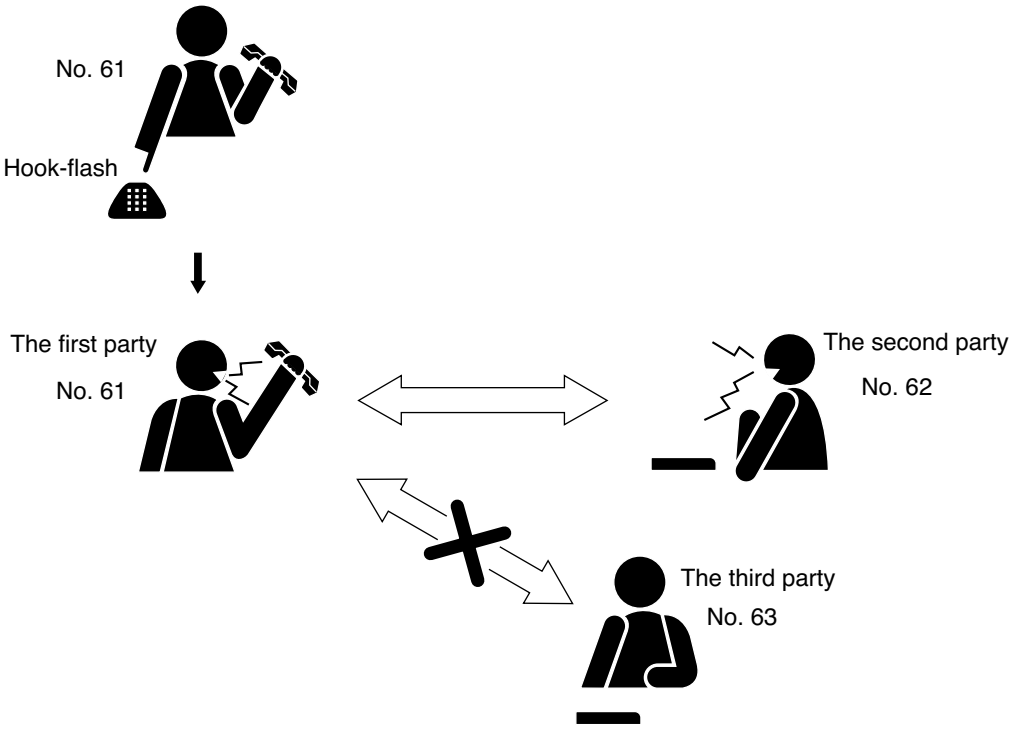
[Transferring calls to the third party]

Step 3. To connect the third party to the original conversation partner being placed on hold, replace the handset. This permits conversation between the second and third parties.

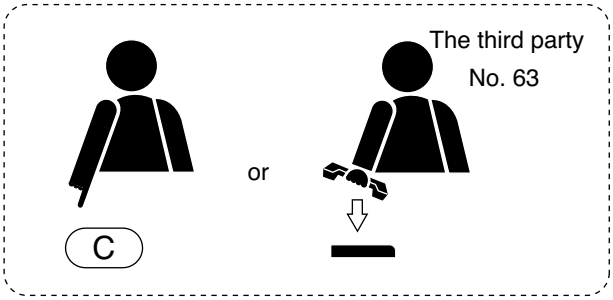


[Returning to the original conversation]

Step 4. To return to the original conversation without transferring it to the third party, repeat hook-flash. The original two-party conversation is restored.



Tip
Even if the first party does not hook-flash, if the third party either presses the Clear key or replaces the handset, the original conversation is restored.



2.3. Automatic Transfer

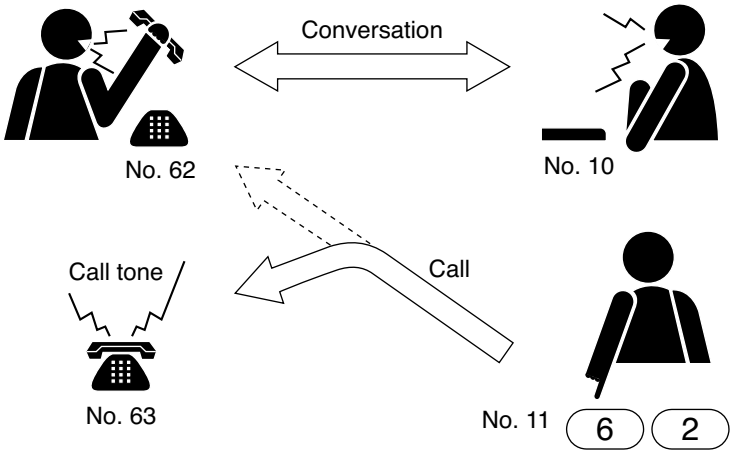
Note
Calls cannot be automatically transferred to the station connected via the multi interface unit or the C/O line interface unit.

2.3.1. Group hunting

Calls to a busy telephone set for Group hunting are automatically transferred to another designated station or telephone.
This Group hunting function also applies to the call transfer (p. 2-15) performed during conversation.
When the designated station to which a call was transferred is busy, the call is automatically transferred to the next designated station, and this continues in series until a free line is found.

Note
The station to which a call is to be transferred can be set either by dialing operation (see below) or using the supplied N-8000 Setting Software. (Refer to p. 5-99.)
Use the supplied N-8000 Setting Software to enable or disable the Group hunting function. (Refer to p. 5-97.)
The station to which a call is to be transferred cannot be designated unless the group hunting function is enabled.

(Example: A call to the telephone No. 62 will automatically be transferred, if No. 62 is busy, to the next designated station, No. 63.)



Notes
Calls are not transferred under the following conditions.
- The designated station is set for Call forwarding.
- The designated station is not in standby mode. (However, even when the designated station is busy, if it is set for Group hunting, the call is further transferred to the next designated station.)
- The station set for Group hunting is called as a representative or its associated member station of the group.

Programming or erasure can be performed at your telephone.

[Programming]

Function designation number: ✻ + 4 5

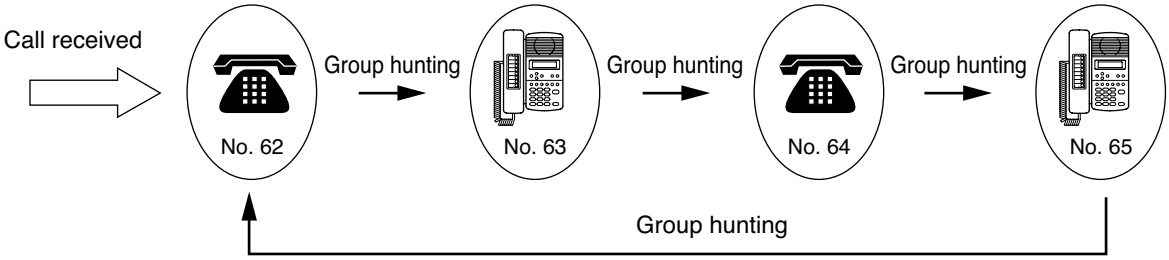
Transfer destination station number: + X・・・X + # (Confirmation tone)

[Erasure]

Function designation number: ✻ + 4 5

The originally called (your) telephone number: + Y・・・Y + # (Confirmation tone)

[Setting example] Calls can be transferred to designated stations in a cyclical manner.



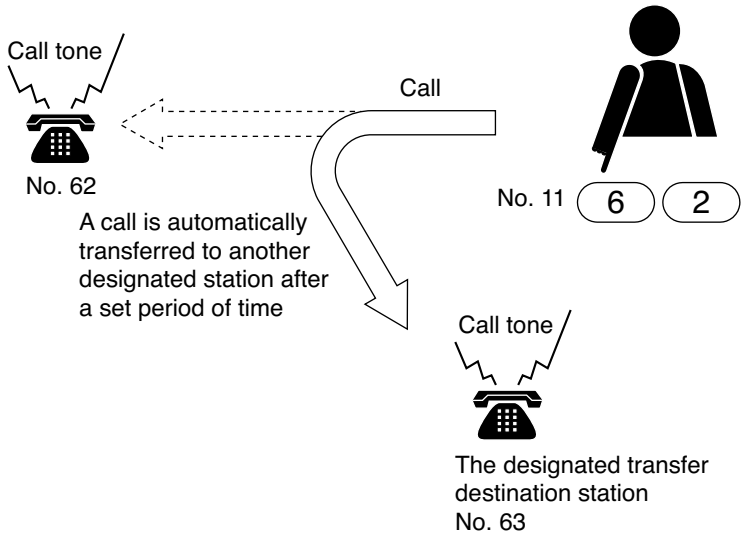
Notes

- The telephone to which a call is to be transferred via multi interface unit or C/O line interface unit cannot be programmed as a transfer destination station.
- The programmed contents set by dialing operation are automatically saved into the C/O line interface unit at midnight every day. If the C/O line interface unit is turned off before completion of save, the state returns to the contents that were programmed before power-off.

2.3.2. Absence transfer

When no response is made to a call to the telephone set for Absence transfer for a set period of time, the call is automatically transferred to another designated station or telephone.
Calls received during conversations can be transferred. (Refer to p. 2-15.)

The station to which a Absence transfer is to be transferred can be set either by a dialing operation (see below) or using the supplied N-8000 Setting Software. (Refer to p. 5-99.)
Use the supplied N-8000 Setting Software to enable or disable the Absence transfer or to set a calling duration. (Refer to p. 5-97.)
The station to which a call is to be transferred cannot be designated unless Absence transfer function is enabled.



Notes
Calls are not transferred under the following conditions,
- The designated station is set for Call forwarding.
- The designated station is not in standby mode
- The station set for Absence transfer is called as a representative or its associated member station of the group.

Programming or erasure can be performed at your telephone.

[Programming]

Function designation number: [*] + [4] [4] +
Transfer destination station number: [X] · · · [X] +
[#] (Confirmation tone)

[Erasure]

Function designation number: [*] + [4] [4] +
The originally called (your) telephone number: [Y] · · · [Y] +
[#] (Confirmation tone)

Notes
- The telephone to which a call is to be transferred via multi interface unit or C/O line interface unit cannot be programmed as a transfer destination station.
- The programmed contents set by dialing operation are automatically saved into the C/O line interface unit at midnight every day. If the C/O line interface unit is turned off before completion of save, the state returns to the contents that were programmed before power-off.

2.3.3. Call forwarding

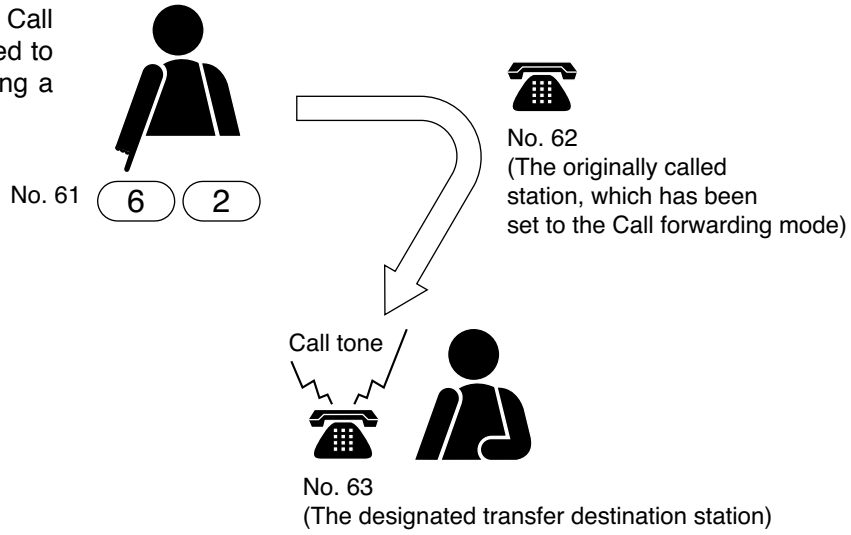
Calls to telephones set for Call forwarding are automatically transferred to another designated station or telephone without sounding a call tone.
Two different modes are available: one is Call forwarding, in which calls are manually rerouted to the selected station, and the other is Time-based Call forwarding, which transfers calls only when the preset time is reached.
This Call forwarding function also applies to the call transfer (p. 2-15) performed during conversations.

The telephone to which a Call forwarding is to be transferred can be set either by dialing operation (see below and p. 2-141) or using the supplied N-8000 Setting Software. (Refer to p. 5-99.)
Use the supplied N-8000 Setting Software to enable or disable the Call forwarding function or to set the transfer start/end time. (Refer to p. 5-97.)
The telephone to which a call is to be transferred cannot be designated unless the Call forwarding function is enabled.

Note
Calls are not transferred if the telephone set for Call forwarding is called as an associated member station of the group.

[Calls to stations manually set for Call forwarding]

Calls to the telephone manually set for Call forwarding are automatically transferred to the designated station without sounding a call tone.



Programming can be performed at your telephone (Call forwarding telephone) or the transfer destination station, while erasure at your telephone.

[Programming at your telephone]
Function designation number: ✻ + 4 1
Transfer destination station number: + X · · · X +
(Confirmation tone)

[Programming at the transfer destination station]
Function designation number: ✻ + 4 2
The originally called (your) telephone number: + Y · · · Y +
(Confirmation tone)

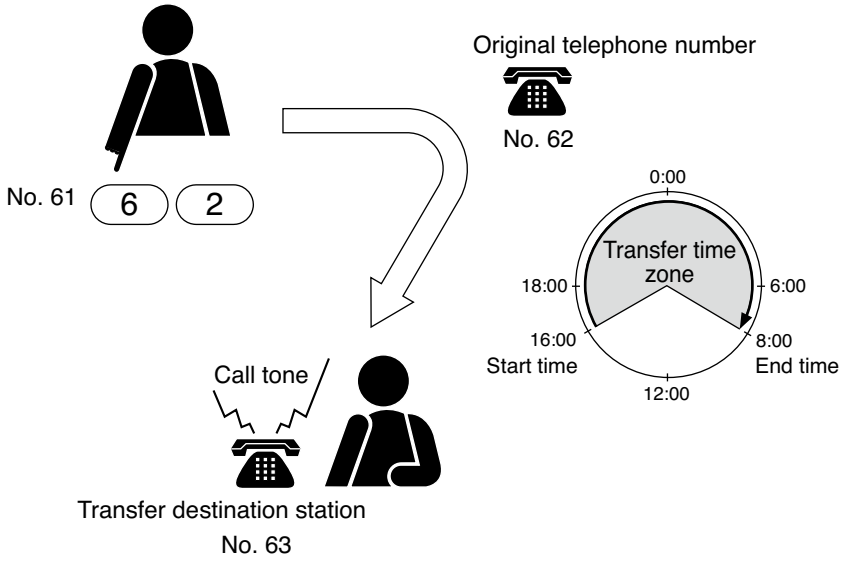
[Erasure]
(available only at your telephone)
Function designation number: ✻ + 4 1
The originally called (your) telephone number: + Y · · · Y +
(Confirmation tone)

Notes
- The telephone to which a call is to be transferred via multi interface unit or C/O line interface unit cannot be programmed as a transfer destination station.
- The programmed contents by dialing operation are automatically saved into the C/O line interface unit at midnight every day. If the C/O line interface unit is turned off before completion of save, the state returns to the contents that were programmed before power-off.

[Calls to stations set for Time-based Call forwarding]

Step 1. When the preset transfer time is reached, the telephone enters the Time-based Call forwarding mode.

Step 2. Calls to stations (original telephone) are automatically transferred to the transfer destination station without sounding a call tone.



Programming or erasure can be performed at your station.

[Programming]

Function designated number: * + 4 3 +
Transfer destination station number: X · · · X +
(Confirmation tone)

[Erasure]

Function designated number: * + 4 3 +
The originally called (your) telephone number: Y · · · Y +
(Confirmation tone)

Notes

- The telephone to which a call is to be transferred via multi interface unit or C/O line interface unit cannot be programmed as a transfer destination station.
- The programmed contents set by dialing operation are automatically saved into the C/O line interface unit at midnight every day. If the C/O line interface unit is turned off before completion of save, the state returns to the contents that were programmed before power-off.

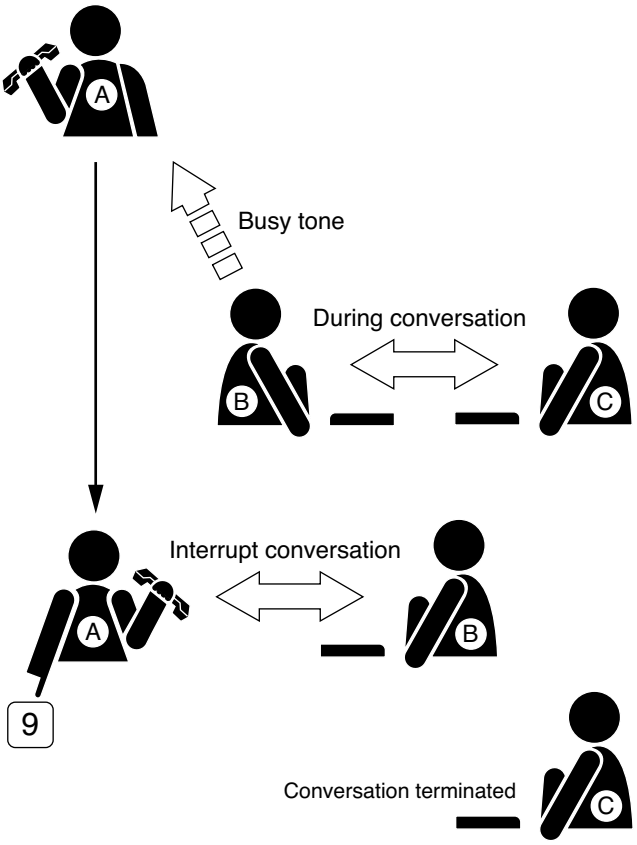
2.4. Executive Priority (only when the system is set to "Sequential Response" mode)

If a called station is busy, as indicated by a busy tone, performing Priority operation from a call telephone transmits a short priority call tone, then forcibly terminates the current conversation, allowing the call to go through. Access to priority call operation or refusal of priority calls can be set individually for each telephone or station.
Use the supplied N-8000 Setting Software to perform the setting. (Refer to p. 5-100.)

Note
The Executive priority calls cannot interrupt the stations connected to the N-8010EX/8400RS.

[Operation]

When Station A calls Station B, which is at that time engaged in a conversation with Station C, press [9] key at Station A.



A priority call tone is transmitted to both Stations B and C, and the conversation is forcibly terminated, enabling Station A to be connected to Station B.

Note
If a function to refuse priority calls has been assigned to Station B being called, Station A cannot interrupt Station B and the busy status remains unchanged.

3. PAGING FUNCTION AND OPERATION

3.1. Paging

Paging stations are preprogrammed.
Paging durations can be limited by preprogramming the time limit (between 10 and 990 seconds in 10-second units) for each C/O line interface unit.

Note
Use the supplied N-8000 Setting Software to enable or disable the paging operation and to set the paging duration. (Refer to p. 5-98, 5-100.)

3.1.1. Zone paging

Paging calls can be made to one of the pre-programmed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

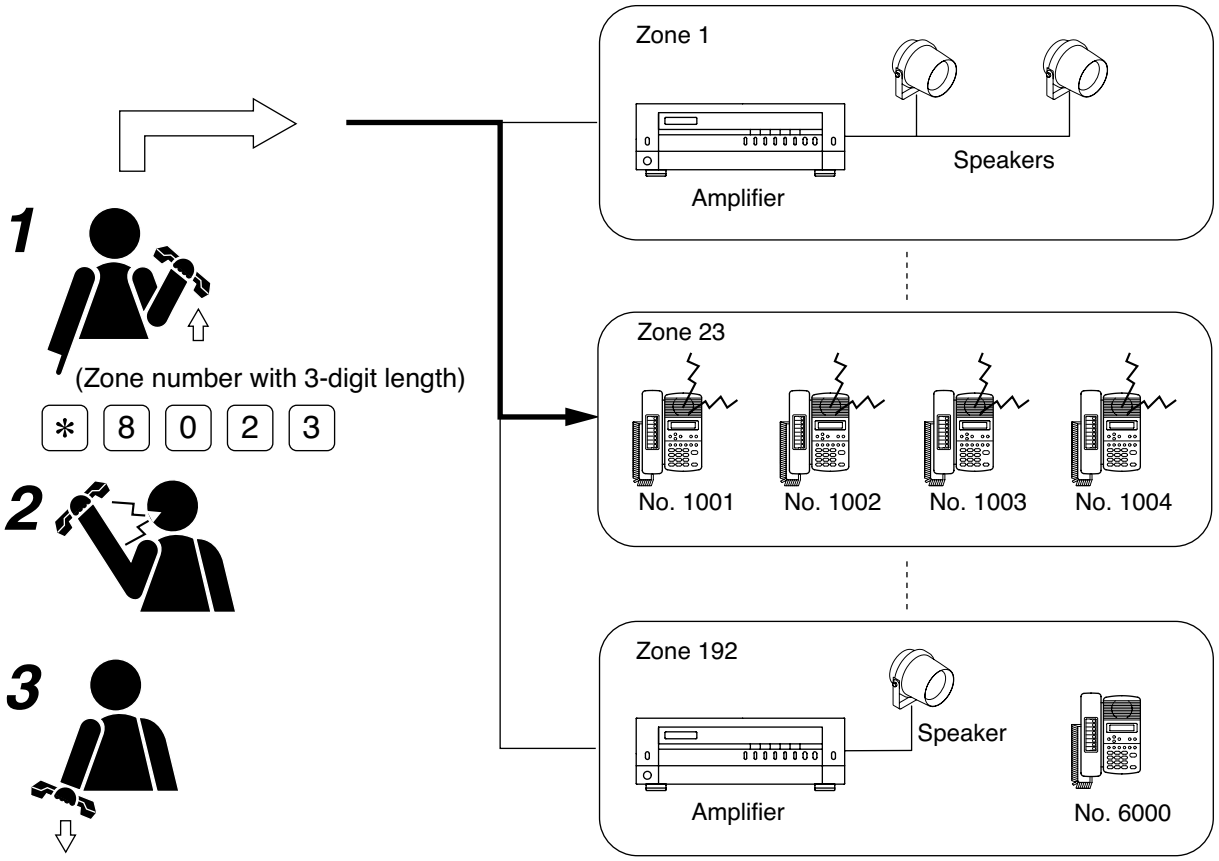
Step 1. Lift the handset, then press the [∗][8] keys, followed by the desired paging zone number (1 – 192).
A paging tone is transmitted to the selected zone.

Note
Enter a zone number with the digit length (1 – 3 digits) set by way of the N-8000 Setting Software.

Step 2. Page with the handset.
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32), announce the response zone number to the paged party in the paging message.

Step 3. Replace the handset.
The paging is completed.

[Example paging to the zone 23]



3.1.2. Selectable paging

Paging calls can be made to up to 50 preprogrammed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

Step 1. Lift the handset, then press the [∗][8][∗] keys, followed by the desired paging zone number (1 – 192).

Note
Enter a zone number with the digit length (1 – 3 digits) set with the N-8000 Setting Software.

Step 2. To select the zone numbers consecutively, press the [∗] key.

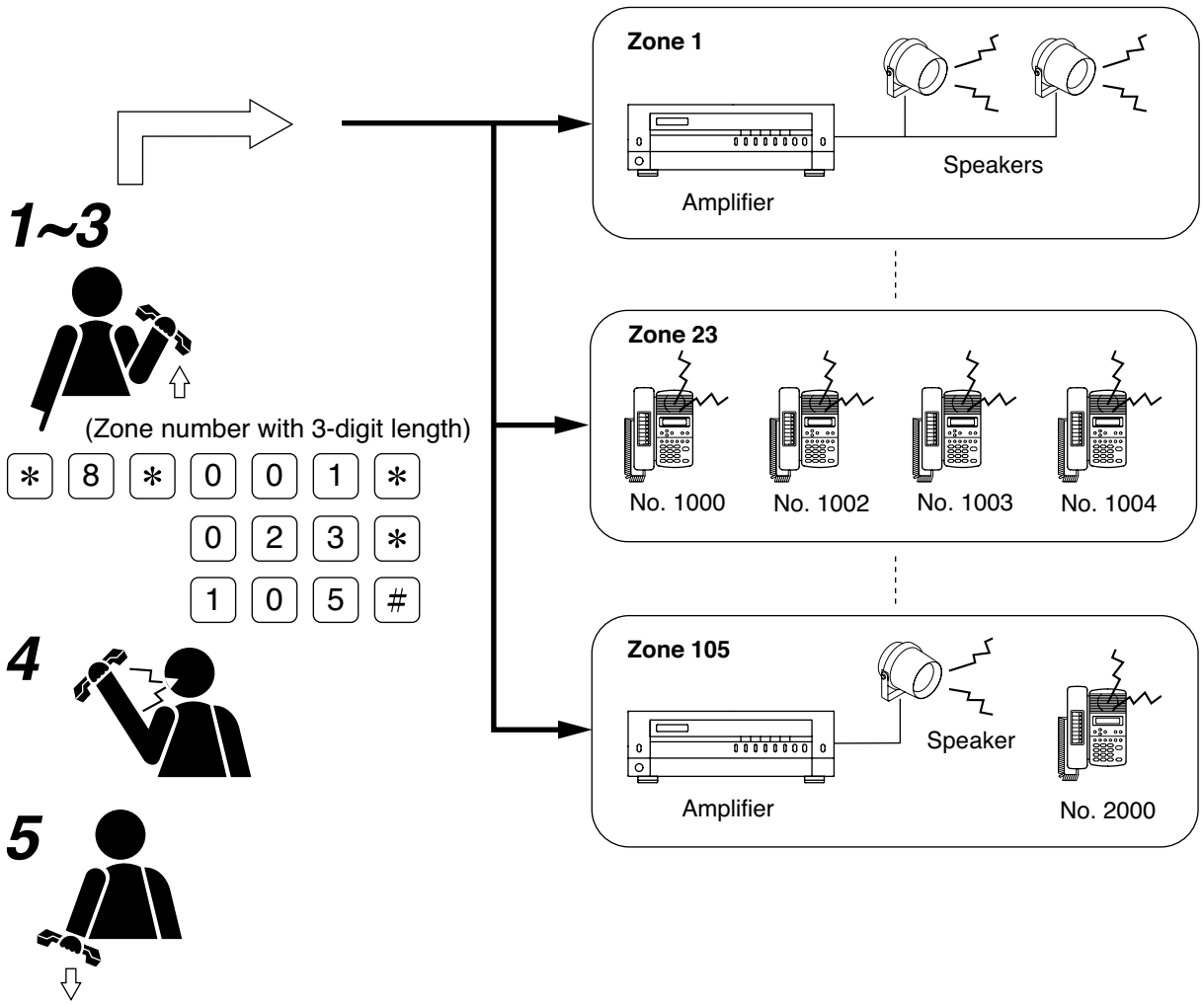
Step 3. To terminate the zone selection, press the [#] key following the zone number.
A paging tone is sounded in the selected zone(s).

Step 4. Page with the handset.

Note
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32.), announce the response zone number (any one of the paged zones) in the paging message.

Step 5. Replace the handset.
The paging is completed.

[Example paging to the zone 1, 23, and 105.]



3.1.3. All-call paging

Paging calls can be made simultaneously to all of the pre-programmed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

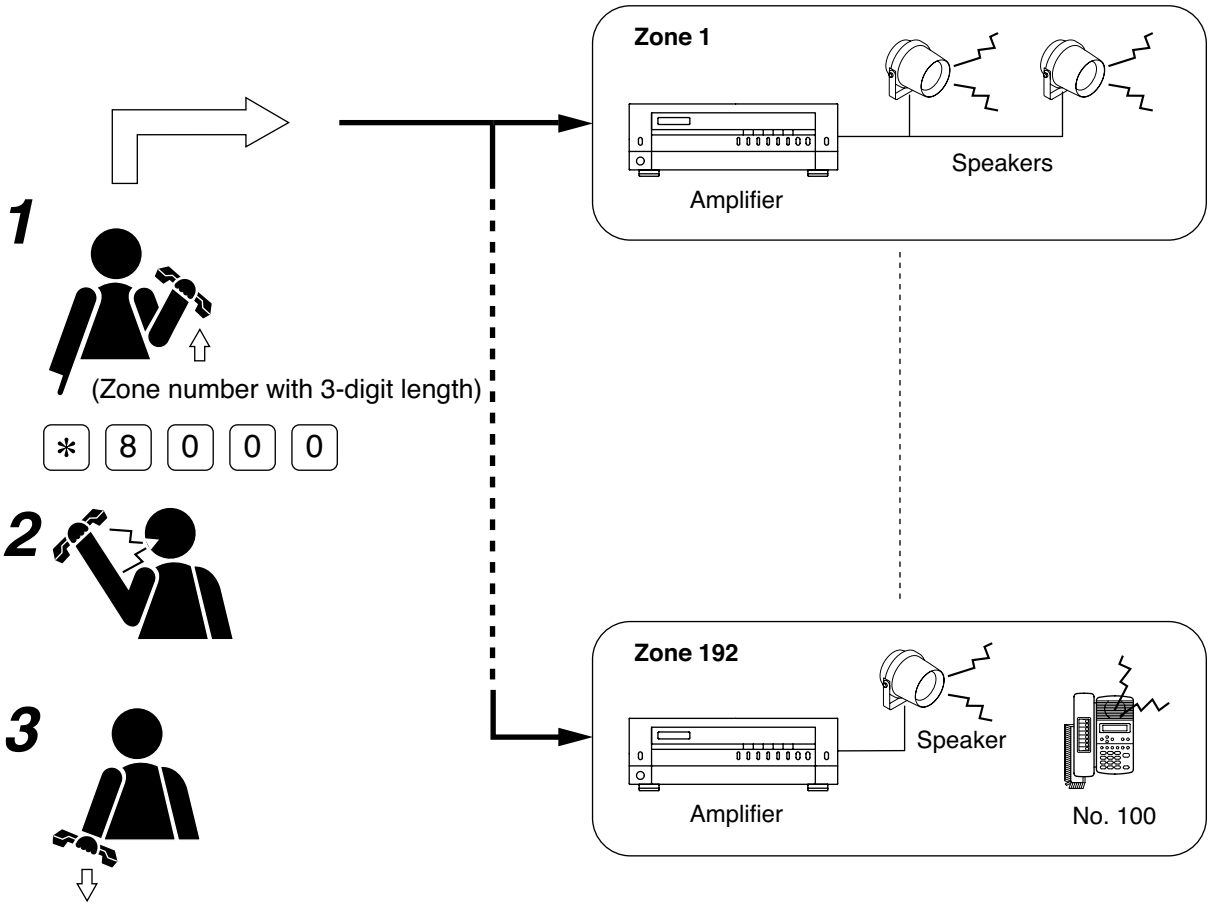
Step 1. Lift the handset, then press the [∗][8] keys, followed by the paging zone number 0 (for all-call paging). A paging tone is transmitted to all zones.

Note
Enter a zone number with the same digit length (1 – 3 digits) set with the N-8000 Setting Software.

Step 2. Page with the handset.

Note
If the system's paging response mode has been for Zone number designation response (refer to p. 2-32), notify the paged party to respond to [0] in the paging message.

Step 3. Replace the handset to terminate the paging.



3.1.4. Emergency paging

This function terminates all conversations, paging calls and other functions currently in progress throughout the system, and simultaneously makes a paging call to all of the pre-programmed zones.

Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

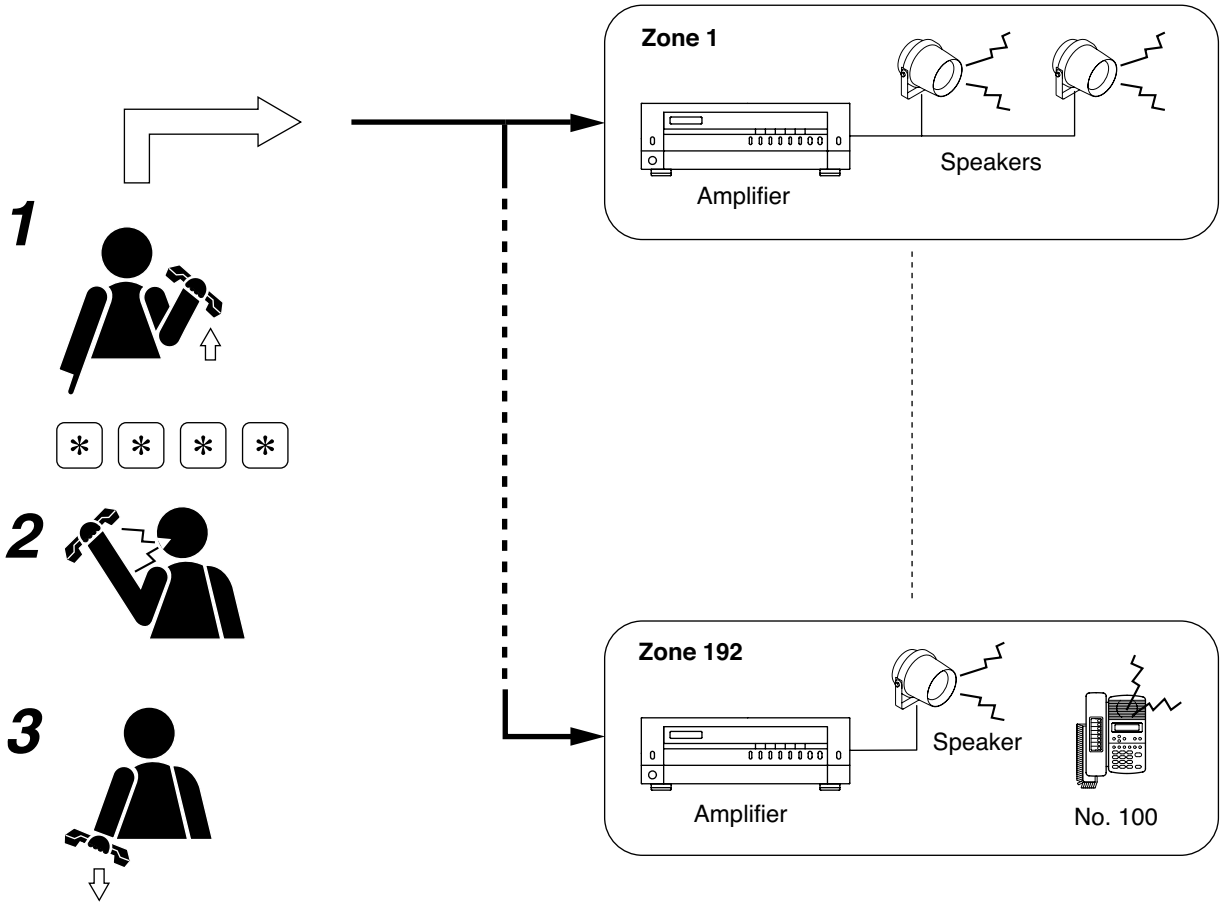
Step 1. Lift the handset, then press the [∗] key four times.
All functions currently in operation are terminated, transmitting a paging pre-announcement tone to all zones.

Step 2. Page with the handset.

Note
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32), notify the paged party to respond to [∗] in the paging message.

Step 3. Replace the handset to terminate the paging.

Note
Functions terminated by Emergency paging are not restored, even when the Emergency Page is completed.



3.1.5. Paging priority

[Emergency paging]

Emergency paging takes precedence over conversations, paging calls and all other functions. Initiating Emergency paging terminates all other functions currently in operation, and these functions are not restored even when the page is completed. Further, all other functions are disabled until the Emergency paging is completed.

[All-call paging, zone paging and selectable paging priorities]

The all-call paging has the highest priority, while the zone paging and selectable paging are the same in priority level.

- Initiating the all-call paging during the zone or selectable paging terminates the zone or selectable paging, allowing the all-call paging to go through.
- Initiating another paging of the same priority during a paging causes the later paging to be held busy when the paged station or in-use PA paging output overlaps.

[All paging function priorities]

Priorities are assigned in the following order.
• Emergency paging
• Message paging (Refer to p. 2-76.)
• External input broadcast (when priority is enabled) (Refer to p. 2-181.)
• All-call paging
• Zone paging and selectable paging

Note
For more information, read "Priorities" on p. 2-177.

3.2. Receiving Paging Calls (only Emergency pagings can be received)

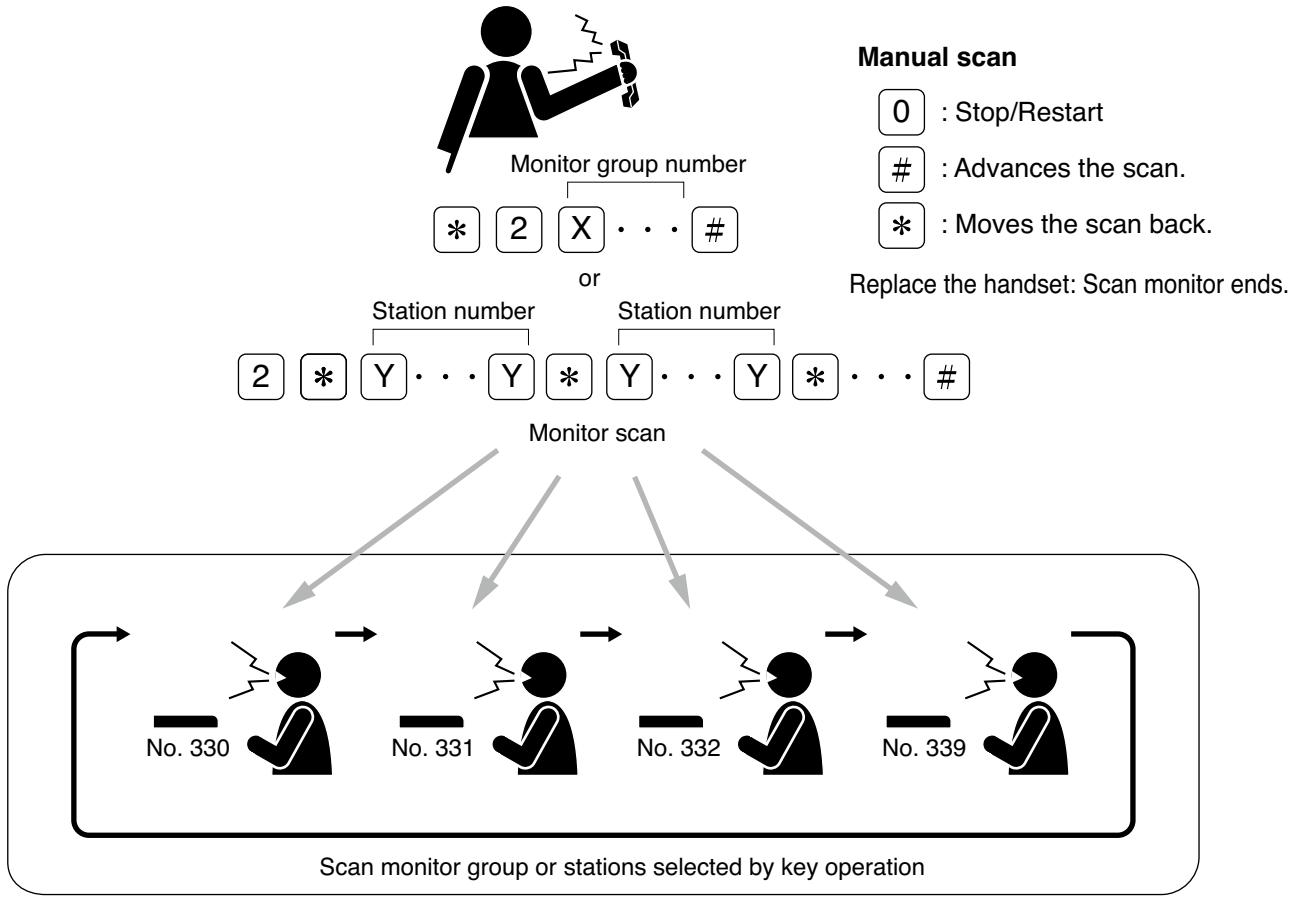
If a telephone connected to the N-8000AL Telephone Interface Unit receives an Emergency paging call, the call bell of that telephone rings.
The call bell is different from a normal call tone. (Refer to the List of Signal Tones on p. 2-193 to confirm.)
Lift the telephone handset to hear the paging content with the handset.

4. OTHER FUNCTIONS AND OPERATION

4.1. Scan Monitor

The telephone can scan arbitrary stations for auditory monitoring.
The station to be scan-monitored must be preprogrammed into a monitor group or can be selected each time by designating the station number.
The stations to be monitored are switched at specified time intervals in preprogrammed sequence or in order of being selected .
Up to 16 stations can be programmed to the same monitor group.
Up to 4 station groups (up to 64 stations) can be monitored in sequence from a single telephone.
Up to 16 stations can be selected by key operation.

- Use the supplied N-8000 Setting Software to set a monitor group, scan monitor duration, and the conditions of the stations to be monitored. (Refer to p. 5-69, 5-84.)
- Stations in use or in busy state are skipped and not monitored. The RS-140 Switch Panel set to Privacy mode is also skipped.



The station to be scan-monitored is preset to one of the following display modes using the N-8000 Setting Software:

[Display OFF]
The station remains in standby mode (status indicator unlit) even while being scan-monitored.
[Display ON]
The status indicator remains lit while the station is being scan-monitored.
[Display & Monitor Tone]
A start tone (key-touch tone) sounds when scan monitoring begins and the status indicator remains lit during monitoring.

Note
In the case of the RS-140/180/480, the status indicator does not light even if set to "Display ON" mode.

[Operation]

Step 1. Automatic Scan

1-1. When scan-monitoring the preprogrammed stations:
Press the [∗] and [2] keys, then monitor group number (1 – 4), followed by the [#] key.
When monitoring two or more groups, dial the group numbers consecutively.

1-2. When scan-monitoring by designating the station numbers:
Press the [∗], [2], [∗] keys, then the station number.
To select the station number consecutively, press the [∗] key.
To terminate the station selection, press the [#] key following the station number.

Scan monitoring is started and cycles through the station groups in preprogrammed sequence and at specified time intervals until its operation is manually stopped.

Step 2. Manual Scan

2-1. Stopping and restarting automatic scan
To continuously monitor a specified station, press the [0] key when that station is displayed to stop automatic scan operation. Pressing the [0] key again restores automatic scan operation.

2-2. Advancing a scan
Pressing the [#] key advances the scan by one station.

2-3. Moving back a scan
Pressing the [∗] key moves the scan back one station.

Step 3. Scan Monitor end
To end Scan monitor, replace the handset.

4.2. External Equipment Control

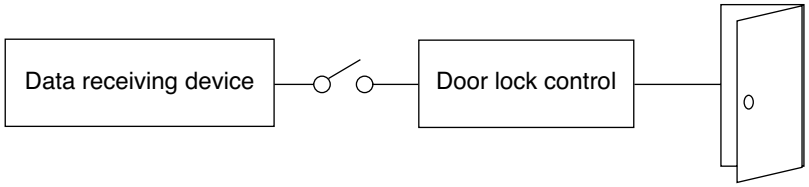
(only when the N-8000MI/8000DI/8000AF/8050DS/8540DS/8640DS/8650DS is used)

External equipment can be controlled by making the Multi-Interface Unit's, Direct Select Unit's, or Audio Interface Unit's contact output designated by telephone operation provide a one-shot make contact or make/break contact, or by making the designated door station's contact output provide a one-shot make contact.
For example, remote door lock control can be performed using the one-shot make output, and indication boards can be controlled using the make/break output.

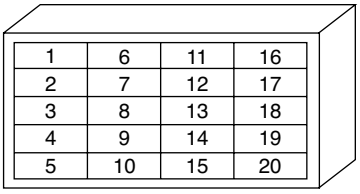
Note

Use the supplied N-8000 Setting Software to set the one-shot make duration, operation number digits, operation numbers, and the telephones allowed to control external equipment. (Refer to p. 5-35, 5-43, 5-49 , 5-62, 5-100, 5-106, 5-110, 5-114 , 5-117.)

[Door remote control example using one-shot make output control]



[Hospital waiting status indication board example using the make/break output]



1	6	11	16
2	7	12	17
3	8	13	18
4	9	14	19
5	10	15	20

[One-shot make output operation]

Press [∗][3][0] keys, then the access number for the contact corresponding to the external equipment to be controlled.

Function designation number Contact access No. (2 – 4 digits)

[∗] + [3] + [0] + [X] + ------- + [X]

[Make output operation]

Press [∗][3][1] keys, then the access number for the contact corresponding to the external equipment to be controlled.

Function designation number Contact access No. (2 – 4 digits)

[∗] + [3] + [1] + [X] + ------- + [X]

[Break output operation]

Press [∗][3][2] keys, then the access number for the contact corresponding to the external equipment to be controlled.

Function designation number Contact access No. (2 – 4 digits)

[∗] + [3] + [2] + [X] + ------- + [X]

[Door station one-shot make output operation (When the N-8050DS/8540DS is used)]

Press [∗][3][3] keys, then the door station number corresponding to the door station to be controlled.

Function designation number Door station No. (2 – 6 digits)

[∗] + [3] + [3] + [X] + ------- + [X]

[Door station one-shot make output operation (when the N-8640DS/8650DS is used)]

The N-8640DS/8650DS has 5 contact outputs. Function designation number differs depending on the contact output to be controlled.
Press the function designation number corresponding to the contact output, followed by the door station number to be controlled.

	Function designation number		Door station No. (2 – 6 digits)		
To control the contact output 1	✻ +	3 +	3 +	X + ------- +	X
To control the contact output 2	✻ +	3 +	4 +	X + ------- +	X
To control the contact output 3	✻ +	3 +	5 +	X + ------- +	X
To control the contact output 4	✻ +	3 +	6 +	X + ------- +	X
To control the contact output 5	✻ +	3 +	7 +	X + ------- +	X

4.3. Door Remote Control

(only when the N-8050DS/8540DS/8640DS/8650DS/8000MI/8000DI/8000AF is used)

N-8050DS/8540DS/8640DS/8650DS's contact outputs can be shorted for a set period of time by the dial operation at the telephone engaged in conversation with the N-8050DS Door Station or N-8540DS/8640DS/8650DS IP Door Station of which "Door station contact output" item is set to "Door remote control."
Similarly, the Multi interface unit's, Direct select unit's, or Audio interface unit's contact outputs can be shorted for a set period of time by the dial operation at the telephone engaged in conversation with a station.
For example, a door lock can be controlled by connecting the contact outputs to an electronic lock system.
Use the supplied N-8000 Setting Software to perform settings for the Door station contact output, the one shot make duration and the N-8000MI's/N-8000DI's contact output corresponding to each station. (Refer to p. 5-35, 5-37, 5-62, 5-64, 5-66, 5-80, 5-97, 5-100.)

[Operation (when using the contact outputs of the N-8050DS/8540DS/8000MI/8000DI/8000AF)]

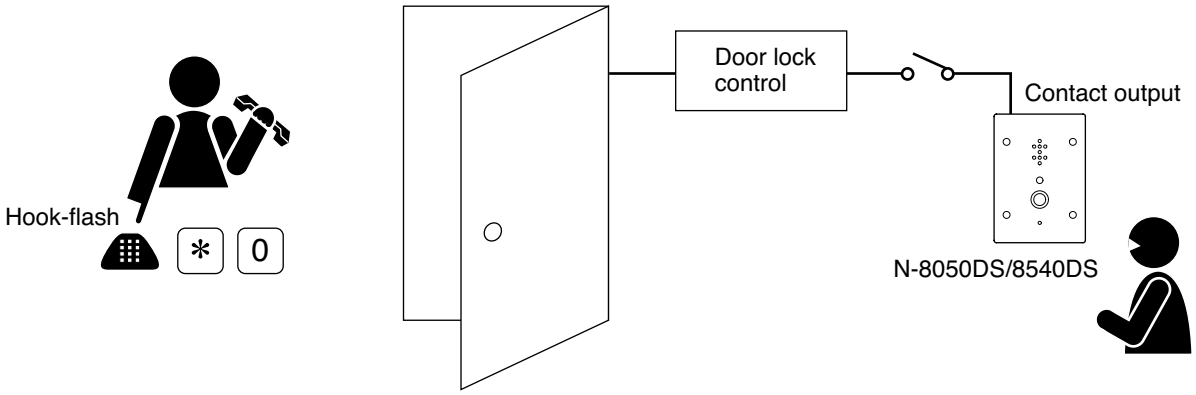
Step 1. Hook-flash* during a two-party conversation.
The current conversation is placed on hold, transmitting a hold tone to the other party.

* Momentarily depressing the receiver switch.

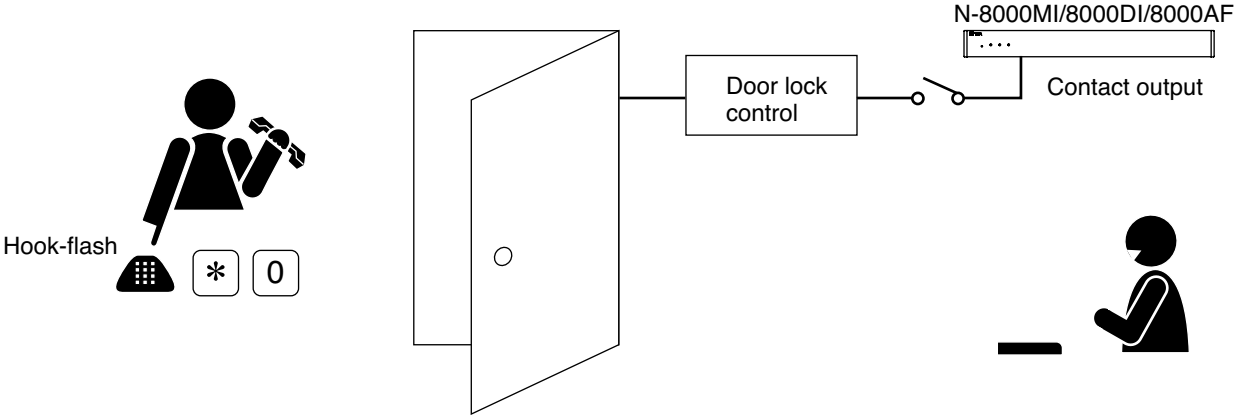
Step 2. Press the [∗][0] keys.
Contact outputs of N-8050DS/8540DS in conversation or the telephone's corresponding N-8000MI's, N-8000DI's, or N-8000AF's contact outputs can be shorted for a set period of time.
For example, the corresponding door lock can be released if contact outputs are connected to an electronic lock system.

Step 3. A confirmation tone sounds, and the original conversation is restored.

[Example of N-8050DS/8540DS operation]



[Example of N-8000MI/8000DI/8000AF operation]



[Operation (when using the contact outputs of the N-8640DS/8650DS)]

The N-8640DS/8650DS has 5 contact outputs. The contact output to be controlled can be selected through key operation.

Step 1. Hook-flash* during a two-party conversation.
The current conversation is placed on hold, transmitting a hold tone to the other party.

* Momentarily depressing the receiver switch.

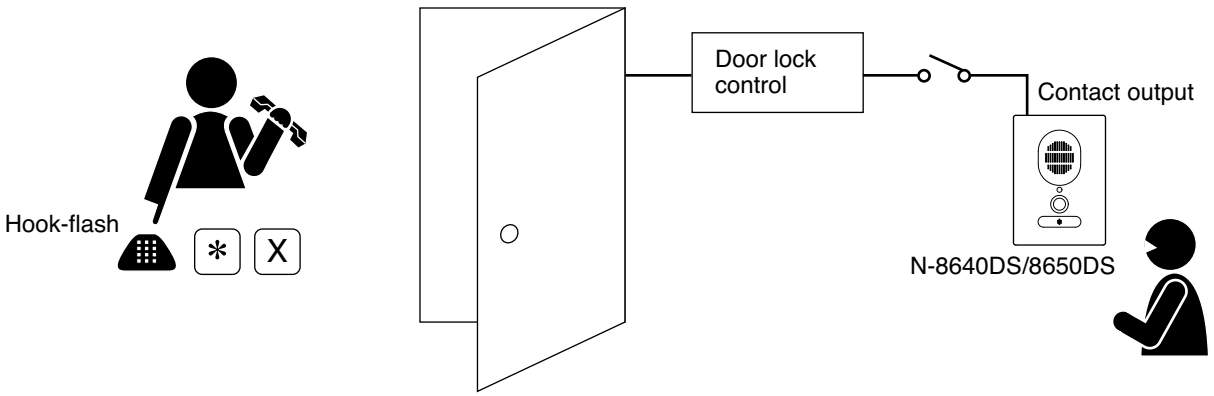
Step 2. Press the [*] key, followed by the designation number (0 – 4) for the contact output of the IP door station to be controlled.

Designation number for the contact output 1 (open collector) : 0
Designation number for the contact output 2 (open collector) : 1
Designation number for the contact output 3 (open collector) : 2
Designation number for the contact output 4 (open collector) : 3
Designation number for the contact output 5 (relay) : 4

Contact outputs of N-8640DS/8650DS in conversation can be shorted for a set period of time.
For example, the corresponding door lock can be released if contact outputs are connected to an electronic lock system.

Step 3. A confirmation tone sounds, and the original conversation is restored.

[Example of N-8640DS/8650DS operation]



X : Designation number for the contact output

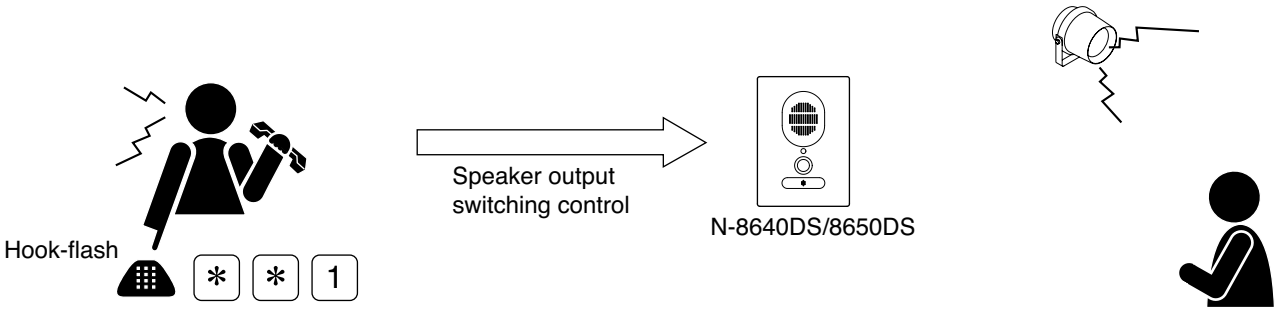
Contact output 1	0
Contact output 2	1
Contact output 3	2
Contact output 4	3
Contact output 5	4

4.4. IP Door Station's Speaker Output Switching Control
(only when the N-8640DS/8650DS is used)

The audio output destination of the N-8640DS/8650DS IP door station engaged in conversations with its telephone can be switched to either the internal speaker or the speaker connected to the external speaker terminal by the telephone's dial operation.
The switched audio output destination reverts to the speaker designated on the N-8000 Setting Software when the conversations terminate or when interrupted by paging with higher priority.

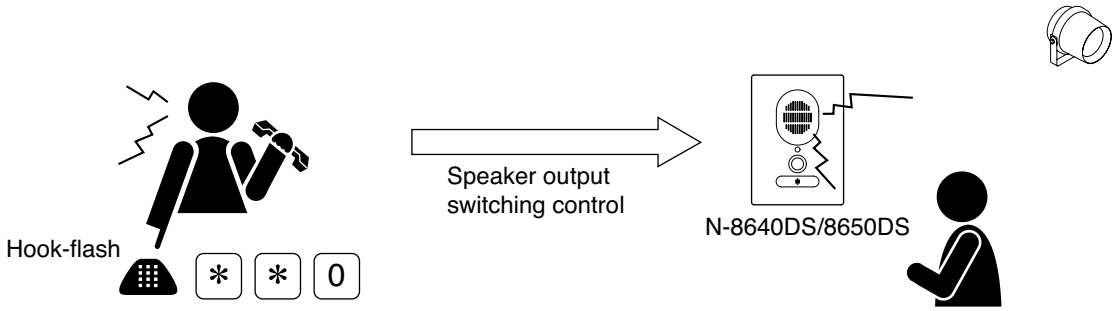
Notes
- If the called IP door station does not have this function, an error tone sounds at the telephone that made a dial operation, and the state returns to the conversation mode.
- The internal and external speakers cannot be used simultaneously.

4.4.1. When switching to the external speaker



Operate the telephone during conversation.

4.4.2. When switching to the internal speaker



Operate the telephone during conversation.

4.5. Access Code Authentication

Usage of the telephone can be restricted when the access code authentication is enabled.
Entering a preprogrammed 4-digit access code number before each function key number permits the telephone to be used as usual. Incorrect access code number entry will cause an access error.
Following are restricted functions: Functions to activate at the telephone such as calls, paging calls and scan monitoring, and functions to control through dial operations such as external equipment control and setting change for the original telephone.
Call receiving can be executed without the need for access code number entry.
Emergency paging call activation function, which has higher priority, can be used without entering an access code number.
Operation not in standby mode such as manual call transfer during conversation can be executed without entering an access code number.

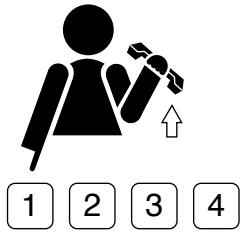
Tip: Use the supplied N-8000 Setting Software for access code authentication and access code number setting. (See p. 5-100)

4.5.1. Operation

The steps below show an example of making station call when access code authentication is enabled.

Step 1. Press the access code number (4-digit number).

(Access code number: Example when the password is 1234)



Step 2. Press the station number to call.

(Example when station number is 15)

5. TELEPHONE OPERATION TABLE

Function		Item	Operation	Remarks
Call/Response		Call	Dial station No. [X][X] ··· [X]	Station No.: 2 – 6 digits
		Response	Lift the handset.	
Conversation		Handset conversation	Conversation can be made by lifting the handset.	
Call transfer		Call transfer	Hook-flash during a conversation. →The other party is placed on hold. Dial the third party's station number. →Conversation with the third party. (Original conversation party is placed on hold). Replace the handset. →Call transfer completion	
		Returning to the original conversation	Hook-flash during a conversation. →The other party is placed on hold. Dial the third party's station number. →Conversation with the third party. (The original conversation party is placed on hold). Hook-flash again. →Return to the original conversation. (The original conversation is restored).	
Automatic call transfer	Call forwarding	Programming at your station	Dial [✻] [4] [1] [the designated station No.] [#] keys.	Station No: 2 – 6 digits
		Erasure at your station	Dial [✻] [4] [1] [your station No.] [#] keys.	
		Programming at the designated station	Dial [✻] [4] [2] [your station No.] [#] keys.	
	Time-based call forwarding	Programming	Dial [✻] [4] [3] [the designated station No.] [#] keys.	
		Erasure	Dial [✻] [4] [3] [your station No.] [#] keys.	
	Absence transfer	Programming	Dial [✻] [4] [4] [the designated station No.] [#] keys.	
		Erasure	Dial [✻] [4] [4] [your station No.] [#] keys.	
	Group hunting	Programming	Dial [✻] [4] [5] [the designated station No.] [#] keys.	
		Erasure	Dial [✻] [4] [5] [your station No.] [#] keys.	
Executive priority			If a called station is busy, press the [9] key.	
Scan monitor		Start	Dial [✻] [2] [Monitor group No.] [Monitor group No.] ··· [#] keys. or Dial [✻] [2] [✻] [Monitored station No.] [✻] [Monitored station No.] ··· [#] keys.	Monitor group No.: 1 – 4 Monitored station No.: 2 – 6 digits Dial during monitoring
		Stop/Restart	Press [0] to stop. Press [0] again to restart.	
		Advancing Scan	Press [#] key to advance the scan by one station.	
		Reverse Scan	Press [✻] key to move the scan back one station.	
		End	Replace the handset.	
Paging		Zone paging	Dial [✻] [8] [Zone No.] keys.	
		Selectable paging	Dial [✻] [8] [✻] [Zone No.] [✻] [Zone No.] ··· [Zone No.] [#] keys.	Zone No.: 1 – 3 digits
		All-call paging	Dial [✻] [8] [0] keys.	
		Emergency paging	Dial [✻] [✻] [✻] [✻] keys.	
Receiving emergency paging calls			Lift the handset.	
External equipment control		One-shot make output	Dial [✻] [3] [0] [contact access number] keys.	Contact access number: 2 – 4 digits Designation number for the contact output: Contact output 1 = 3 Contact output 2 = 4 Contact output 3 = 5 Contact output 4 = 6 Contact output 5 = 7
		Make output	Dial [✻] [3] [1] [contact access number] keys.	
		Break output	Dial [✻] [3] [2] [contact access number] keys.	
		Door station one-shot make output	(When using the N-8050DS/8540DS) Dial [✻] [3] [3] [Door station No.] keys. (When using the N-8640DS/8650DS) Dial [✻] [3] [Designation number for the contact output No.] [Door station No.] keys.	

Function	Item	Operation	Remarks
External equipment control	Speaker output switching control	(When switching to the internal speaker) Hook-flash during a conversation with the N-8640DS/8650DS, then dial [✻] [✻] [0] keys. (When switching to the external speaker) Hook-flash during a conversation with the N-8640DS/8650DS, then dial [✻] [✻] [1] keys.	
Door remote		(When using the N-8050DS/8540DS) Hook-flash during a conversation with the N-8050DS/8540DS, then dial [✻] [0] keys. (When using the N-8640DS/8650DS) Hook-flash during a conversation with the N-8640DS/8650DS, then dial [✻] [Designation number for the contact output No. keys.	Designation number for the contact output: Contact output 1 = 0 Contact output 2 = 1 Contact output 3 = 2 Contact output 4 = 3 Contact output 5 = 4
Access code authentication		Dial [Access code number] before performing key operation.	Access code number: 4-digit number

OPERATION FROM AN OUTSIDE LINE
(only when the N-8000CO is used)

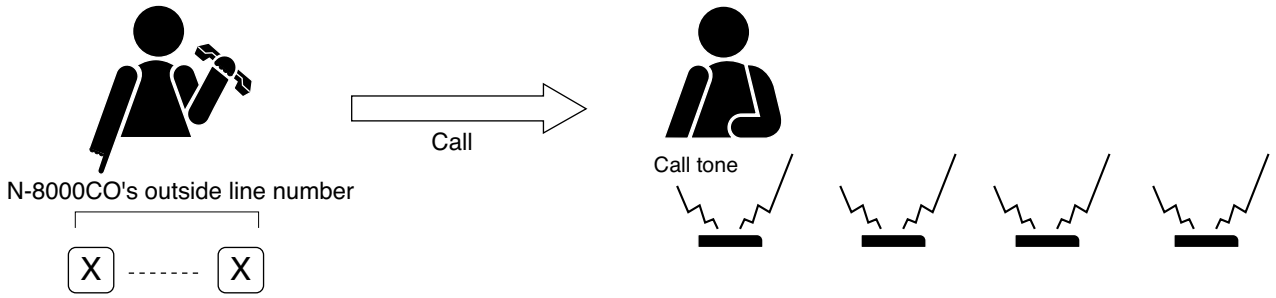
1. CALLING A STATION

Direct-In Line and Direct-In Dialing functions allow the N-8000 system to receive calls from an outside line telephone. The method used to call the station differs between the two.

1.1. Direct-In Line Calls

If the N-8000CO C/O Line Interface Unit is set for the Direct-In Line, up to four preprogrammed stations can be simultaneously called.

Dial the N-8000CO's outside line number.
A call tone is sounded at the four preprogrammed stations.
If one of the four stations responds, the telephone call is put through to that station.
Note
If the called master station does not respond within 30 seconds, the call is disconnected from the line.

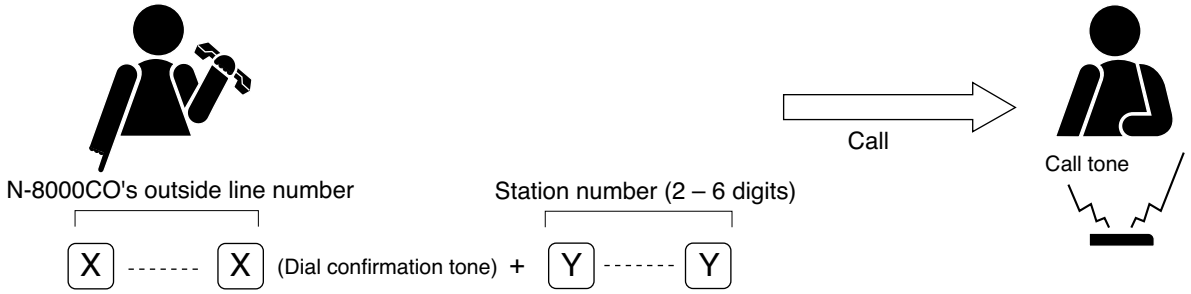


1.2. Direct-In Dialing Calls

If the N-8000CO C/O Line Interface Unit is set for Direct-In Dialing, a single station is designated and called.

Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the confirmation tone, dial the desired station number to call.
A call tone is sounded at the called station.
When the called party answers, conversation can be started.
Notes
- If there is a pause of 5 seconds during dialing operation, this is regarded as an error, and the attempted call is disconnected from the line.
- If the called master station does not respond within 30 seconds, the call is disconnected from the line.



2. PAGING

If the N-8000CO C/O Line Interface Unit is set to receive Direct-In Dialing calls as well operate paging calls, N-8000 system paging can be initiated from the outside line telephone.
Also, a paging time limit can be set by programming a time limit (in 10 seconds units from 10 – 990 sec.) into each N-8000CO unit.

Note
Use the N-8000 Setting Software to enable or disable Direct-In Dialing and paging, and set the paging time limit. (Refer to p. 5-90.)

2.1. Zone Paging

Paging calls can be made to one of the pre-programmed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the confirmation tone, press the [∗][8] keys, w then the zone number (1 – 192) to be paged.
A paging tone is transmitted to the selected zone.

Note
Enter a zone number with the digit length (1 – 3 digits) set by way of the N-8000 Setting Software.

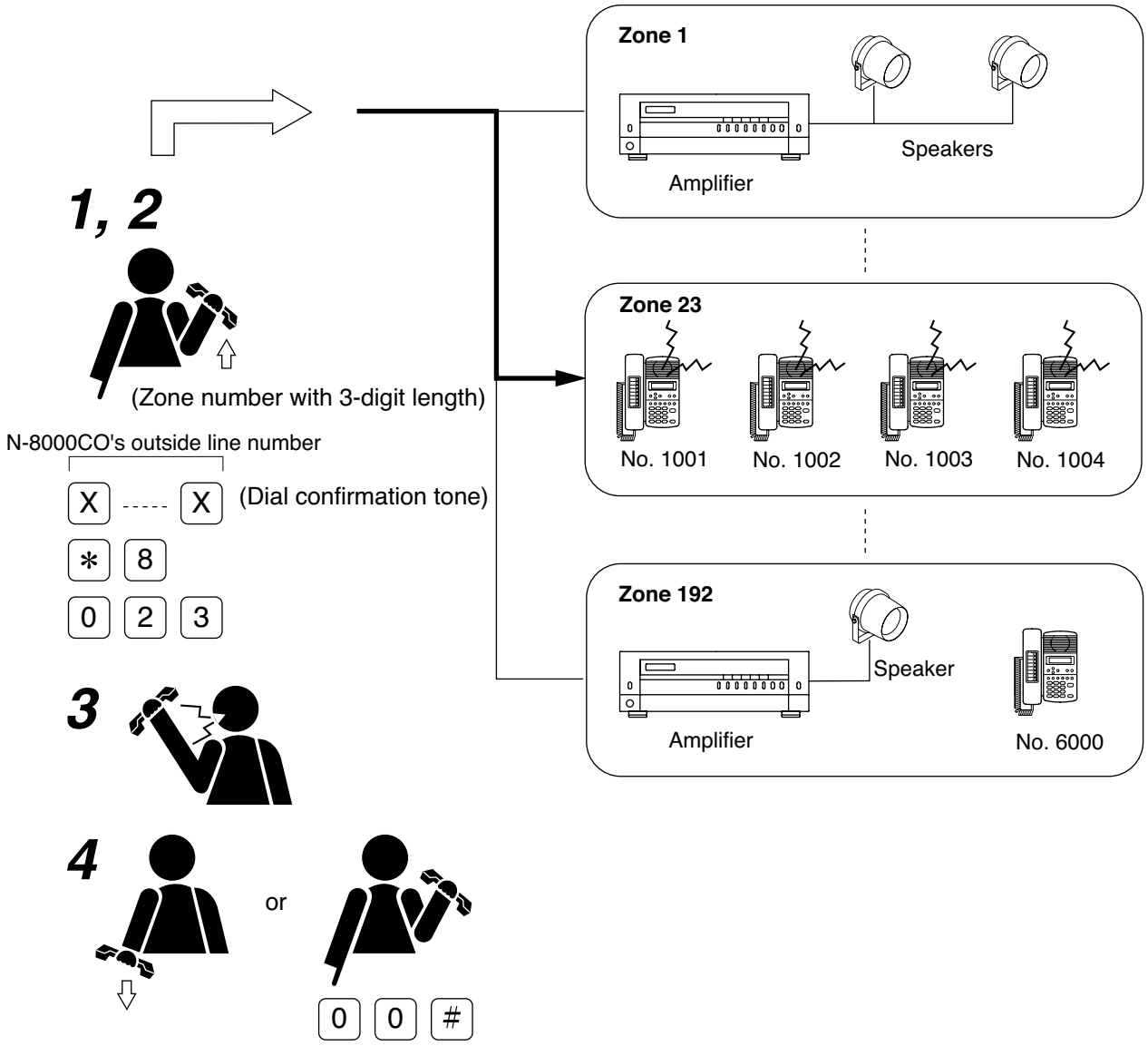
Step 3. Page with the handset.

Note
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32), announce the response zone number to the paged party in the paging message.

Step 4. Either replace the handset or press the [0][0][#] keys.
The paging is completed.

Notes
- A repeated busy tone is heard at paged stations if the handset is replaced to terminate paging.
- If paging is terminated by [0][0][#] key operation, the DTMF signal tones of these keys are heard at paged stations.

[Example paging to the zone 23]



2.2. Selectable Paging

Paging calls can be made to up to 50 preprogrammed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the confirmation tone, press the [∗][8] keys, then [∗] key, followed by the desired paging zone number (1 – 192).

Note
Enter a zone number with the digit length (1 – 3 digits) set by way of the N-8000 Setting Software.

Step 3. To select the zone numbers consecutively, press the [∗] key.

Step 4. To terminate the zone selection, press the [#] key following the zone number.
A paging tone is sounded in the selected zone(s).

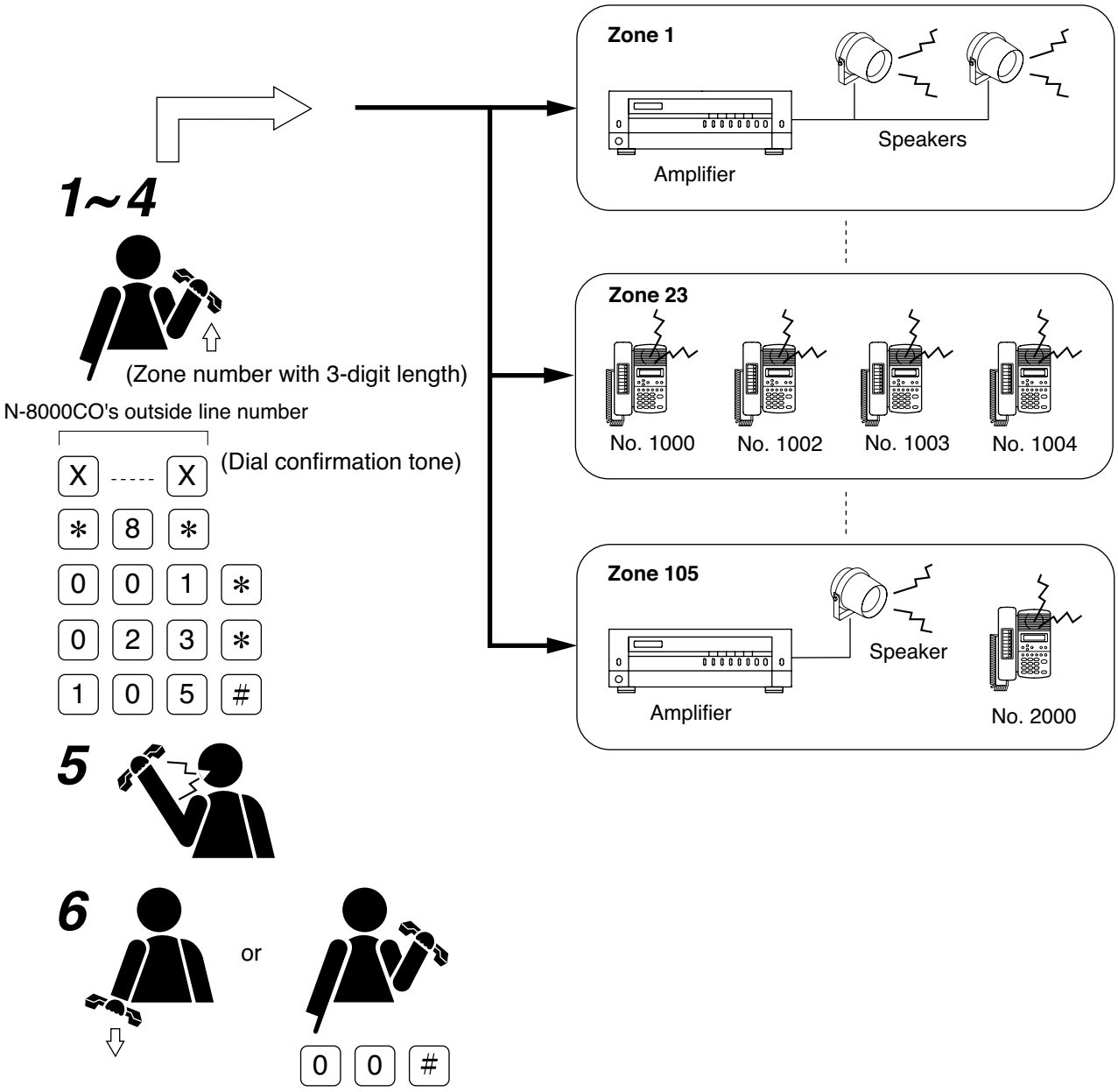
Step 5. Page with the handset.

Note
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32.), announce the response zone number (any one of the paged zones) to the paged party in the paging message.

Step 6. Either replace the handset or press the [0][0][#] keys.
The paging is completed.

Notes
- A repeated busy tone is heard at paged stations if the handset is replaced to terminate paging.
- If paging is terminated by [0][0][#] key operation, the DTMF signal tones of these keys are heard at paged stations.

[Example paging to the zone 1, 23, and 105.]



2.3. All-Call Paging

Paging calls can be made simultaneously to all of the pre-programmed zones.
Use the supplied N-8000 Setting Software to set the paging zones. (Refer to p. 5-121.)

Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the confirmation tone, press the [∗][8] keys, followed by the paging zone number 0 (for all-call paging).
A paging tone is transmitted to all zones.

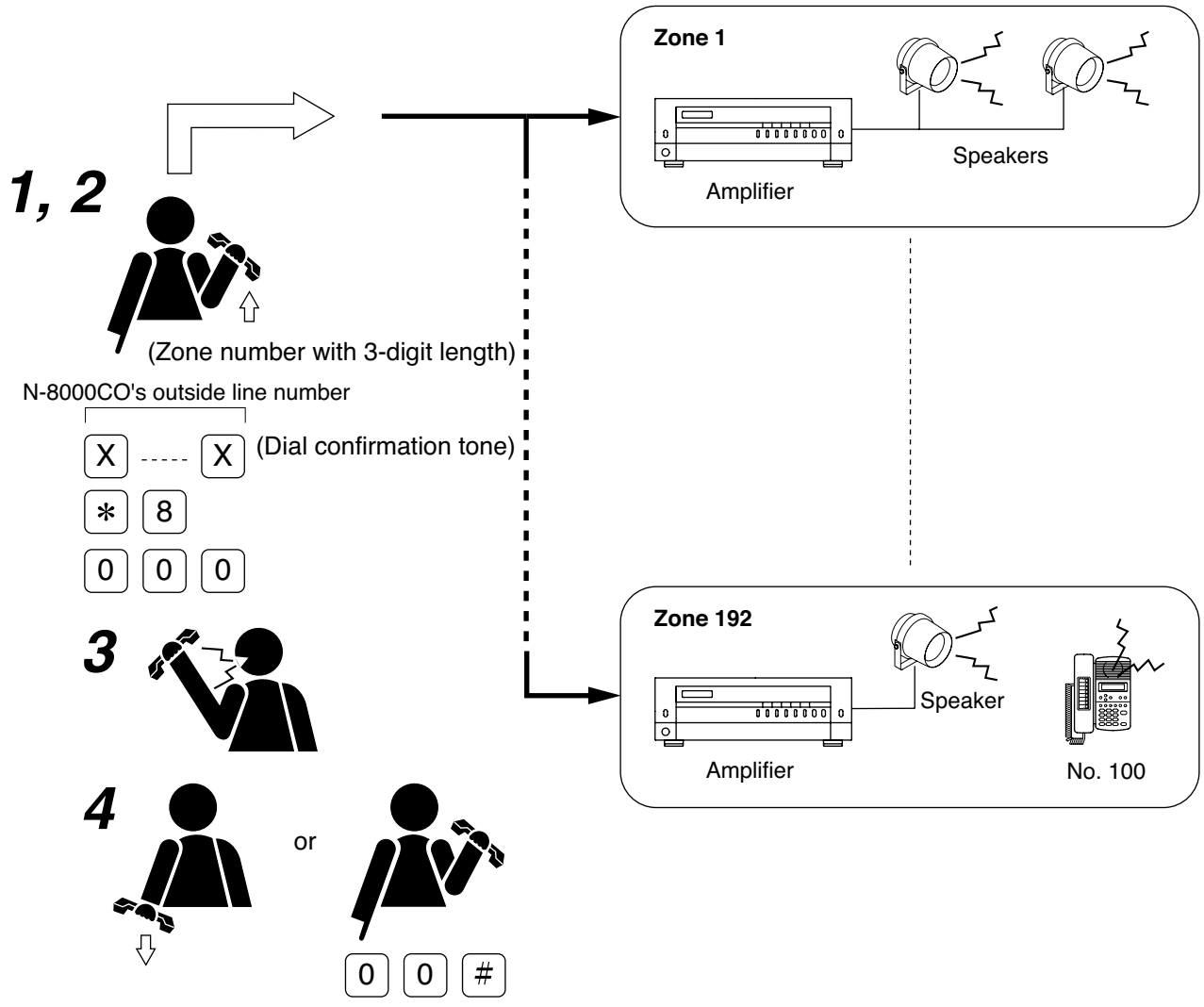
Note
Enter a zone number with the digit length (1 – 3 digits) set with the N-8000 Setting Software.

Step 3. Page with the handset.

Note
If the system's paging response mode has been set for Zone number designation response (refer to p. 2-32), notify the paged party to respond to [0] in the paging message.

Step 4. Either replace the handset or press the [0][0][#] keys.
The paging is completed.

Notes
- A repeated busy tone is heard at paged stations if the handset is replaced to terminate paging.
- If paging is terminated by [0][0][#] key operation, the DTMF signal tones of these keys are heard at paged stations.

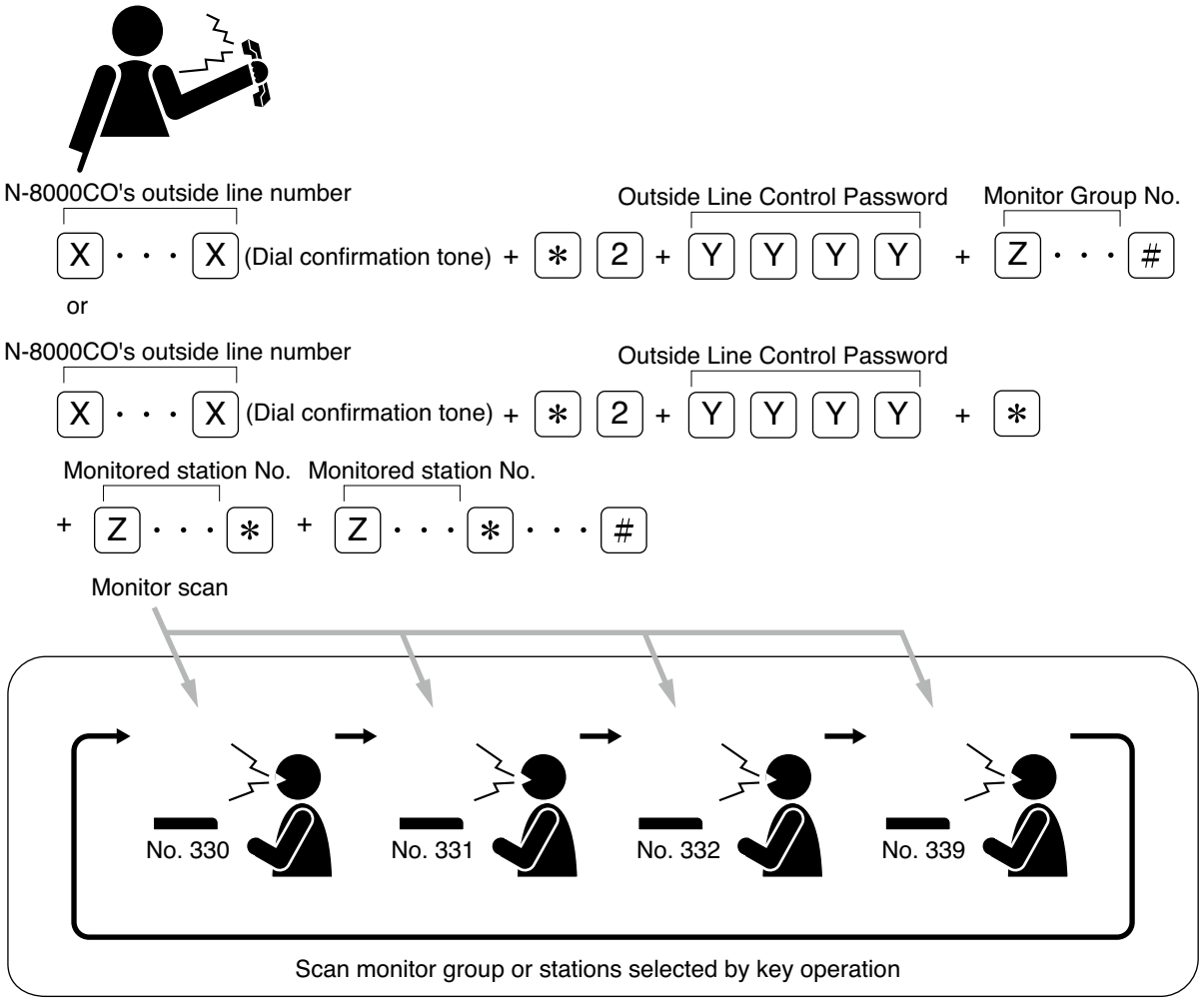


3. OTHER FUNCTIONS AND OPERATION

3.1. Scan Monitor

If the N-8000CO C/O Line Interface Unit is set to allow scan monitor operation, the outside line telephone can scan arbitrary stations for auditory monitoring. It is also possible to set an outside line control password to be used when dialing from the outside line telephone.
The station to be scan-monitored must be preprogrammed into a monitor group or can be selected each time by designating the station number.
The stations to be monitored are switched at specified time intervals in preprogrammed sequence or in order of being selected .
It is not possible to stop or restart the scan-monitor operation during monitoring of the stations from the outside line telephone.
Up to 16 stations can be programmed to the same monitor group.
Up to 4 station groups (up to 64 stations) can be monitored in sequence from a single outside line telephone.
Up to 16 stations can be selected by key operation.

- Use the N-8000 Setting Software to enable or disable the scan monitor, and setup the outside line control password, monitor groups and scanning time. (Refer to p. 5-92.)
- If the outside line connection timeout is set to be shorter than the scan monitor operation time, the outside line connection timeout takes precedence and is disconnected from the line before the set scan monitor time ends.



The station to be scan-monitored is preset to one of the following display modes using the N-8000 Setting Software:

[Display OFF]
The station remains in standby mode (status indicator unlit) even while being scan-monitored.
[Display ON]
The status indicator remains lit while the station is being scan-monitored.
[Display & Monitor Tone]
A start tone (key-touch tone) sounds when scan monitoring begins and the status indicator remains lit

during monitoring.

Note

In the case of the RS-140/180/480, the status indicator does not light even if set to "Display ON" mode.

[Operation]

Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

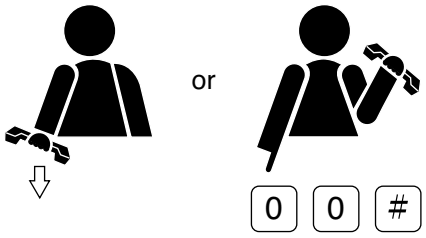
Step 2. Automatic Scan

2-1. When scan-monitoring the preprogrammed stations:
After hearing the dial confirmation tone, press the [∗][2][Outside Line Control Password* (4 digits)] [Monitor Group No. (1 – 4)][#] keys in sequence.
* The outside line control password is required only when it has been set.
Note: When monitoring two or more groups, press the group numbers consecutively.

2-2. When scan-monitoring by designating the station numbers:
After hearing the dial confirmation tone, press the [∗][2][Outside Line Control Password* (4 digits)] [∗][Station No.] keys in sequence.
To select the station numbers consecutively, press the [∗] key.
To terminate the station selection, press the [#] key.
* The outside line control password is required only when it has been set.

- Scan monitoring starts and cycles through the station groups in preprogrammed sequence or in order of being selected at specified time intervals until its operation is manually stopped (Step 3).
- When the station to be monitored is switched to another, a monitor start tone (key touch tone) is heard at the outside line telephone.
- When the station to be monitored is busy, a 1-sec. busy tone is transmitted to the outside line telephone.

Step 3. Either replace the handset or press the [0][0][#] keys.
The scan monitor ends.



3.2. Time Signal (only when the N-8000AF is used)

Change, suspension, confirmation, reservation, and reservation confirmation of the time signal schedule can be made from the outside line telephone when the Direct-In Dialing function is set to the N-8000CO unit.
It is also possible to set an outside line control password to be used when dialing from the outside line telephone.
Use the N-8000 Setting Software to enable or disable the direct-in line function, and setup the outside line control password. (Refer to p. 5-26, 5-90.)

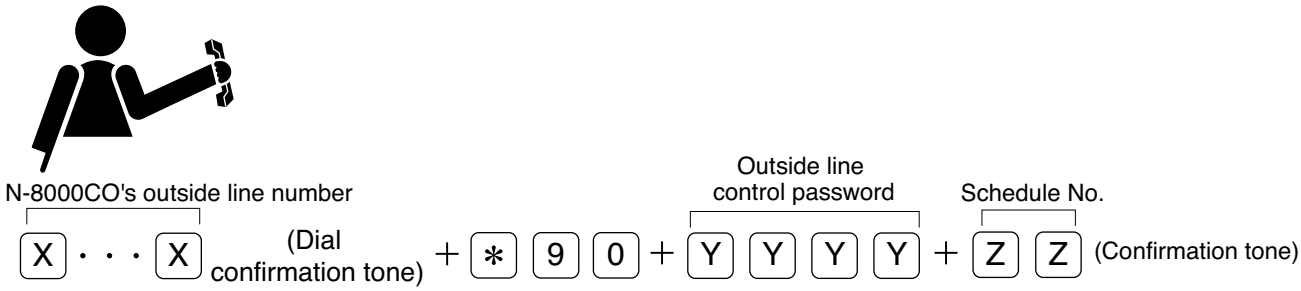
3.2.1. Changing time signal schedules

The System Time Signal schedule can be changed through operation from the outside line telephone.

[Operation]

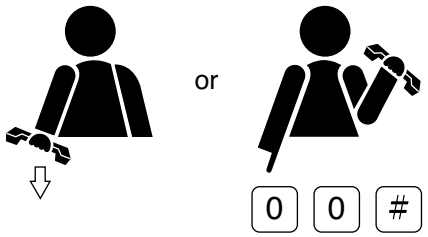
Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the dial confirmation tone, press the [∗][9][0][Outside Line Control Password* (4 digits)] [Schedule No. (01-16)] keys in sequence.
A confirmation tone can be heard at the calling party, and the time signal schedule changes to the designated one.
* The outside line control password is required only when it has been set.



Tip
Following that, the calling party can confirm the changed time signal schedule.
Perform Step 2 in "Time signal schedule confirmation" (refer to p. 2-169) within 10 seconds after a confirmation tone is heard.
The line is cut off if incorrect dialing operation is performed or there is a pause of 10 seconds during dialing operation.

Step 3. Either replace the handset or press the [0][0][#] keys.



Note
The contents set through operation from the outside line telephone are saved to the N-8000AF unit once a day (at 00:00 AM).
If the N-8000AF is turned off before the contents are saved, the time signal schedule returns to the setting contents that were programmed before power-off.

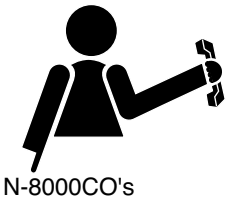
3.2.2. Suspending time signal schedules

The System Time Signal schedule can be suspended through operation from the outside line telephone.
To restart the suspended schedules, change the time signal schedule. (Refer to p. 2-167.)

[Operation]

Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the dial confirmation tone, press the [✻][9][0][Outside Line Control Password* (4 digits)][0][0] keys in sequence.
A confirmation tone can be heard at the calling party, and the time signal schedule changes to the designated one.
* The outside line control password is required only when it has been set.

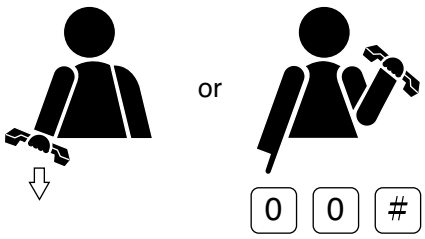


N-8000CO's outside line number — Outside line control password

[X] · · · [X] (Dial confirmation tone) + [✻] [9] [0] + [Y] [Y] [Y] [Y] + [0] [0] (Confirmation tone)

Tip
Following that, the calling party can confirm the changed time signal schedule.
Perform Step 2 in "Time signal schedule confirmation" (refer to p. 2-169) within 10 seconds after a confirmation tone is heard.
The line is cut off if incorrect dialing operation is performed or there is a pause of 10 seconds during dialing operation.

Step 3. Either replace the handset or press the [0][0][#] keys.



Note
The contents set through operation from the outside line telephone are saved to the N-8000AF unit once a day (at 00:00 AM).
If the N-8000AF is turned off before the contents are saved, the time signal schedule returns to the setting contents that were programmed before power-off.

3.2.3. Time signal schedule confirmation

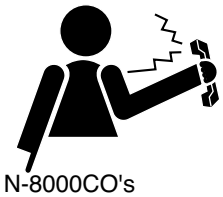
The System Time Signal schedule can be confirmed through operation from the outside line telephone.
With an audible tone through the telephone, its schedule can be confirmed by operations from the outside line telephone.

[Operation]

Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the dial confirmation tone, press the [∗][9][2][Outside Line Control Password*1 (4 digits)] keys in sequence.
The calling party can hear a schedule tone*2, followed by a confirmation tone (ding-dong).
But only a confirmation tone can be heard during time signal schedule suspension.

*1 The outside line control password is required only when it has been set.
*2 A beep is used to indicate the figure "1" and a long beep to indicate the figure "5." All schedule numbers are indicated using beep tones.
(Example)
In the case of Schedule No. 3: beep-beep-beep
In the case of Schedule No. 5: A long beep
In the case of Schedule No. 7: A long beep-beep-beep
In the case of Schedule No. 10: A long beep-a long beep

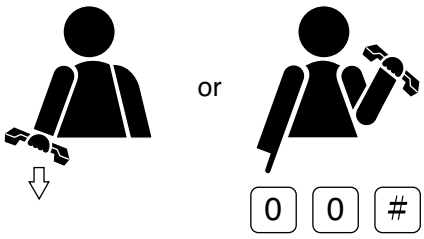


N-8000CO's outside line number

Outside line control password

[X] · · · [X] (Dial confirmation tone) + [∗] [9] [2] + [Y] [Y] [Y] [Y] (schedule tone) (Confirmation tone)

Step 3. Either replace the handset or press the [0][0][#] keys.



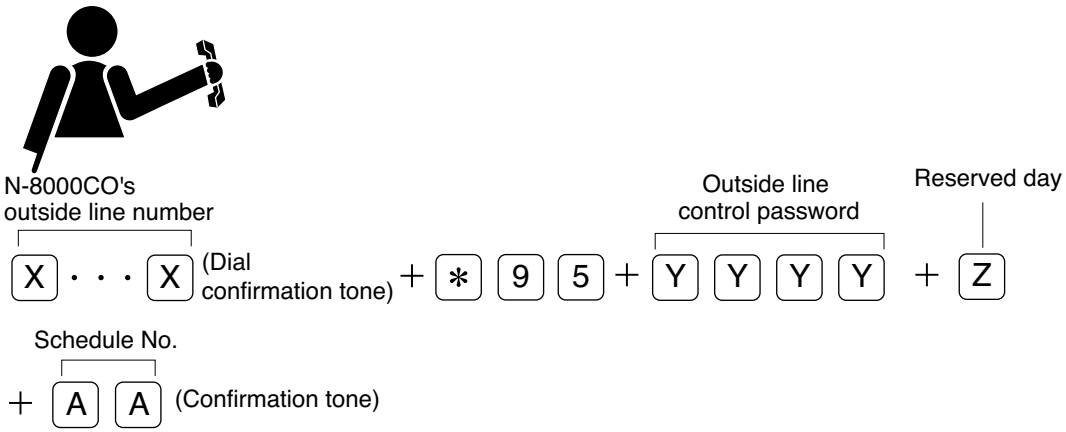
3.2.4. Reserving the time signal schedule change

The System Time Signal schedule can be reserved through operation from the outside line telephone.
To set the reserved day, designate the day from one (next day) to 9 days later by number (1 – 9) after performing the reservation operation.
The reserved schedule is executed at 00:00 AM on the reserved day.

[Operation]

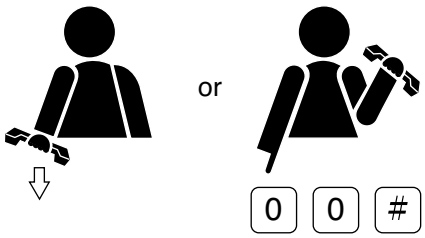
Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the dial confirmation tone, press the [∗][9][5][Outside Line Control Password* (4 digits)] [Reserved day (1 – 9)][Schedule No. (01 – 16)] keys in sequence.
The calling party can hear a confirmation tone, and the changed time signal schedule is reserved.
* The outside line control password is required only when it has been set.



Tip
Following that, the calling party can confirm the changed time signal schedule.
Perform Step 2 in "Confirming the reserved time signal schedule" (refer to p. 2-172) within 10 seconds after a confirmation tone is heard.
The line is cut off if incorrect dialing operation is performed or there is a pause of 10 seconds during dialing operation.

Step 3. Either replace the handset or press the [0][0][#] keys.



Note
The contents set through operation from the outside line telephone are saved to the N-8000AF unit once a day (at 00:00 AM).
If the N-8000AF is turned off before the contents are saved, the time signal schedule returns to the setting contents that were programmed before power-off.

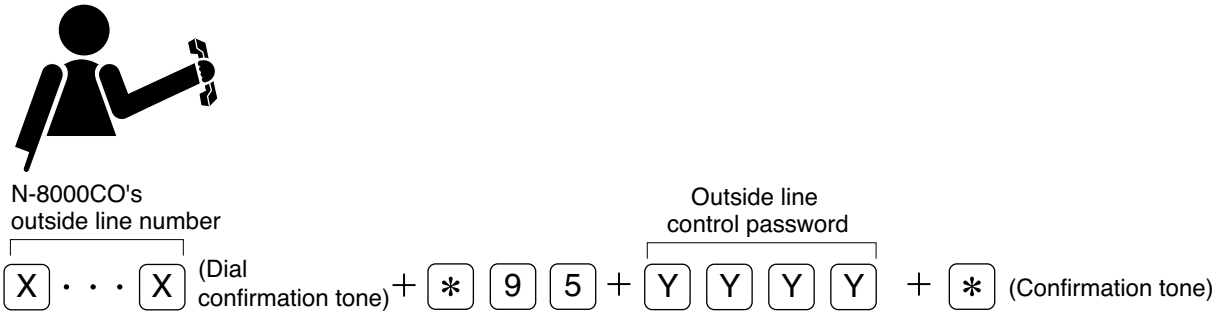
3.2.5. Cancelling the reserved time signal schedule

The System Time Signal schedule reservation can be cancelled through operation from the outside line telephone.

[Operation]

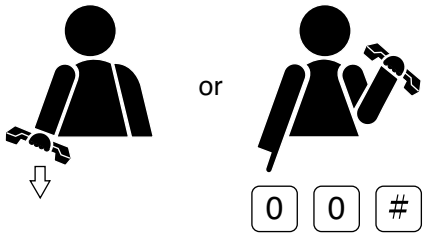
Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the dial confirmation tone, press the [∗][9][5][Outside Line Control Password* (4 digits)] [∗] keys in sequence.
The calling party can hear a confirmation tone, and the reserved time signal schedule is cancelled.
* The outside line control password is required only when it has been set.



Tip
Following that, the calling party can confirm the changed time signal schedule.
Perform Step 2 in "Confirming the reserved time signal schedule" (refer to p. 2-172) within 10 seconds after a confirmation tone is heard.
The line is cut off if incorrect dialing operation is performed or there is a pause of 10 seconds during dialing operation.

Step 3. Either replace the handset or press the [0][0][#] keys.



Note
The contents set through operation from the outside line telephone are saved to the N-8000AF unit once a day (at 00:00 AM).
If the N-8000AF is turned off before the contents are saved, the time signal schedule returns to the setting contents that were programmed before power-off.

3.2.6. Confirming the reserved time signal schedule

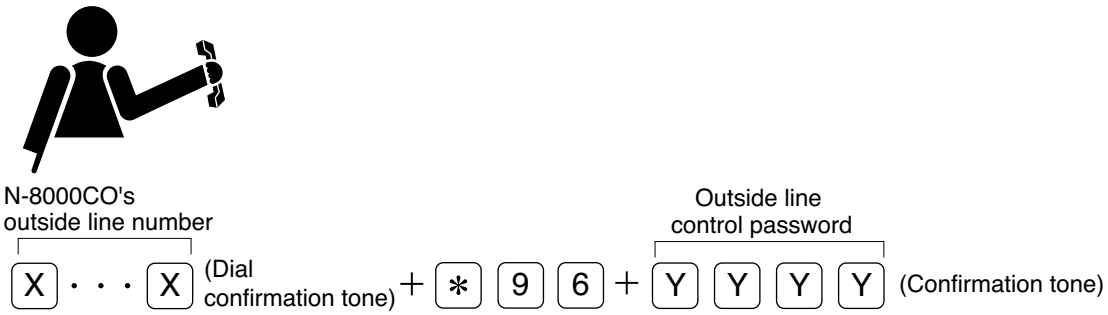
The System Time Signal schedule reservation can be confirmed through operation from the outside line telephone.
With an audible tone through the outside line telephone, its schedule reservation can be confirmed by operations from the outside line telephone.

[Operation]

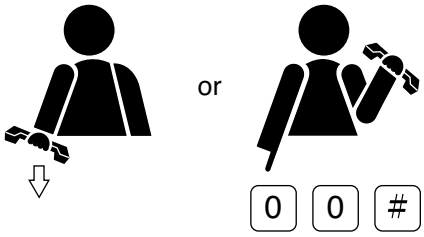
Step 1. Lift the handset and dial the N-8000CO's outside line number.
The N-8000CO unit automatically responds to the call and a dial confirmation tone is transmitted to the caller.

Step 2. After hearing the dial confirmation tone, press the [✻][9][6][Outside Line Control Password*1 (4 digits)] keys in sequence.
The calling party can hear a tone*2 indicating the reserved day and schedule, followed by a confirmation tone (ding-dong).
But only a confirmation tone can be heard during time signal schedule suspension.
*1 The outside line control password is required only when it has been set.
*2 A beep is used to indicate the figure "1" and a long beep to indicate the figure "5." Remaining days until the reserved day and all schedule numbers are indicated using beep tones. A short beep tone sounds 3 times consecutively between the beep tones indicating the remaining days and schedule number.

(Example)
In the case of remaining days until the reserved day is 1 and Schedule No. 3:
Beep-pause-a short beep-a short beep-a short beep-pause-beep-beep-beep
In the case of remaining days until the reserved day is 5 and Schedule No. 6:
A long beep-pause-a short beep-a short beep-a short beep-pause-a long beep-beep
In the case of remaining days until the reserved day is 0 and Schedule No. 1:
A short beep-a short beep-a short beep-pause-beep



Step 3. Either replace the handset or press the [0][0][#] keys.



Note
The contents set through operation from the outside line telephone are saved to the N-8000AF unit once a day (at 00:00 AM).
If the N-8000AF is turned off before the contents are saved, the time signal schedule returns to the setting contents that were programmed before power-off.

3.3. External Equipment Control

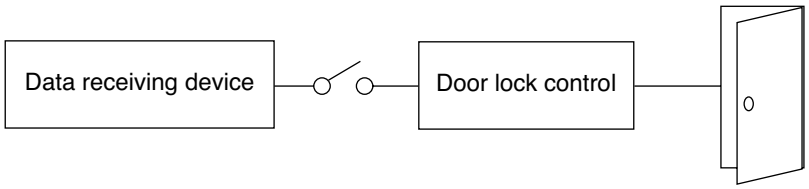
(only when the N-8000MI/8000DI/8000AF/8050DS/8540DS/8640DS/8650DS is used)

If the N-8000CO C/O Line Interface Unit is set to allow external equipment control operation, the outside line telephone can control external equipment by making the designated Multi-Interface unit, Direct Select unit, or Audio Interface unit provide one-shot make contact or make/break contact at its contact output, or by making the designated door station provide one-shot make contact at its contact output.
For example, remote door lock control can be performed using the one-shot make output, and indication boards can be controlled using the make/break output.
It is also possible to set the outside line control password used when operating from the outside line telephone.

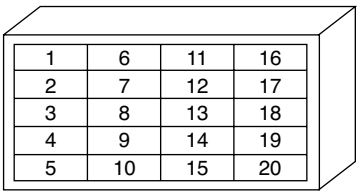
Notes

- Use the supplied N-8000 Setting Software to set the one-shot make duration, operation number digits, operation numbers, the stations allowed to control external equipment, and the outside line control password. (Refer to p. 5-27, 5-35, 5-43, 5-49 , 5-62, 5-89, 5-106, 5-110, 5-114 , 5-117.)
- When performing external equipment control, be sure to complete dialing of all keys within 30 seconds, otherwise the ongoing dialing operation will be forcibly disconnected from the line.

[Door remote control example using one-shot make output control]



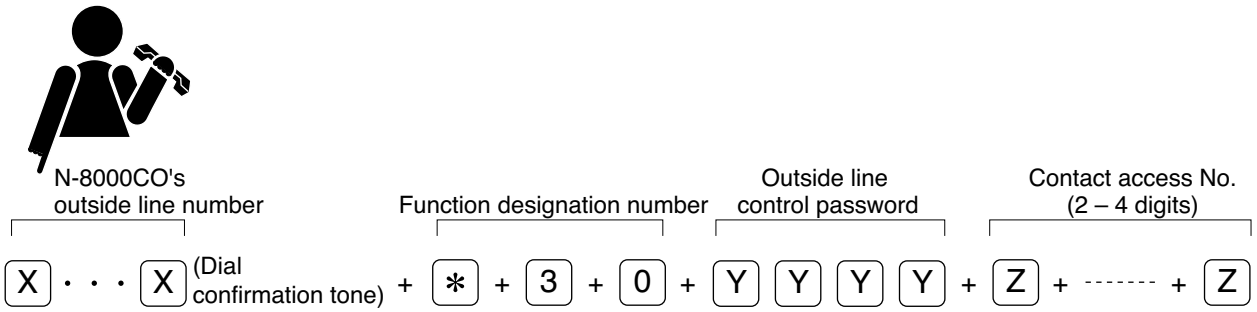
[Hospital waiting status indication board example using the make/break output]



[One-shot make output operation]

First dial the N-8000CO interface's outside line number and confirm that a dial confirmation tone is heard, and then dial [∗][3][0]+[4-digit outside line control password*]+[access number for the contact corresponding to external equipment to be controlled].

* The outside line control password is required only when it has been set.



[Make output operation]

First dial the N-8000CO interface's outside line number and confirm that a dial confirmation tone is heard, and then dial [∗][3][1]+[4-digit outside line control password]+[access number for the contact corresponding to external equipment to be controlled].

N-8000CO's outside line number | Function designation number | Outside line control password | Contact access No. (2 – 4 digits)

[X] · · · [X] (Dial confirmation tone) + [∗] + [3] + [1] + [Y] [Y] [Y] [Y] + [Z] + ------- + [Z]

Note
A confirmation tone (ding-dong) is sounded after operation acceptance. The line is automatically cut off after the confirmation tone stops.

[Break output operation]

First dial the N-8000CO interface's outside line number and confirm that a dial confirmation tone is heard, and then dial [∗][3][2]+[4-digit outside line control password]+[access number for the contact corresponding to external equipment to be controlled].

N-8000CO's outside line number | Function designation number | Outside line control password | Contact access No. (2 – 4 digits)

[X] · · · [X] (Dial confirmation tone) + [∗] + [3] + [2] + [Y] [Y] [Y] [Y] + [Z] + ------- + [Z]

Note
A confirmation tone (ding-dong) is sounded after operation acceptance. The line is automatically cut off after the confirmation tone stops.

[Door station one-shot make output operation (N-8050DS/8540DS is used.)]

First dial the N-8000CO interface's outside line number and confirm that a dial confirmation tone is heard, and then dial [∗][3][3]+[4-digit outside line control password]+[door station number to be controlled].

N-8000CO's outside line number | Function designation number | Outside line control password | Door station No. (2 – 6 digits)

[X] · · · [X] (Dial confirmation tone) + [∗] + [3] + [3] + [Y] [Y] [Y] [Y] + [Z] + ------- + [Z]

Note
A confirmation tone (ding-dong) is sounded after operation acceptance. The line is automatically cut off after the confirmation tone stops.

[Door station one-shot make output operation (N-8640DS/8650DS is used.)]

The N-8640DS/8650DS has 5 contact outputs. Function designation number differs depending on the contact output to be controlled.
First dial the N-8000CO interface's outside line number and confirm that a dial confirmation tone is heard, and then dial [Function designation number]+[4-digit outside line control password]+[door station number to be controlled].

N-8000CO's outside line number | Function designation number | Outside line control password | Door station No. (2 – 6 digits)

[X] · · · [X] (Dial confirmation tone) + [✻] + [3] + [A] + [Y] [Y] [Y] [Y] + [Z] ------- + [Z]

To control the contact output 1 [✻] + [3] + [3]

To control the contact output 2 [✻] + [3] + [4]

To control the contact output 3 [✻] + [3] + [5]

To control the contact output 4 [✻] + [3] + [6]

To control the contact output 5 [✻] + [3] + [7]

Note
A confirmation tone (ding-dong) is sounded after operation acceptance. The line is automatically cut off after the confirmation tone stops.

4. OUTSIDE LINE TELEPHONE OPERATION TABLE

Function	Item	Operation	Remarks
Call	Direct In Line	Dial [N-8000CO's outside line number] keys.	
	Direct-In Dialing	Dial [N-8000CO's outside line number] [station No.] keys.	Station No: 2 – 6 digits
Paging	Zone paging	Dial [N-8000CO's outside line number] [✻] [8] [Zone No.] keys.	Zone No.: 1 – 3 digits
	Selectable paging	Dial [N-8000CO's outside line number] [✻] [8] [✻] [Zone No.] [✻] ··· [Zone No.] [#] keys.	
	All-call paging	Dial [N-8000CO's outside line number] [✻] [8] [0] keys.	
Scan monitor	Start	Dial [N-8000CO's outside line number] [✻] [2] [Outside line control password] [Monitor group No.] [Monitor group No.] ··· [#] keys. or Dial [N-8000CO's outside line number] [✻] [2] [Outside line control password] [✻] [Monitored station No.] [✻] [Monitored station No.] [✻] ··· [#] keys.	Outside line control password: 4 digits (Only when it has been set) Monitor group No.: 1 – 4 Monitored station No.: 2 – 6 digits
	End	Either replace the handset or press the [0][0][#] keys.	
Time signal	Changing time signal schedules	Dial [N-8000CO's outside line number] [✻] [9] [0] [Outside line control password] [Schedule No.] keys.	Outside line control password: 4 digits (Only when it has been set) Reserved day: 1 – 9 Schedule No.: 01 – 16
	Suspending time signal schedules	Dial [N-8000CO's outside line number] [✻] [9] [0] [Outside line control password] [0] [0] keys.	
	Time signal schedule confirmation	Dial [N-8000CO's outside line number] [✻] [9] [2] [Outside line control password] keys.	
	Schedule reservation	Dial [N-8000CO's outside line number] [✻] [9] [5] [Outside line control password] [Reserved day] [Schedule No.] keys.	
	Reserved schedule cancellation	Dial [N-8000CO's outside line number] [✻] [9] [5] [Outside line control password] [✻] keys.	
	Reserved schedule confirmation	Dial [N-8000CO's outside line number] [✻] [9] [6] [Outside line control password] keys.	
External equipment control	One-shot make output	Dial [N-8000CO's outside line number] [✻] [3] [0] [Outside line control password] [contact access number] keys.	Outside line control password: 4 digits (Only when it has been set) Contact access number: 2 – 4 digits Station No: 2 – 6 digits Designation number for the contact output : Contact output 1 = 3 Contact output 2 = 4 Contact output 3 = 5 Contact output 4 = 6 Contact output 5 = 7
	Make output	Dial [N-8000CO's outside line number] [✻] [3] [1] [Outside line control password] [contact access number] keys.	
	Break output	Dial [N-8000CO's outside line number] [✻] [3] [2] [Outside line control password] [contact access number] keys.	
	Door station one-shot make output	(When using the N-8050DS/8540DS) Dial [N-8000CO's outside line number] [✻] [3] [3] [Outside line control password] [Door station No.] keys. (When using the N-8640DS/8650DS) Dial [N-8000CO's outside line number] [✻] [3] [Designation number for the contact output] [Outside line control password] [Door station No.] keys.	

OTHER FUNCTIONS (CONVENIENT FUNCTIONS)

1. PRIORITIES

There are two priorities: Call Priority and Speech path Priority.

1.1. Call Priority (available only when in "Selective Response" mode)

- This priority can only be used when the system is set for "Selective Response."
- When the Master Station simultaneously receives two or more calls, the call assigned the highest priority is put at the head of the waiting queue.
- Lower priority calls or calls assigned the same priority but which have arrived later are placed in the busy status waiting mode according to priority order. (Calls with the same priority are arranged in arrival order.)
- A distinctive call tone for calls with the highest priority received is sounded and the incoming call display changes.

[Call priority order] (applicable only when in "Selective Response" mode)

1. Emergency calls from the substation or Door Station (transmitted through manual operation or automatic operation according to system settings for Priority Level 5)
2. Calls from the outside line telephone
3. Audio Trigger calls
4. Calls from a substation or Door Station set for Priority Level 4
5. Calls from a substation or Door Station set for Priority Level 3
6. Calls from a substation or Door Station set for Priority Level 2
7. Calls from a substation, Door Station, Master Station or telephone set for Priority Level 1 (default value)

1.2. Speech Path Priority

- When the busy station receives a call from another station, current operation is forcibly interrupted or the call received last is kept waiting according to Speech path Priority order.
- External input broadcast priorities can be changed by settings.
  External input broadcast with priority OFF (default value):
  Priority level is the same as all-call paging and individual zone paging.
  External input broadcast with priority ON:
  Priority level is higher than all-call paging and individual zone paging.

[Speech path priority order]

- When in "Sequential Response" mode:
  1. Emergency paging
  2. Message paging
  3. External input broadcast (with priority ON)
  4. All-call paging/External input broadcast (with priority OFF)
  5. Individual zone paging/External input paging (with priority OFF)
  6. Normal conversation/Emergency conversation/Outside line telephone conversation/Audio Trigger conversation
  7. Background music play

- When in "Selective Response" mode:
  1. Emergency paging
  2. Message paging
  3. Emergency conversation
  4. Outside line telephone conversation
  5. Audio Trigger conversation
  6. External input paging (with priority ON)
  7. All-call paging/External input paging (with priority OFF)
  8. Individual zone paging/External input paging (with priority OFF)
  9. Normal call
  10. Background music play

2. TIME-OUT

This function restricts the duration of calling, conversation, and paging to prevent the speech path from being left unused when a user neglects to terminate conversation or paging.
When the set time has elapsed, stations automatically return to standby state.

Notes
- Use the supplied N-8000 Setting Software to set each time limit (programmable for 10 – 990 seconds in 10-second units). (Refer to p. 5-36, 5-43, 5-54, 5-63, 5-90, 5-98.)
- Call time limit is not applicable to Emergency calls.
- Conversation time limit is not applicable to Emergency conversations.
- Paging time limit is not applicable to Emergency paging.

Tip
The time limit is programmed at the exchange to which the station that makes the call is connected, or at the IP station that makes the call.

3. RECORDING (only when the N-8000AF is used)

The audio signals when the master station or telephone is engaged in the following operations can be recorded.
Master station: conversations, conference calls, paging, and scan monitoring
Telephone: conversations, paging, and scan monitoring
Recording starts as soon as the operation above is performed at the master station or the telephone set to enable recording function. Recording ends when such operations end.
It is also possible to record conversations of the outside line telephones. Such conversations and conferences are recorded on recorders connected to the N-8000AF.
Contact 1 (fixed) closes during recording.

Notes
- The N-8000AF Audio Interface's operating mode must be set to "Conversation Recording."
- Use of the recording function and the N-8000AF Interface to be used for recording must be preprogrammed into each Master Station and telephone.
- Use the N-8000 Setting Software to set the N-8000AF Interface unit's operation mode, and the use of the recording function of the individual Master Stations and telephones. (Refer to p. 5-66, p. 5-81, p. 5-89, p. 5-100, p. 5-106.)
- Master Stations connected to the N-8010EX Exchange cannot use the recording function.
- Up to two Master Stations connected to the N-8000EX Exchange can be set to use the recording function.

4. GROUP BLOCKING

Stations can be blocked into groups (up to 31 groups) which can or cannot make calls to each other. Paging zone numbers available among such groups can also be set.

Note
Use the supplied N-8000 Setting Software to set the station groups, calls that can be made among groups, and paging zones that can be mutually called. (Refer to p. 5-123.)

[Group blocking group setting example]

Set arbitrary station groups (up to 31 groups).

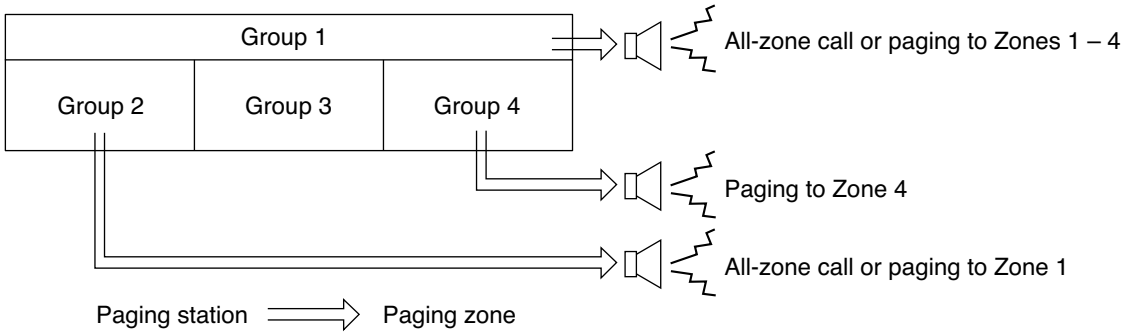
Group 1 No. 201 – 209		
Group 2 No. 210 – 219	Group 3 Nos. 220 – 249	Group 4 No. 250 – 279

[Setting example for enabling or disabling calls among groups]

Calls that station groups can or cannot make to each other can be freely set. In this example, Group 1 can call Groups 2 – 4 and Group 2 can call only Group 1. Groups 3 and 4 cannot call other groups.

[Setting example for paging zone numbers that can be called]

Paging zone numbers that can be called from each group can be freely set. In this example, Group 1 can make all-zone calls or page Zones 1 – 4, Group 2 can make all-zone calls or page only Zone 1, and Group 4 can page only Zone 4.

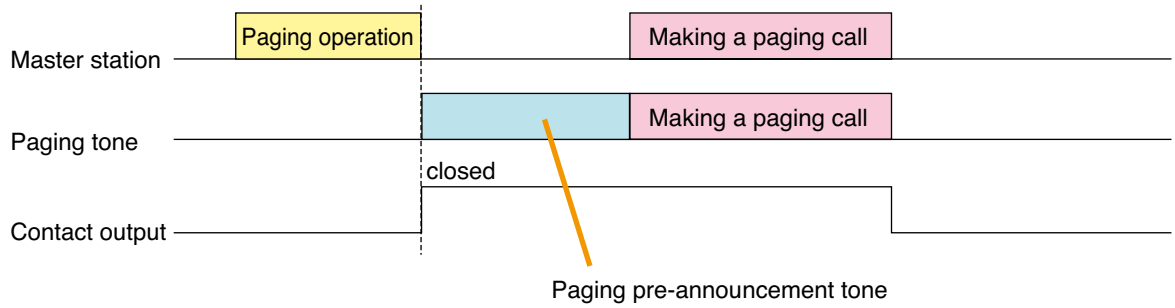


Note
Paging zones can be set freely regardless of group blocking group assignment.

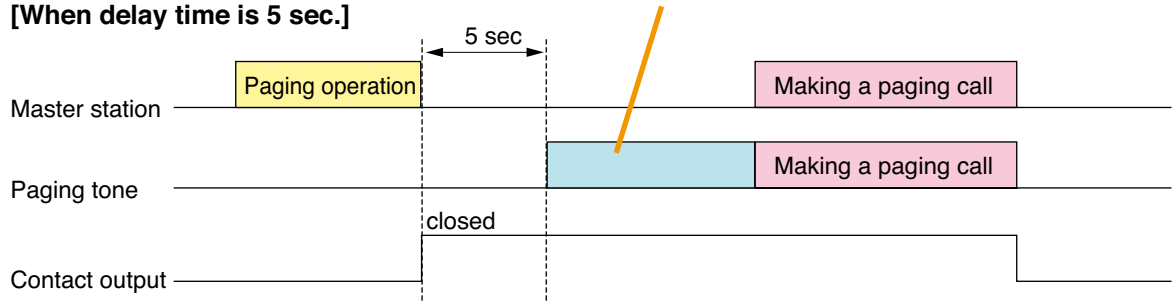
5. PAGING DELAY OUTPUT

This function controls the audio output according to the connected external equipment's activation time. Delay time can be inserted into the time duration from paging operation completion to paging pre-announcement tone output (or paging commencement). The contact that provides output in synchronization with paging activation closes upon paging operation completion, irrespective of the delay time setting.

[When delay time is 0 sec.]



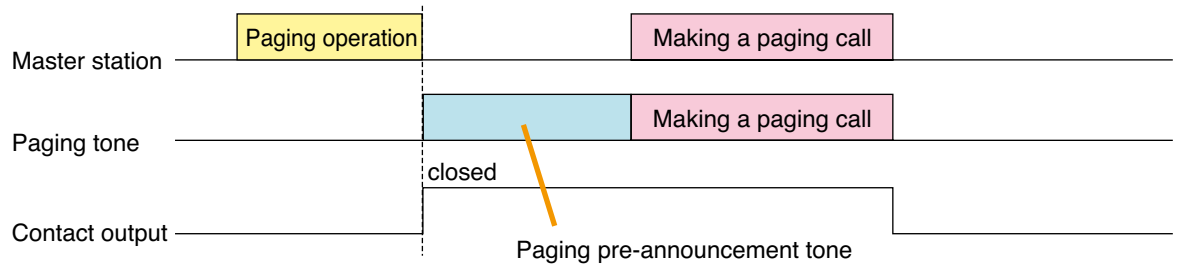
[When delay time is 5 sec.]



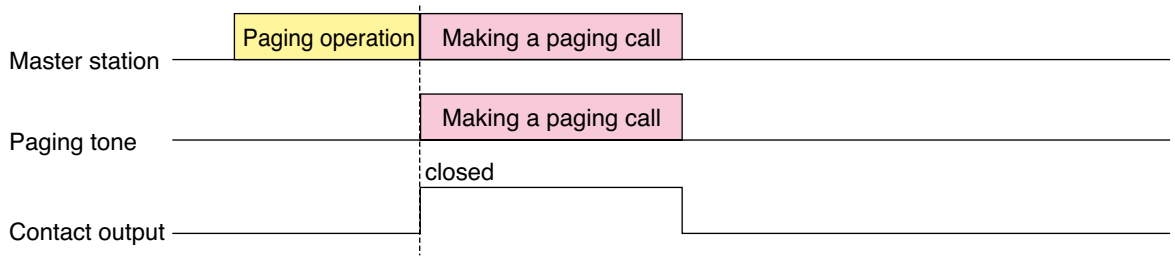
6. PAGING PRE-ANNOUNCEMENT TONE OUTPUT CONTROL

Paging can be initiated without using a paging pre-announcement tone. Use of the pre-announcement tone is selectable.

[When the paging pre-announcement tone is set to ON.]



[When the paging pre-announcement tone is set to OFF.]



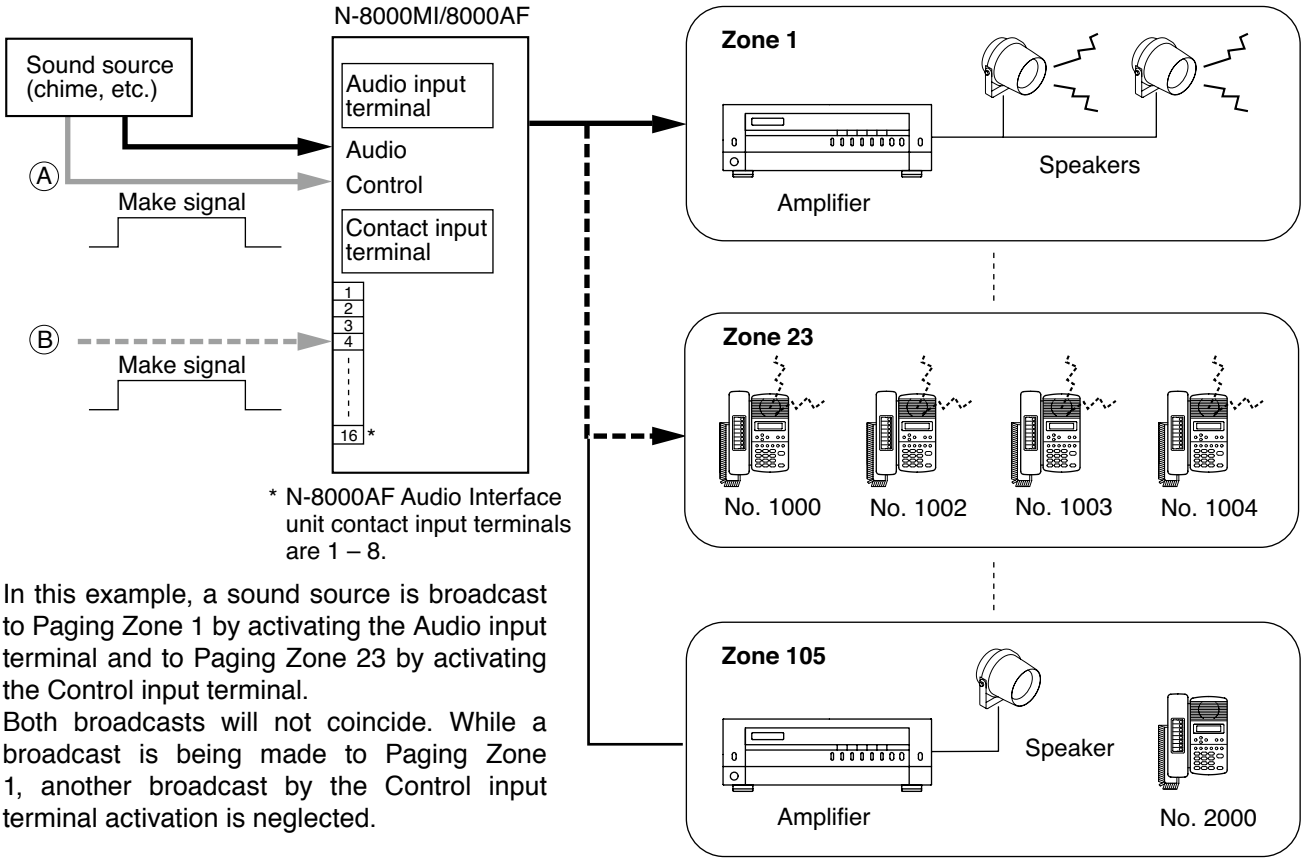
7. EXTERNAL INPUT PAGING (only when the N-8000MI/8000AF is used)

By connecting the Remote microphone or playback components to the Multi-interface unit or Audio interface unit, activating its control input enables broadcasting to the preprogrammed zone(s).
There are two methods of activation: one is to use the Audio input terminal (A in the following figure), and the other is to use the Contact input terminal (B).
Set only the broadcast zones when activating the Audio input terminal, and both the broadcast zones and input sound source when activating the Contact input terminal. Set the input sound source operation mode to "External input paging."
Priorities can be assigned to External input paging.
For more information, read "Priorities" on p. 2-177.

Note
Use the supplied N-8000 Setting Software to perform each setting. (Refer to p. 5-45, 5-107.)

- Closing the control input terminal broadcasts the outputs from the external sound source to the preprogrammed paging zone(s).
- The broadcast ends when the control input terminal opens.
- Setting External Input Paging for the N-8000AF unit allows user to set the unit's output for paging output. However, the N-8000AF cannot receive pagings while concurrently broadcasting a page through its input, and it cannot broadcast a page while receiving a paging.

[Example of activating both the audio Input terminal and contact input terminal]



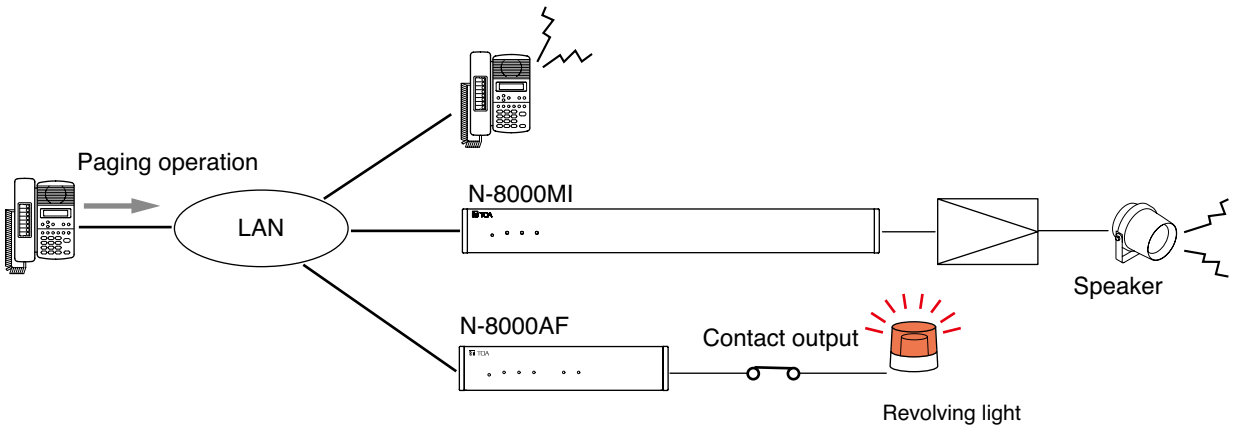
In this example, a sound source is broadcast to Paging Zone 1 by activating the Audio input terminal and to Paging Zone 23 by activating the Control input terminal.
Both broadcasts will not coincide. While a broadcast is being made to Paging Zone 1, another broadcast by the Control input terminal activation is neglected.

[Priority]
- There is no priority between control signals coming to the Audio input terminal and the Contact input terminal. Even if either terminal is closed while the other terminal is closed, the later activation is not accepted.
- Priorities are equal between paging calls, whether they are initiated by the N-8000 system station or other system station. If one input terminal closes while the other terminal is closed for paging, the last paging is placed in standby mode, and is allowed to go through when the other paging is completed. However, if external input broadcasts have been set for priority ON, they take precedence over all-call paging and individual zone paging. (Refer to p. 2-177, "Priorities".)

8. PAGING SYNC CONTACT OUTPUT CONTROL

(only when the N-8000MI/8000AF is used)

The contact output of both the N-8000MI and N-8000AF interface units can be set as the paging output destination. This makes it possible to control connected external equipment in synchronization with paging activation.
Contact output destinations can be freely selected for up to 16 outputs for the N-8000MI and up to 8 outputs for the N-8000AF. When the setting is performed so that only the contacts are included in a paging zone without selecting audio paging output, only the contact outputs are activated and audio signals are not output at paging initiation. Additionally, the closed contact status is also judged to be "busy." Therefore, while the contact output is in use in a certain paging zone, if another page is initiated, it will only begin after the contact opens.



9. CALLING STATION INDICATION/CCTV INTERLOCK

(only when the N-8000MI/8000DI/8000AF is used)

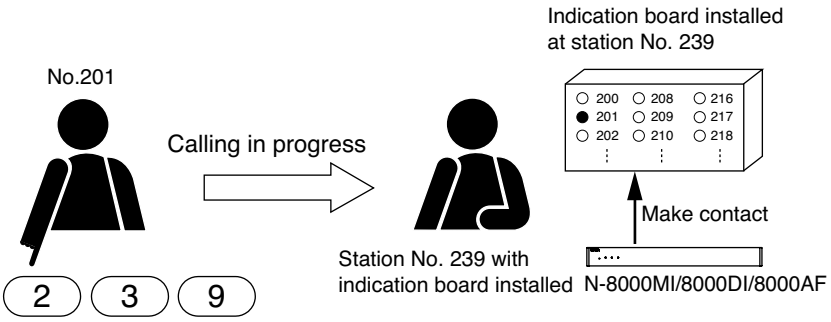
By installing a lamp type indication board* at the specified station, conversation partners and calling stations that made calls to the specified station during conversation can be displayed on the board. The indication board can be shared among multiple stations (up to 8 stations) to indicate which station within the group has been called. It is also possible to use the N-8000MI/8000DI/8000AF's contact for interlocking the N-8000MI/8000DI /8000AF with a CCTV system so that a calling party is displayed on the monitor screen.

* Needs to be separately made to interlock with the Multi interface unit's, Direct select unit's, or Audio interface unit's output.

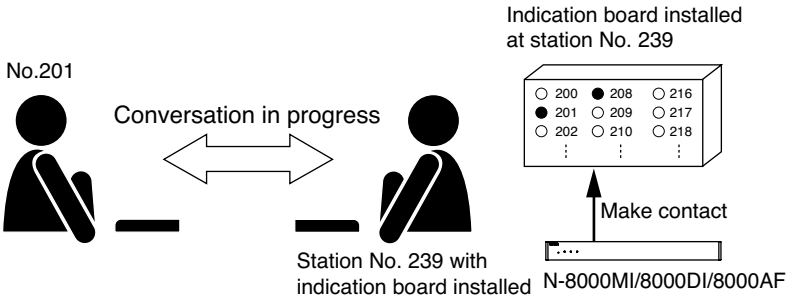
Note
Use the supplied N-8000 Setting Software to set the N-8000MI/8000DI/8000AF's contact number and the stations with the indication board installed. (Refer to p. 5-37, 5-55, 5-57, 5-64, 5-66, 5-81, 5-98, 5-100.)

[Calling station indication example]

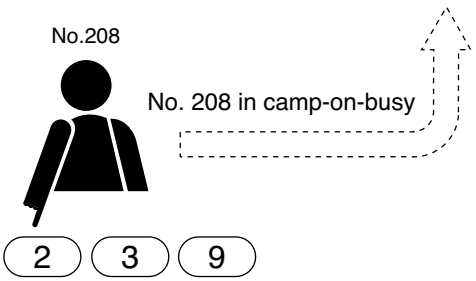
- When a station with the indication board installed is called, the lamp for the calling station lights. The lamp goes out when a response is made to the call and the conversation is terminated.



- Even if the station with the indication board installed is on another line when it is called, the lamp for the calling station (i.e. station in camp-on-busy mode) lights.
- The lamp goes out when the party at the station in camp-on-busy mode cancels the call.



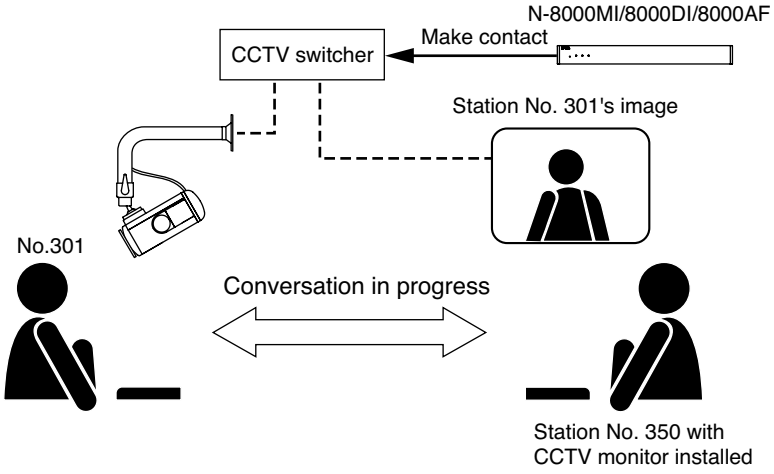
Note
Operations in this description are based on the calling station indication mode being set to "Closed during call and talk." Perform the setting using the supplied N-8000 Setting Software. (Refer to p. 5-37, 5-55, 5-64, 5-98.)



[CCTV interlock example]

- When there is a call to the station with a CCTV monitor installed, responding to the call displays the calling station's place on the monitor.

Note
Operations in this description are based on the calling station indication mode being set to "Closed during talk." Perform the setting using the supplied N-8000 Setting Software. (Refer to p. 5-37, 5-55, 5-64, 5-98.)



10. OUTSIDE LINE CALLING STATION INDICATION/CCTV INTERLOCK

(only when the N-8000CO/8000MI/8000DI/8000AF is used)

The calling station indication/CCTV interlock can be enabled at the time of making calls to or receiving calls from the outside line or during conversations.
In the case of making calls, the contact output is closed each time the access number set for each calling station is used.
For calls from an outside line telephone, even the station belonging to the Direct in Line Member is subject to the calling station indication.
Set whether to enable or disable the calling station indication and the contact output number of the N-8000MI/8000DI/8000AF to be controlled for each station.

- When the calling station indication mode is set to "Closed during call and talk," the following operations are performed.

  [Calling the outside line telephone]
  The N-8000MI/8000DI/8000AF's contact is closed at the time when the N-8000CO starts establishing the connection with an outside line telephone after the C/O interface unit access number is pressed. The contact output is closed even while the N-8000CO is in use.

  [Receiving calls from an outside line telephone]
  In the case of calls by Direct-in Dialing, the N-8000MI/8000DI/8000AF's contact is closed when the station to be called is determined and the calling to that station starts. The contact is closed even while the station to be called is in use.
  In the case of calls by Direct-in Line, the N-8000MI/8000DI/8000AF's contact is closed at the time when the N-8000CO accepts the calls from an outside line telephone. The contact is closed even while the representative or member station is busy.

- When the calling station indication mode is set to "Closed during talk," the N-8000MI/8000DI/8000AF's contact is closed at the start of the conversations between stations, and opened at the end of the conversations.

Note
Use the supplied N-8000 Software to set whether to enable or disable the calling station indication, the contact number of the Multi-Interface Unit, Direct Select Unit, or Audio Interface Unit and the calling station indication mode. (Refer to p. 5-89.)

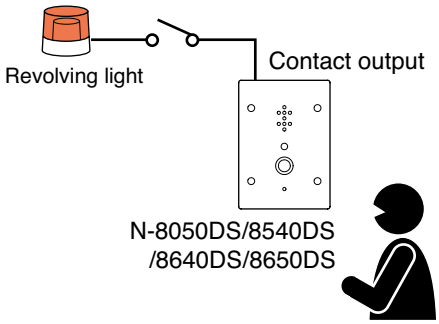
11. CALL/CONVERSATION SYNC CONTACT OUTPUT

(only when the N-8050DS/8540DS/8640DS/8650DS is used)

The contact output of the N-8050DS Door Station or N-8540DS/8640DS/8650DS IP Door Station is closed in synchronization with its own station's operating status.
The timing that the contact output is closed can be selected from 4 patterns; During call, During talk, During call and talk, and Status indicator sync.
For example, a revolving light or camera can be controlled in synchronization with call or talk operation.
The N-8640DS/8650DS IP Door Station has 5 contact outputs. The timing that each contact output is closed can be set individually.
"Status indicator sync" function can be assigned to the contact outputs of 1 through 4 channels only.

Note
Use the N-8000 Setting Software to perform settings for the Door station contact output.
(Refer to p. 5-37, 5-64.)

[Example for controlling a revolving light]



[Door station operation vs. Open/closed status of "Door station contact output"]

Door station contact output / Door station operation	During call	During talk	During call and talk	Status indicator sync (N-8640DS/8650DS only)
Calling	Closed	Open	Closed	Sequential Response mode: Closed (lit) Selective Response mode: Closed/open repeated (flashing)
Being called	Open	Closed	Closed	Closed/open repeated (flashing)
Call waiting	Closed	Open	Closed	Closed (lit)
Conversation mode	Open	Closed	Closed	Closed (lit)
Being paged	Open	Open	Open	Closed (lit)
Receiving scan monitor	Open	Closed	Closed	Subject to the monitor alert operation set at the scan-monitoring station

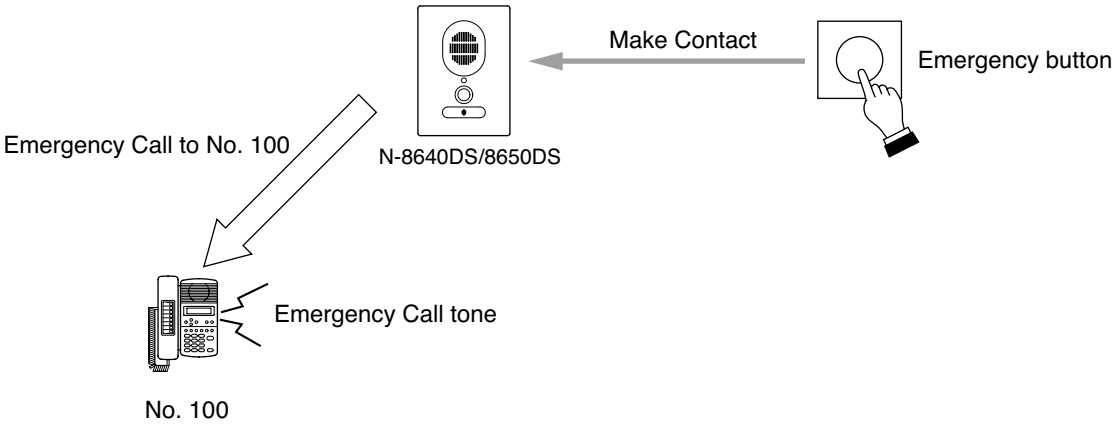
12. IP DOOR STATION EXTERNAL CONTROL INPUT

(only when the N-8640DS/8650DS is used)

When dialing operations (up to 20 digits) have been preprogrammed into the external control input of the N-8640DS/8650DS IP Door Station, such dialing operations can be performed by closing the N-8640DS/8650DS's contact input. Nothing operates even when closing the contact input if no dialing operation is preprogrammed. The external device make contact signal must be transmitted for at least 100 ms.

Note
Use the N-8000 Setting Software to perform the door station external control input settings.

[Example]
When the dial operation of pressing the call button twice is programmed, closing the N-8640DS/8650DS's contact input makes the emergency call.



13. REMOTE DIAL CONTROL

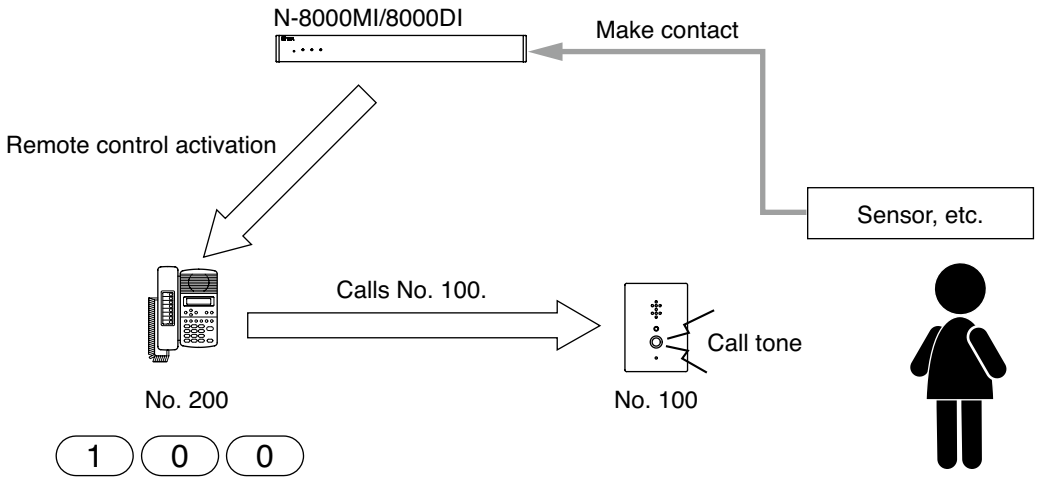
(only when the N-8000MI/8000DI is used)

When the N-8000MI/8000DI's contact input terminal is closed, an arbitrary station is made to automatically perform dial operation. A set of up to 32 dial codes (including dial numbers and key operations) can be assigned to each contact input terminal.
For example, signals from a sensor can automatically activate a station to make a call as shown below.
Use the supplied N-8000 Setting Software to perform settings for the Remote dial control. (Refer to p. 5-48, 5-116.)

Note
To perform the remote dial control, the contact input terminal needs to be closed for over 50 ms.

[Example]

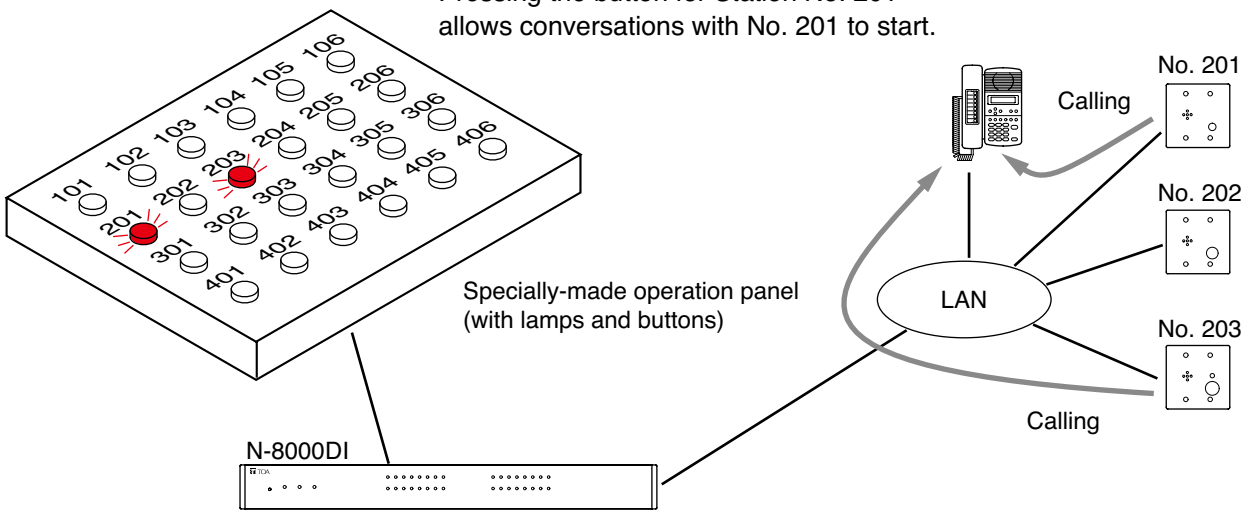
No. 200 station automatically calls the No.100 station by means of a make contact input to the N-8000MI/8000DI from a sensor.



14. DIRECT SELECT (only when the N-8000DI is used)

This function can be used when the system's call response mode is set to "Selective Response." By separately making an operation panel for a specified Master Station which is equipped with the lamps and buttons corresponding to other stations, and by assigning the Master Station and other stations to the N-8000DI's contact input and output channels, the stations that are calling the specified Master Station are indicated by means of lamps. Also, operating the desired channel button allows calls to be made between the Master Station and the station assigned to that channel.

- The lamp for Station No. 201 flashes if the Master Station is called by Station No. 201.
- Pressing the button for Station No. 201 allows conversations with No. 201 to start.



The channel status indicators on the N-8000DI correspond to the contact output operations as listed below.

Operation of station under control	Channel status indicator on the N-8000DI	N-8000DI's contact output status
Emergency call-in*1	Flashing rapidly	Closed
Other call-in*2	Flashing slowly	Closed
Calling	Lit	Closed
Call waiting	Lit	Closed
Conversation mode	Lit	Closed
Holding	Lit	Closed
Being paged	Unlit	Open
Scan monitoring	Lit	Closed

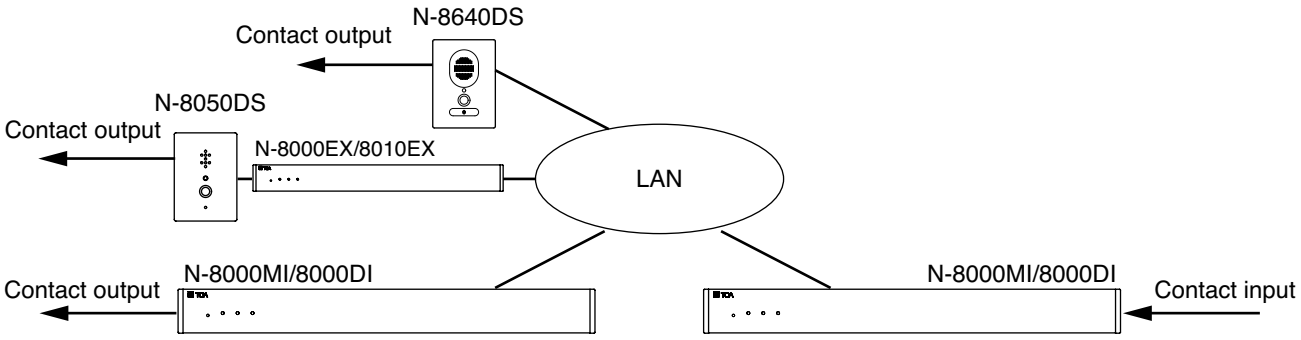
*1 When a call from the station set for emergency call or priority 5 is received

*2 When a call other than "Emergency call-in" is received

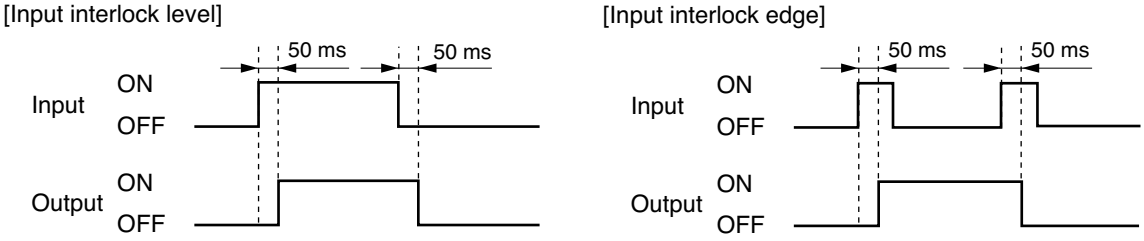
15. CONTACT BRIDGE FUNCTION

(only when the N-8000MI/8000DI/8050DS/8540DS/8640DS/8650DS is used)

Contact signals can be transmitted by way of a network.



Either of the following 2 control input's operation modes can be selected.

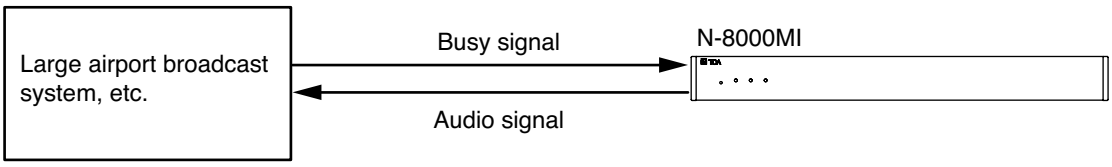


Notes

- The input is defined when its level remains constant for 50 ms after change.
- Use the supplied N-8000 Setting Software to make settings for the contact bridge function. (Refer to p. 5-48, 5-116.)
- Contact signals cannot be transmitted to the RS-180/480 Substation or RS-442 Switch board.

16. PAGING BUSY INPUT (only when the N-8000MI is used)

When the N-8000 system is interlocked with a large PA system such as an airport broadcast system, busy data from the host system can be received, allowing important broadcast to be paged consistently.



Note

Use the supplied N-8000 Setting Software to set the contacts to be used for paging busy input. (Refer to p. 5-49.)

17. SYSTEM DIAGNOSIS (only when the N-8000MI/8000DI/8000AF is used)

The N-8000MI/8000DI/8000AF diagnoses the system condition, and provides its results at the contact output terminal as open or closed contact. The system diagnosis is performed in a way that the N-8000MI/8000DI/8000AF connects the target equipment via the network.
The contact output terminal is closed only when an abnormality has been detected.
Thereafter, its closed terminal opens when the N-8000MI/8000DI/8000AF judges the condition to be normal.
This function aims to diagnose the exchange's line status and the network status of the connected equipment.
Use the N-8000 Setting Software to perform settings for the network lines and equipment to diagnose. (Refer to p. 5-49, 5-110, 5-117.)

Note
Diagnosis is performed at the set time intervals*. Therefore, the diagnosis results are not obtained in real time. The system condition, even if a change occurs, cannot be detected in the intervals from a diagnosis to the next diagnosis.

* Diagnosis results are renewed every 20 seconds or less.

17.1. Line status diagnosis

If the N-8000EX or N-8010EX exchange's line to be diagnosed shows the status below, the N-8000MI/8000DI /8000AF judges the line to be abnormal.

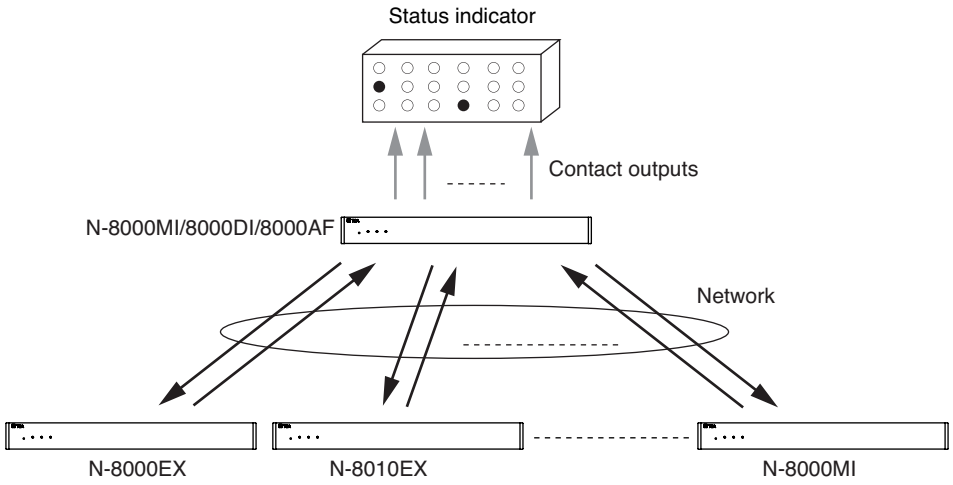
- Station's CPU failure
- Line synchronization error
- Station number registered but not connected

17.2. Network status diagnosis

The N-8000MI/8000DI/8000AF attempts to communicate with the network-connected equipment to be diagnosed such as exchange, various kinds of interface unit, or IP station. If no response is detected, the N-8000MI/8000DI/8000AF judges such equipment to be failed.

[Example]

Diagnosis results can be displayed on a status indicator.

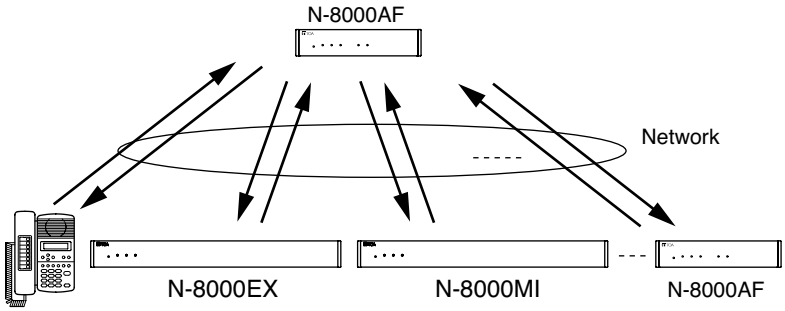


18. TIME SIGNAL

(Refer to p. 2-50, "Time Signal".)

19. TIME CORRECTION

Synchronizes the clocks of all components in the system with the one as a clock master.
The Master Clock transmits a sync command to all other system equipment once a day.
Use the supplied N-8000 Setting Software for the Master Clock setting.



Notes
- Only the N-8000AF for which the Time Sync function has been enabled can be set as the master clock.
- The N-8000RS, N-8010RS and N-8400RS Substation interface units cannot be set as the master clocks.
- When the NTP Client function (see p. 2-192) of the N-8000AF set to the clock master is enabled, it is recommended to synchronize the N-8000AF's clock with NTP server first, then to perform time correction.

20. AUTOMATIC DAYLIGHT SAVING TIME (SUMMER TIME) CORRECTION

Daylight saving time (summer time) can be supported and the following settings performed using the N-8000 Setting Software.

- Automatic daylight time correction ON/OFF
- Daylight time start setting (month, week, day, hour)
- Daylight time end setting (month, week, day, hour)

The daylight saving time correction will start or end at the set [hour] of nth [day] of [week] of [month].
The last day of the week in the month can also be designated.

21. NTP CLIENT FUNCTION (only when the N-8000AF is used)

Synchronizes the clock of the N-8000AF with NTP Server once a day when the NTP Client function of the N-8000AF set as a clock master is enabled.
Set the IP address and port number of NTP Server using the supplied N-8000 Setting Software.

[Example of Public NTP Server]

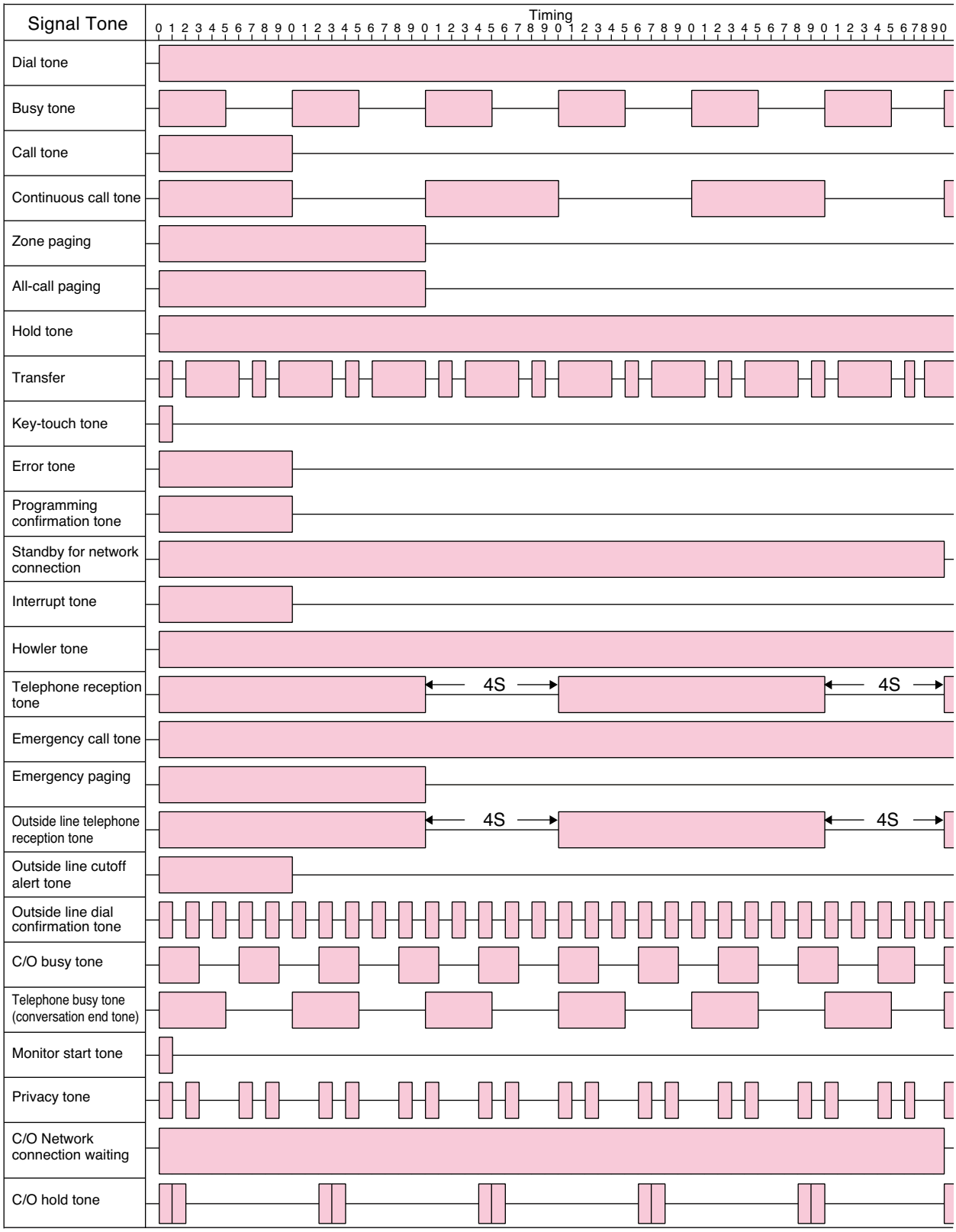
Organization of service	Reference destination	IP address	Port number
Internet Multifeed (MFEED) -Japan-	NICT NTP Server	210.173.160.57	123
NASA - USA -	GPS	198.123.30.132	123

Notes

- Cannot be used simultaneously with the Time Sync function.
- This function updates only minutes and seconds of the clock of the N-8000AF. Before using this function, be sure to set the clock master N-8000AF to the correct time. (Refer to p. 5-128, 6-42.)
- Domain name of NTP Server cannot be designated. Designate the server using IP address.
- Example of Public NTP Server is based on the information as of April 2014. When using the NTP client function, check to see if the IP address and port number shown above are correct.
- It is recommended to perform time correction (see p. 2-191) after synchronization with NTP server.

REMARKS

[List of Signal Tones]



Chapter 3

INSTALLATION & WIRING

This chapter describes installation and wiring procedures, including the installation and connection of the Exchange, stations, and various kinds of interface units.

1. INSTALLATION OF THE EXCHANGE

The N-8000EX/8010EX can be installed in any of three ways: (1) equipment rack mounting, (2) wall mounting, and (3) desk-top installation.

1.1. Equipment Rack Mounting

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

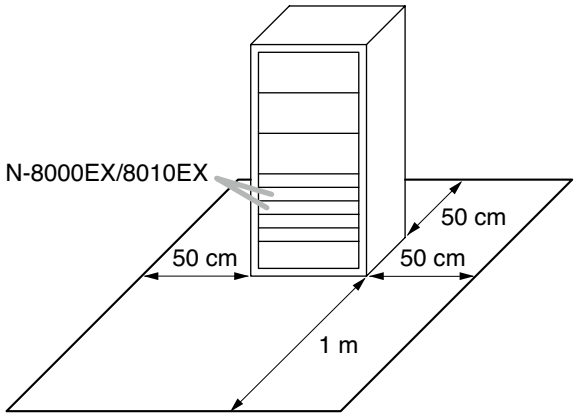
C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

The N-8000EX/8010EX can be mounted on the CR-273, CR-413, or standard EIA 19" Equipment rack.
One CR-273 for up to 128 stations, one CR-413 for up to 192 stations and sixteen CR-413 for up to a total of 3072 stations can be connected. (Refer to p. 1-15.)
For the CR-273 and CR-413 Equipment rack assembly or BU-412 Blower unit installation, read the installation manual supplied with the rack.

Note
When installing the Blower unit, Terminal boards, and N-8000EX/8010EX, lay the equipment rack down face-up to do installation work safely. Since the Blower unit is installed from the inside of the rack, be sure to install it first, before mounting the other components.



1.1.1. Setting space

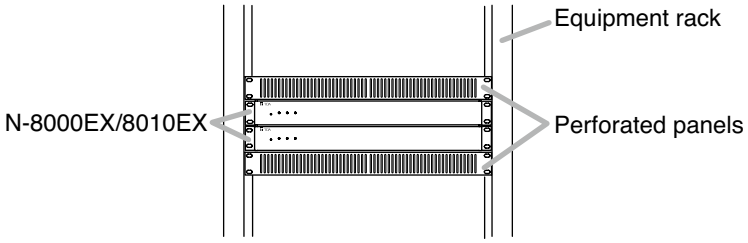
For maintenance works, allow much space between the wall and Equipment rack.

1.1.2. Caution when installing the unit

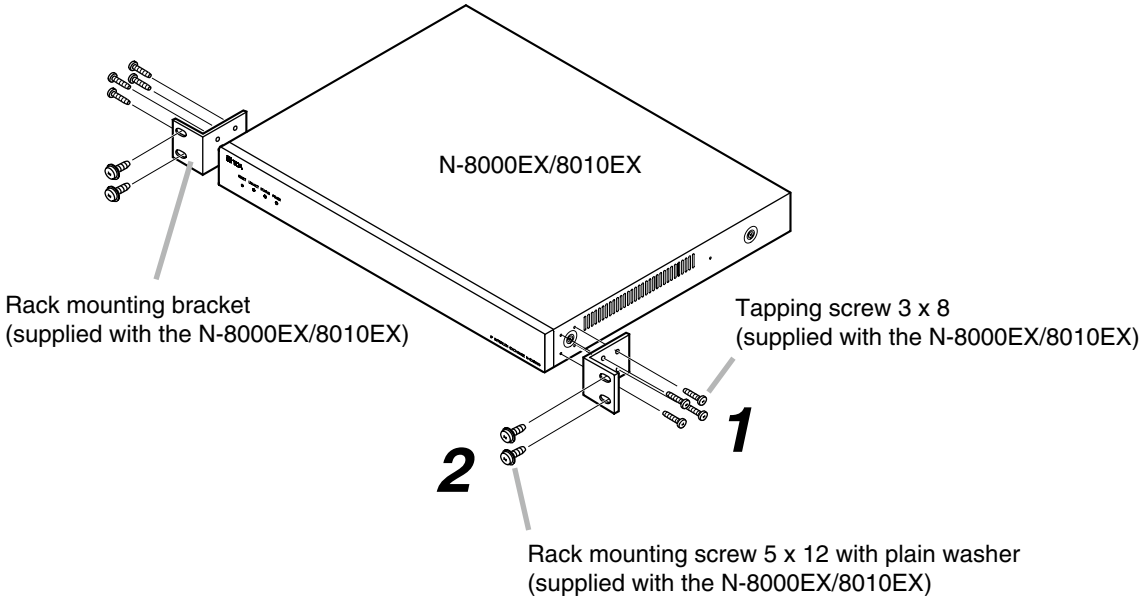
⚠ CAUTION Do not block the fan exhaust vent.
Doing so may cause heat to build up inside the unit and result in fire.

Do not stack up 3 units or more.
If 2 or more Exchanges are mounted in the Equipment rack, be sure to mount the perforated panel of 1-unit size (PF-013B) or more above and below every 2 units.

Using the supplied rack mounting screws, install the terminal board in a location that facilitates wiring and maintenance work, taking into consideration the direction of cable entry into the rack.



1.1.3. N-8000EX/8010EX mounting

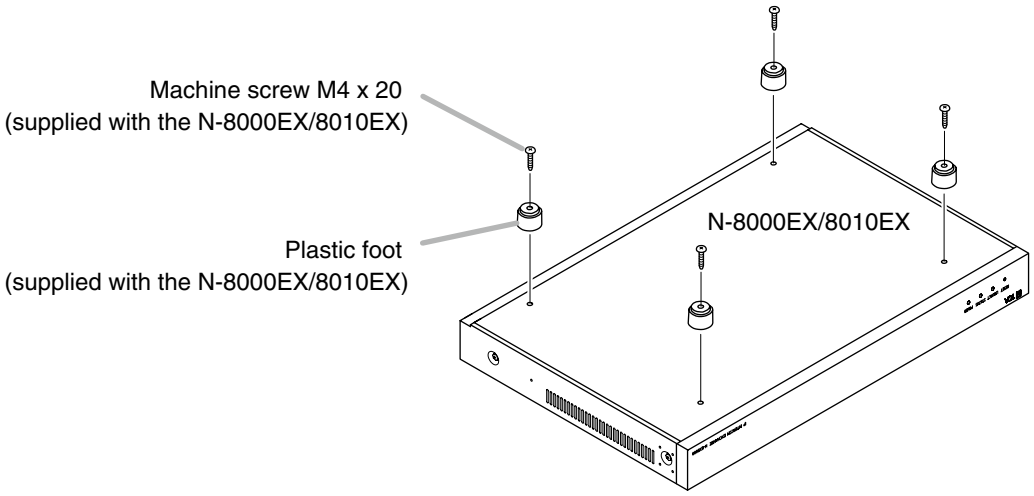


Step 1. Install the rack-mounting bracket to the N-8000EX/8010EX.

Step 2. Mount the N-8000EX/8010EX on the Equipment rack.

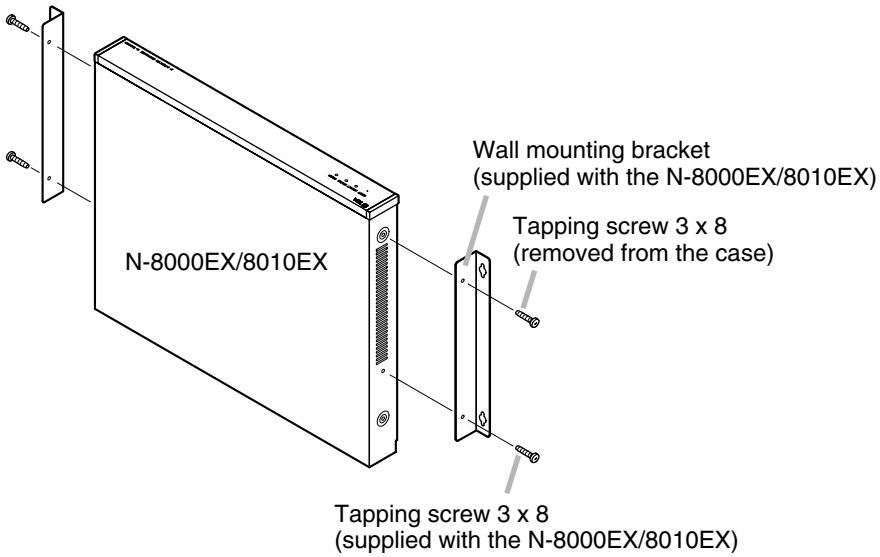
1.2. Desk-Top Installation

When installing the N-8000EX/8010EX on a desk, secure the supplied plastic feet to the bottom surface of the N-8000EX/8010EX using the supplied machine screws.



1.3. Wall Mounting

Step 1. Install the supplied wall-mounting bracket to the N-8000EX/8010EX using each 2 supplied screws and removed screws from the case.



Step 2. Mount the N-8000EX/8010EX on the wall.

Notes

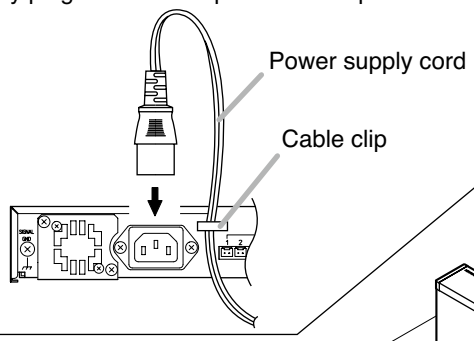
- Use appropriate screws for the construction of wall.
- Wood screws 3.5 x 20 are supplied with the N-8000EX/8010EX.
- The socket-outlet shall be installed near the equipment and the plug (disconnecting device) shall be easily accessible.

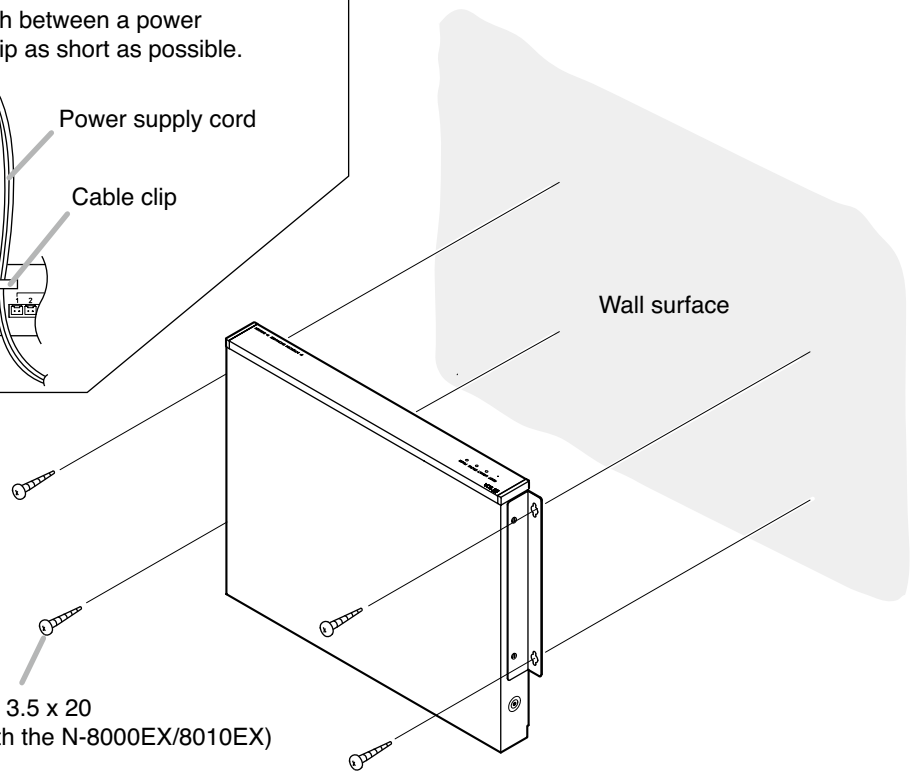
Protect against disconnection (Power supply plug)

Unlock cable clip and run the power supply cord through cable clip.

Note

Keep overall cable length between a power supply plug and cable clip as short as possible.





2. INSTALLATION OF THE SUBSTATION INTERFACE UNIT

The N-8000RS/8010RS/8400RS can be installed in any of three ways: (1) equipment rack mounting, (2) wall mounting, and (3) desk-top installation.

2.1. Equipment Rack Mounting

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

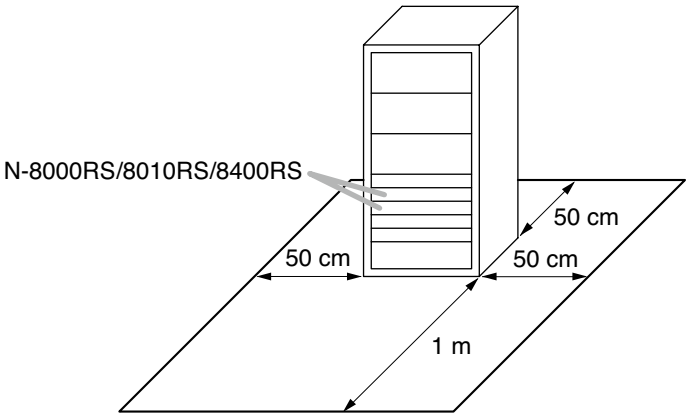
C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

The N-8000RS/8010RS/8400RS can be mounted on the CR-273, CR-413, or standard EIA 19" Equipment rack. For the CR-273 and CR-413 Equipment rack assembly or BU-412 Blower unit installation, read the installation manual supplied with the rack.

Note
When installing the Blower unit and N-8000RS/8010RS/8400RS, lay the equipment rack down face-up to do installation work safely. Since the Blower unit is installed from the inside of the rack, be sure to install it first, before mounting the other components.



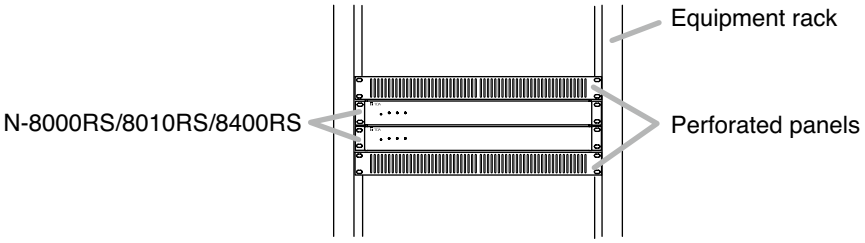
2.1.1. Setting space

For maintenance works, allow much space between the wall and Equipment rack.

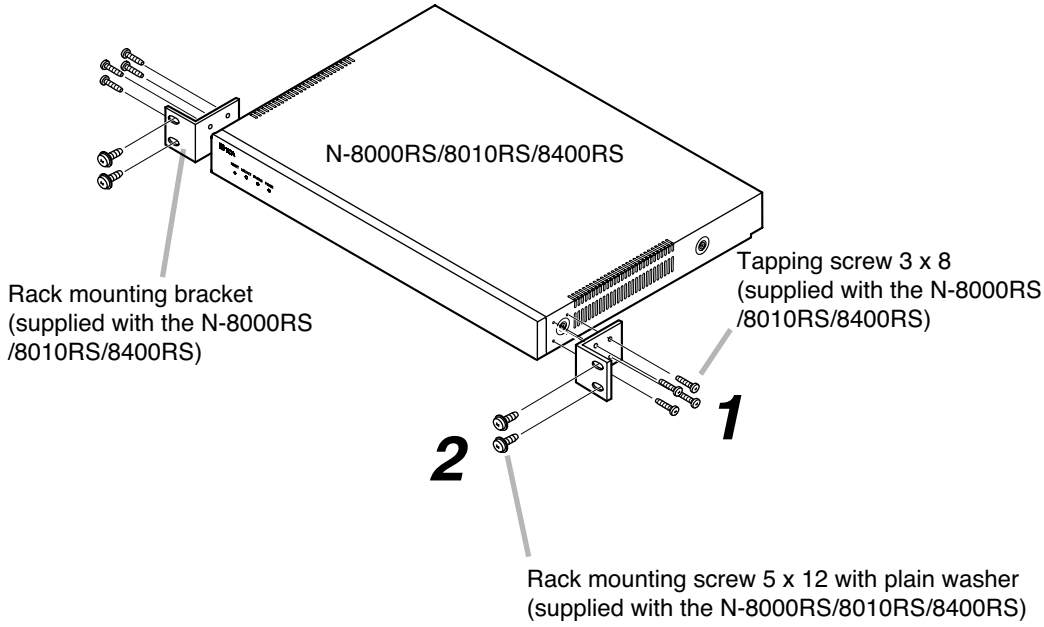
2.1.2. Caution when installing the unit

⚠ CAUTION Do not block the ventilation slots in the unit's cover.
Doing so may cause heat to build up inside the unit and result in fire.

Do not stack up 3 Substation interface units or more.
If 2 or more units are mounted in the Equipment rack, be sure to mount the perforated panel of 1-unit size (PF-013B) or more above and below every 2 units.



2.1.3. N-8000RS/8010RS/8400RS mounting

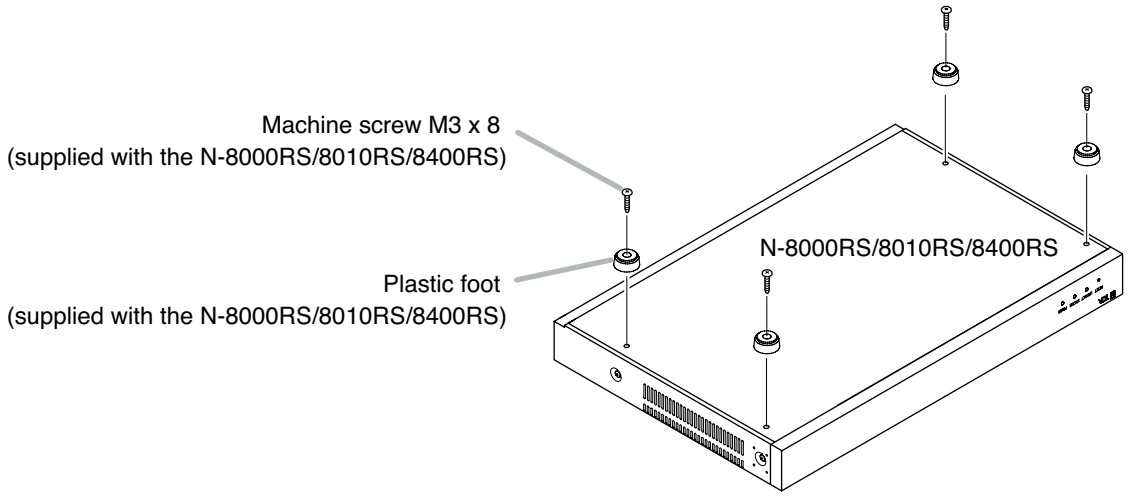


Step 1. Install the rack-mounting bracket to the N-8000RS/8010RS/8400RS.

Step 2. Mount the N-8000RS/8010RS/8400RS on the Equipment rack.

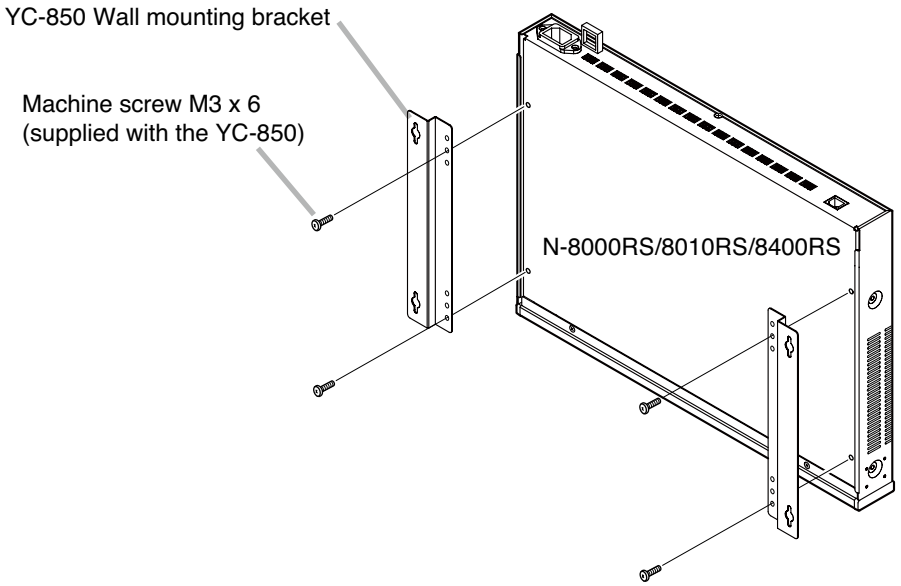
2.2. Desk-Top Installation

When installing the N-8000RS/8010RS/8400RS on a desk, secure the supplied plastic feet to the bottom surface of the N-8000RS/8010RS/8400RS using the supplied machine screws.



2.3. Wall Mounting

Step 1. Install the optional YC-850 Wall mounting bracket to the N-8000RS/8010RS/8400RS.



Step 2. Mount the N-8000RS/8010RS/8400RS on the wall.

Notes

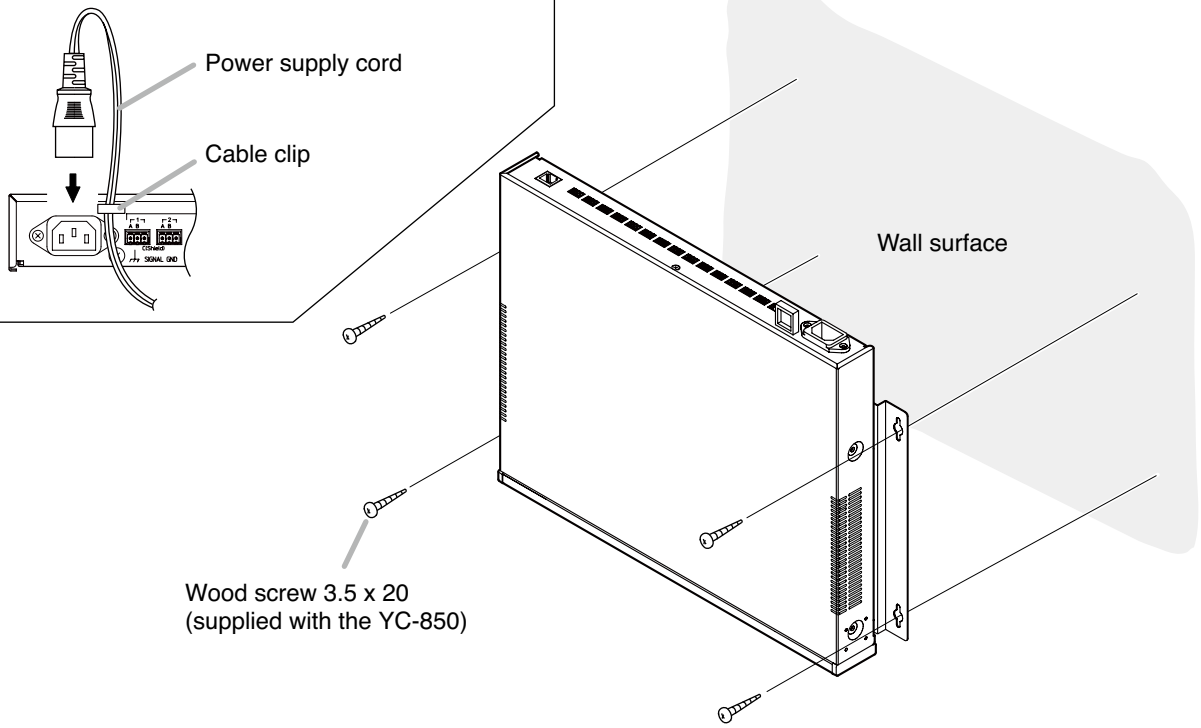
- Use appropriate screws for the construction of wall.
- Wood screws 3.5 x 20 are supplied with the YC-850.
- The socket-outlet shall be installed near the equipment and the plug (disconnecting device) shall be easily accessible.

Protect against disconnection (Power supply plug)

Unlock cable clip and run the power supply cord through cable clip.

Note

Keep overall cable length between a power supply plug and cable clip as short as possible.



3. INSTALLATION OF THE MULTI INTERFACE UNIT

The N-8000MI can be installed in any of three ways: (1) equipment rack mounting, (2) wall mounting, and (3) desk-top installation.

3.1. Equipment Rack Mounting

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

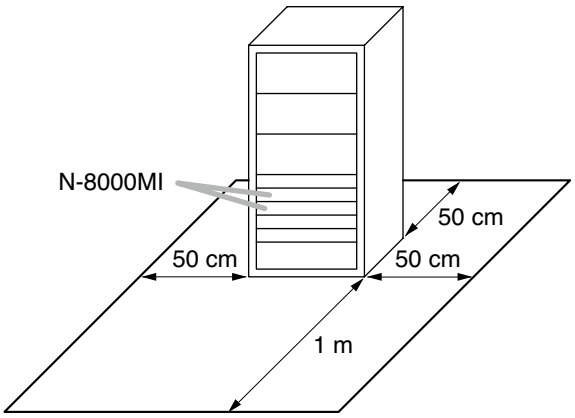
E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

The N-8000MI can be mounted on the CR -273, CR -413, or standard EIA 19" Equipment rack.
For the CR -273 and CR -413 Equipment rack assembly, read the installation manual supplied with the rack.

Note
When installing the N-8000MI, lay the equipment rack down face-up to do installation work safely.

3.1.1. Setting space

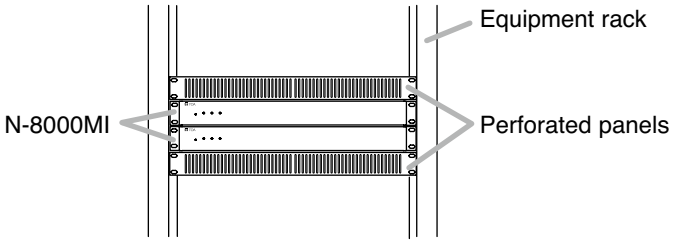
For maintenance works, allow much space between the wall and Equipment rack.



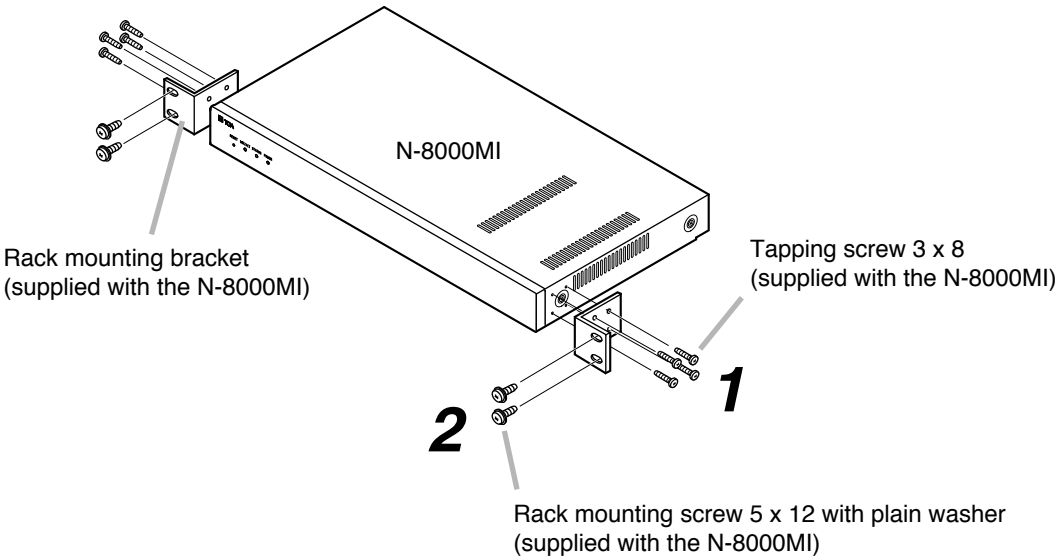
3.1.2. Caution when installing the unit

⚠ CAUTION Do not block the ventilation slots.
Doing so may cause heat to build up inside the unit and result in fire.

Do not stack up 3 units or more. If 2 or more units are mounted in the Equipment rack, be sure to mount the perforated panel of 1 U size (PF-013B) or more above and below every 2 units.



3.1.3. N-8000MI mounting

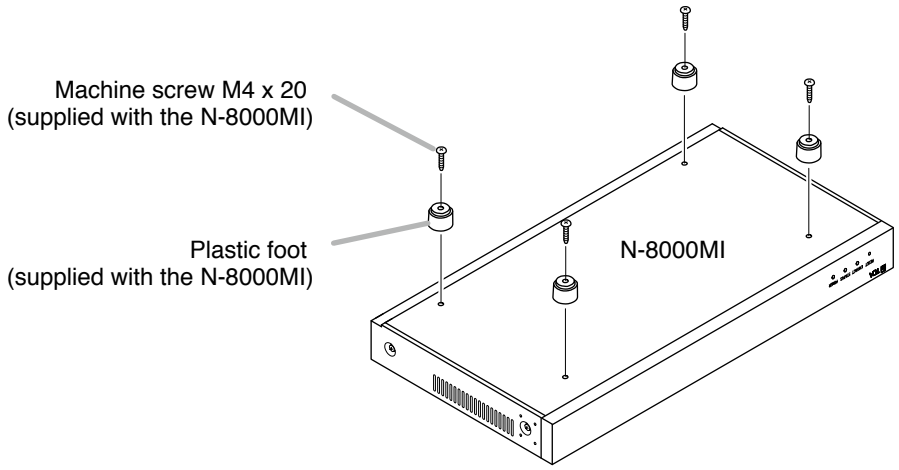


Step 1. Install the rack-mounting bracket to the N-8000MI.

Step 2. Mount the N-8000MI on the Equipment rack.

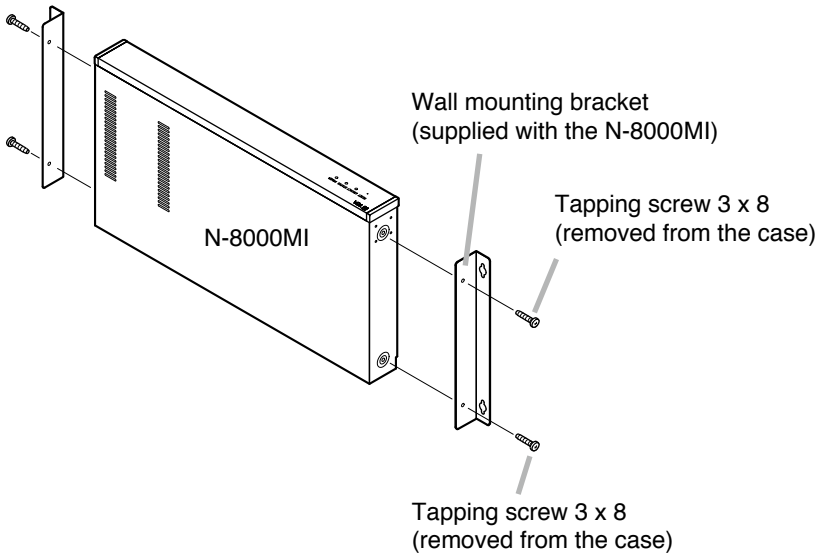
3.2. Desk-Top Installation

When installing the N-8000MI on a desk, secure the supplied plastic feet to the unit's bottom using the supplied machine screws.



3.3. Wall Mounting

Step 1. Install the supplied wall-mounting bracket to the N-8000MI using 4 removed screws from the case.



Step 2. Mount the N-8000MI on the wall.

Notes

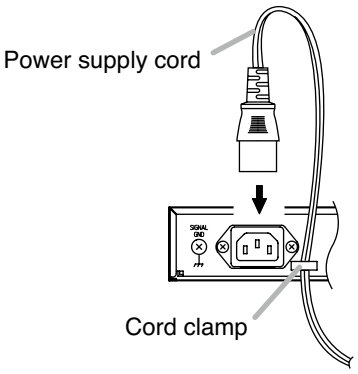
- Use appropriate screws for the construction of wall.
- Wood screws 3.5 x 20 are supplied with the N-8000MI.
- The socket-outlet shall be installed near the equipment and the plug (disconnecting device) shall be easily accessible.

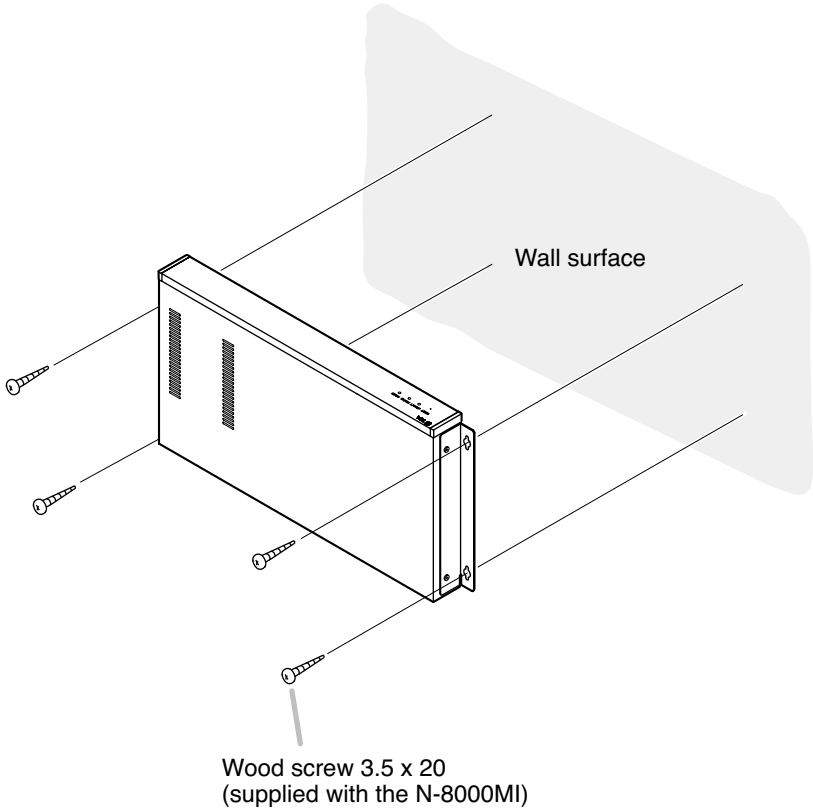
Protect against disconnection (Power supply plug)

Unlock cord clamp and run the power supply cord through it.

Note

Keep the cable length between a power supply plug and cord clamp as short as possible.





4. INSTALLATION OF THE DIRECT SELECT UNIT

The N-8000DI can be installed in any of three ways: (1) equipment rack mounting, (2) wall mounting, and (3) desk-top installation.

4.1. Equipment Rack Mounting

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

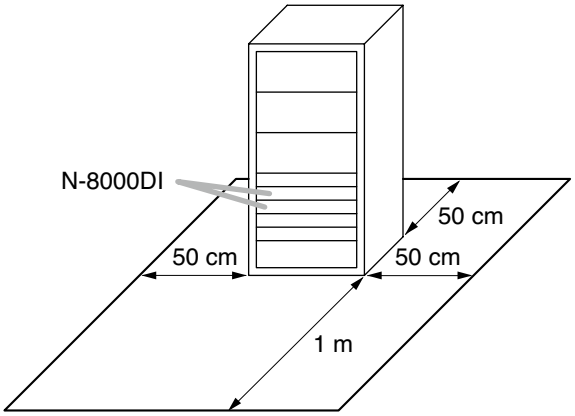
E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

The N-8000DI can be mounted on the CR -273, CR -413, or standard EIA 19" Equipment rack.
For the CR -273 and CR -413 Equipment rack assembly, read the installation manual supplied with the rack.

Note
When installing the N-8000DI, lay the equipment rack down face-up to do installation work safely.

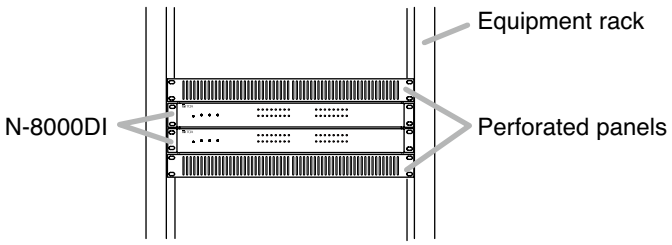
4.1.1. Setting space

For maintenance works, allow much space between the wall and Equipment rack.

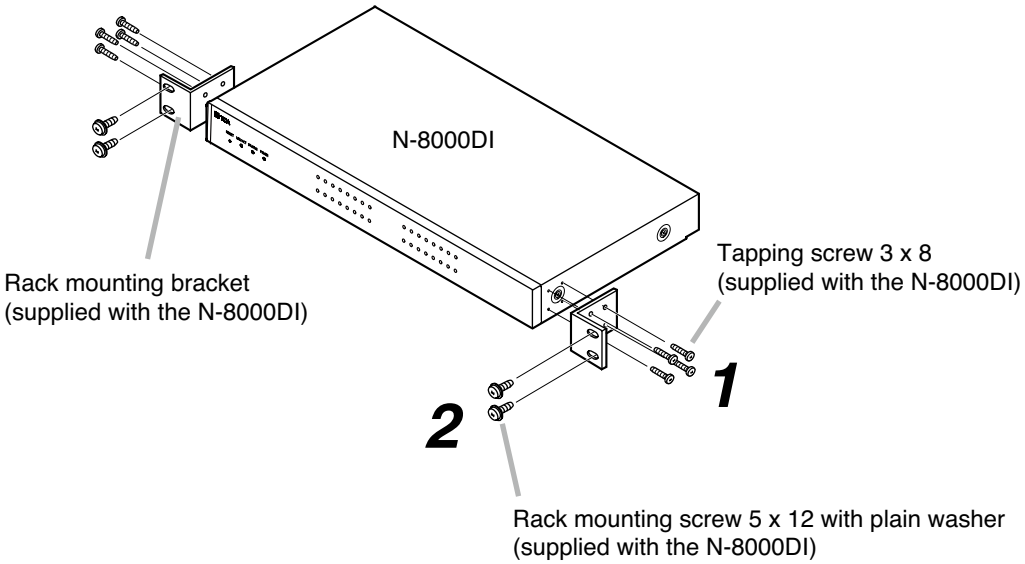


4.1.2. Caution when installing the unit

Do not stack up 3 units or more. If 2 or more units are mounted in the Equipment rack, be sure to mount the perforated panel of 1 U size (PF-013B) or more above and below every 2 units.



4.1.3. N-8000DI mounting

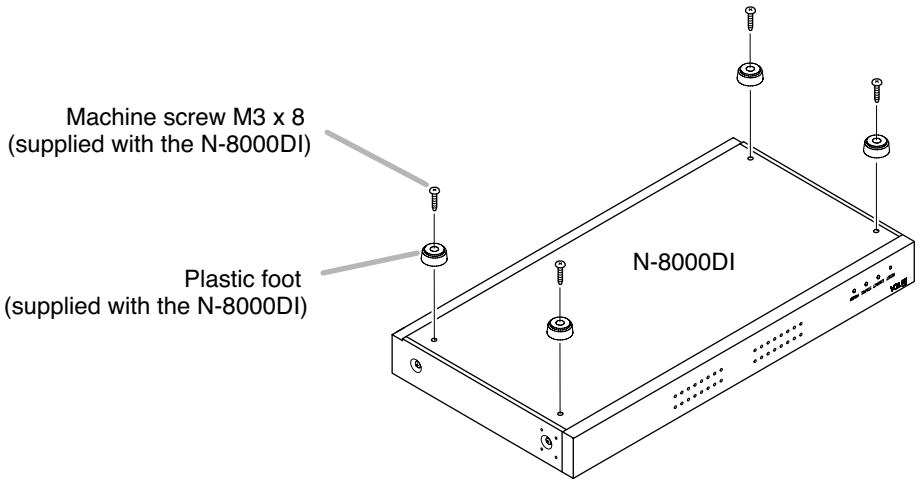


Step 1. Install the rack-mounting bracket to the N-8000DI.

Step 2. Mount the N-8000DI on the Equipment rack.

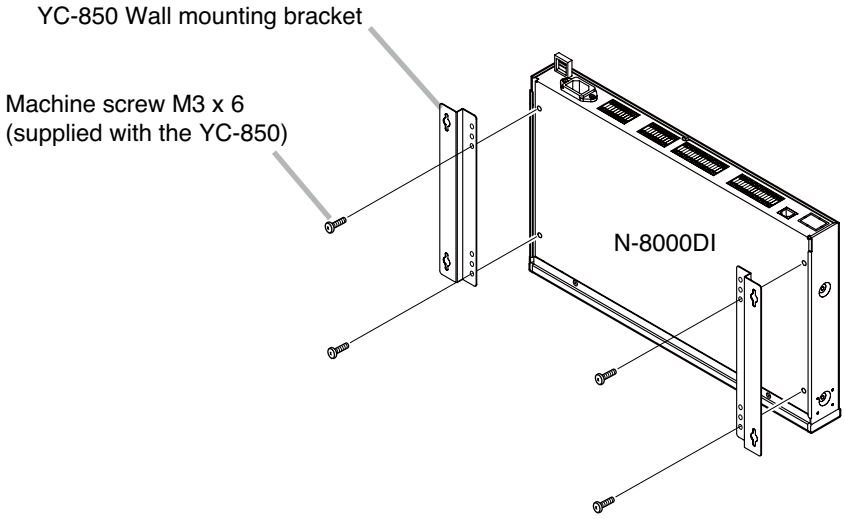
4.2. Desk-Top Installation

When installing the N-8000DI on a desk, secure the supplied plastic feet to the unit's bottom using the supplied machine screws.



4.3. Wall Mounting

Step 1. Install the optional YC-850 Wall mounting bracket to the N-8000DI.



Step 2. Mount the N-8000DI on the wall.

Notes

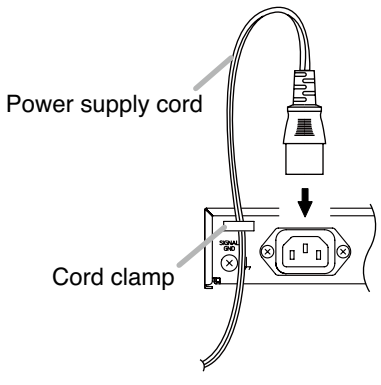
- Use appropriate screws for the construction of wall.
- Wood screws 3.5 x 20 are supplied with the YC-850.
- The socket-outlet shall be installed near the equipment and the plug (disconnecting device) shall be easily accessible.

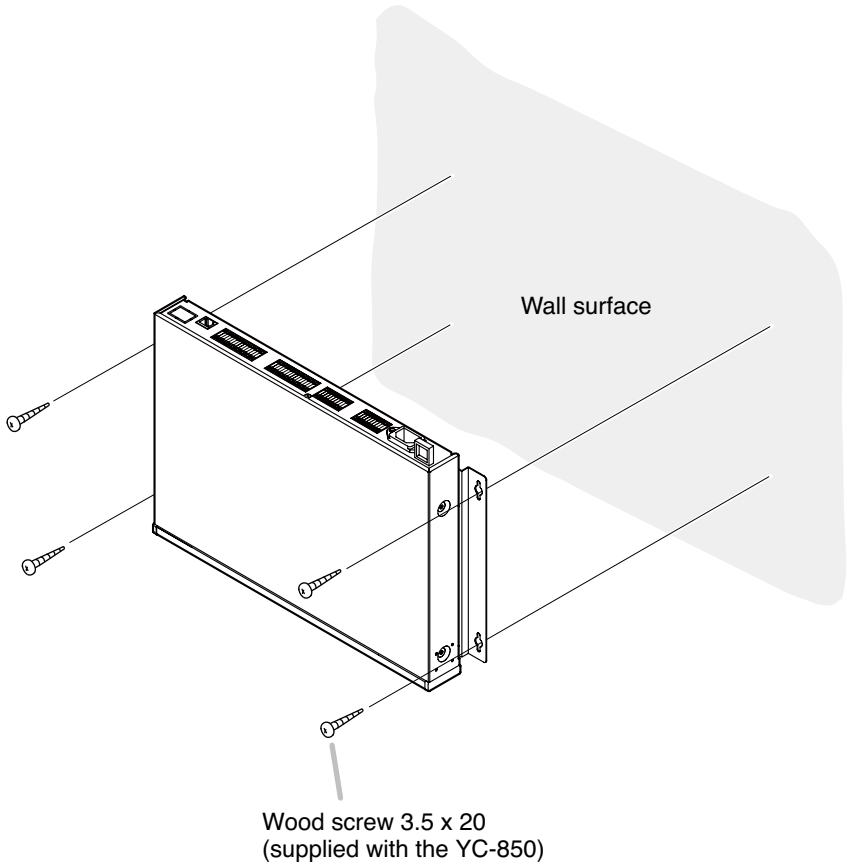
Protect against disconnection (Power supply plug)

Unlock cord clamp and run the power supply cord through it.

Note

Keep the cable length between a power supply plug and cord clamp as short as possible.





5. INSTALLATION OF THE AUDIO INTERFACE UNIT, C/O INTERFACE UNIT AND TELEPHONE INTERFACE UNIT

The N-8000AF/8000CO/8000AL can be installed in any of three ways: (1) equipment rack mounting, (2) wall mounting, and (3) desk-top installation.

5.1. Equipment Rack Mounting

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

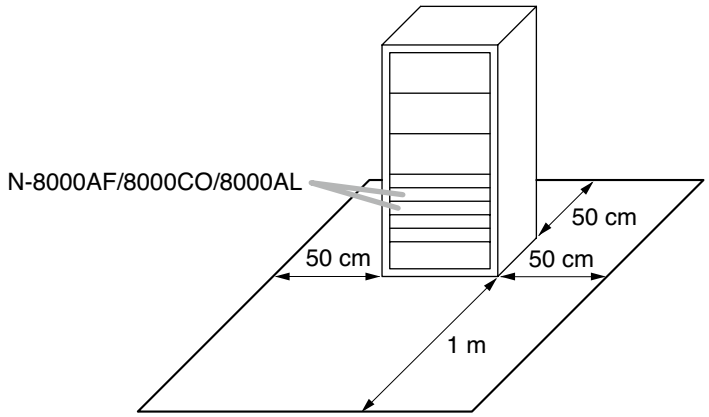
E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

The N-8000AF/8000CO/8000AL can be mounted on the CR -273, CR -413, or standard EIA 19" Equipment rack.
For the CR -273 and CR -413 Equipment rack assembly, read the installation manual supplied with the rack.

Note
When installing the N-8000AF/8000CO/8000AL, lay the equipment rack down face-up to do installation work safely.

5.1.1. Setting space

For maintenance works, allow much space between the wall and Equipment rack.

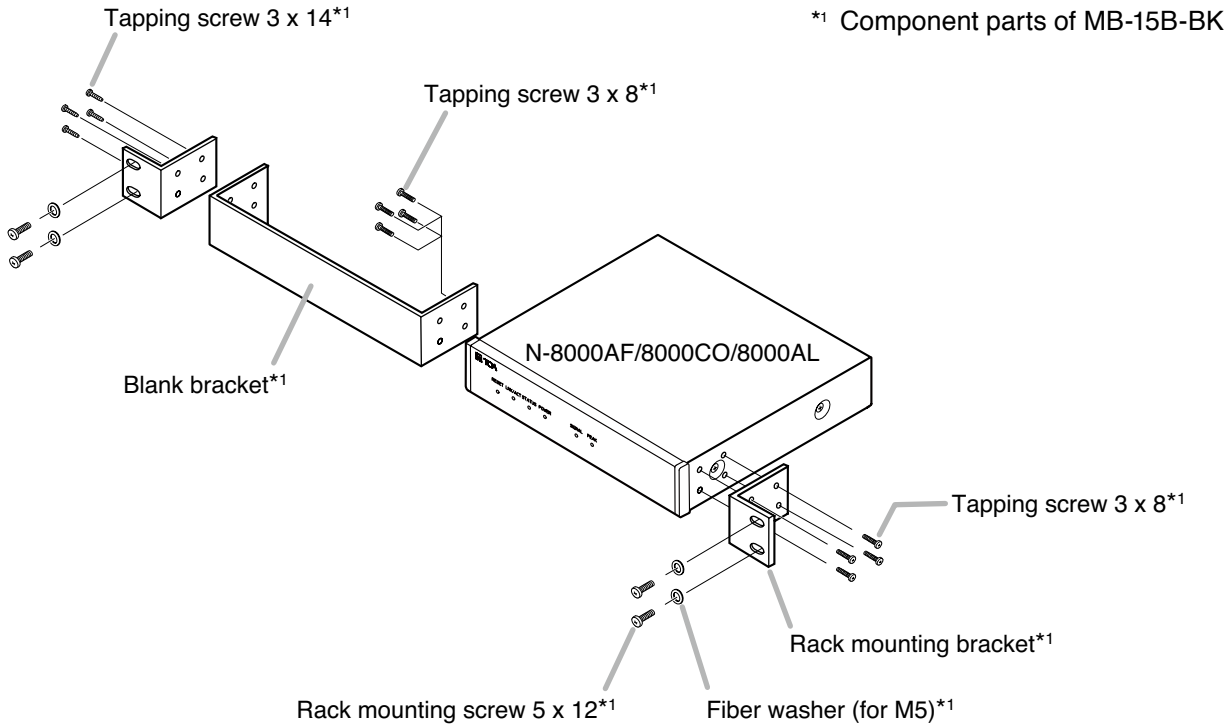


5.1.2. N-8000AF/8000CO/8000AL mounting

Use the optional mounting hardware set when installing the unit in an equipment rack.

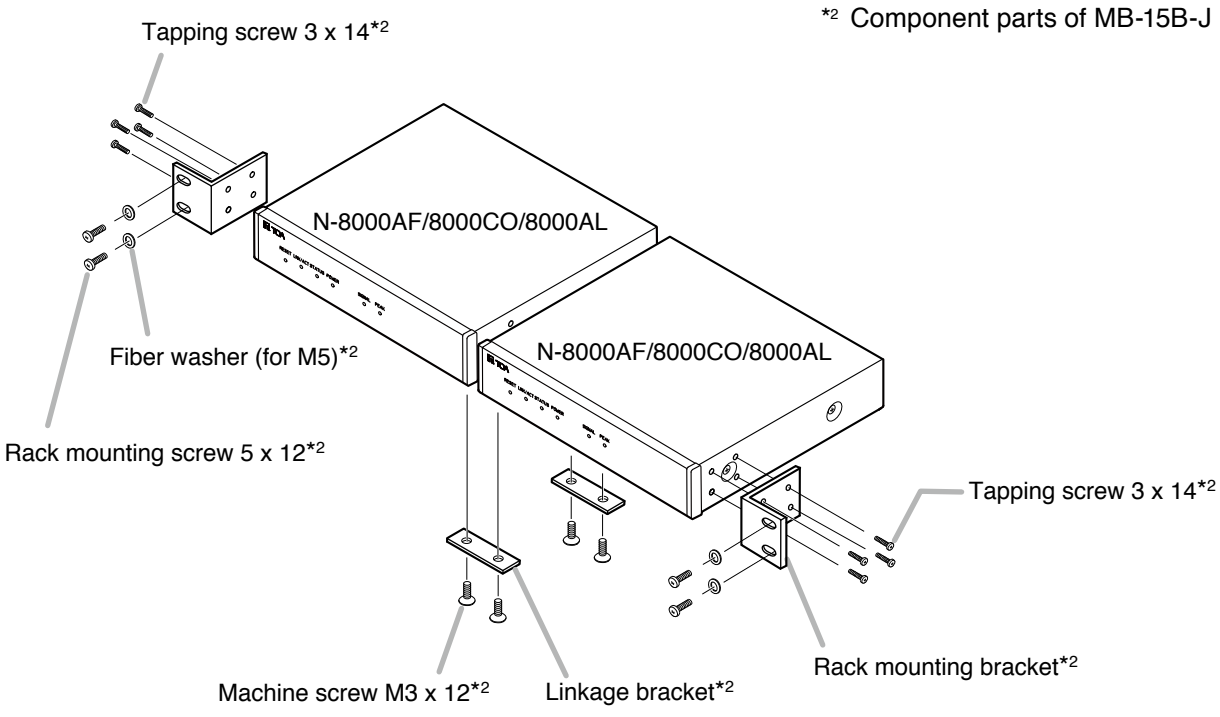
[When mounting a single unit]

Use the optional MB-15B-BK hardware set.



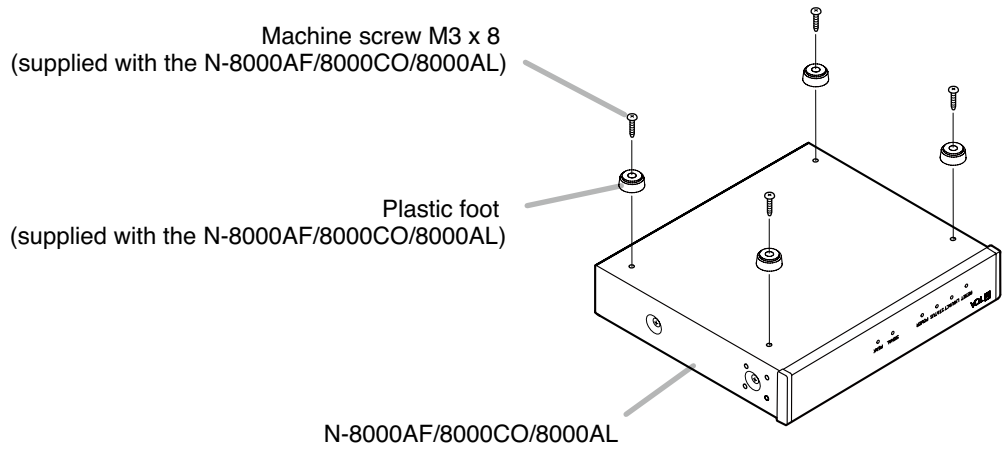
[When mounting 2 units]

Use the optional MB-15B-J hardware set.



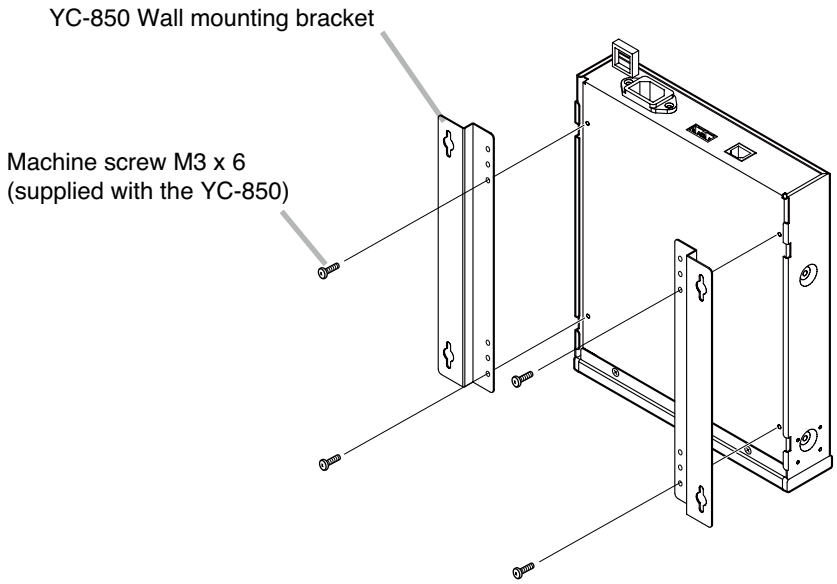
5.2. Desk-Top Installation

When installing the N-8000AF/8000CO/8000AL on a desk, secure the supplied plastic feet to the unit's bottom using the supplied machine screws.



5.3. Wall Mounting

Step 1. Install the optional YC-850 Wall mounting bracket to the N-8000AF/8000CO/8000AL.



Note: This figure represents the N-8000CO/8000AL.

Step 2. Mount the N-8000AF/8000CO/8000AL on the wall.

Notes

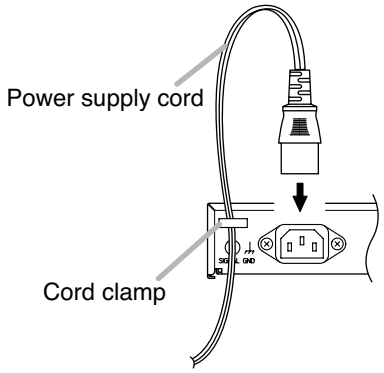
- Use appropriate screws for the construction of wall.
- Wood screws 3.5 x 20 are supplied with the YC-850.
- The socket-outlet shall be installed near the equipment and the plug (disconnecting device) shall be easily accessible.

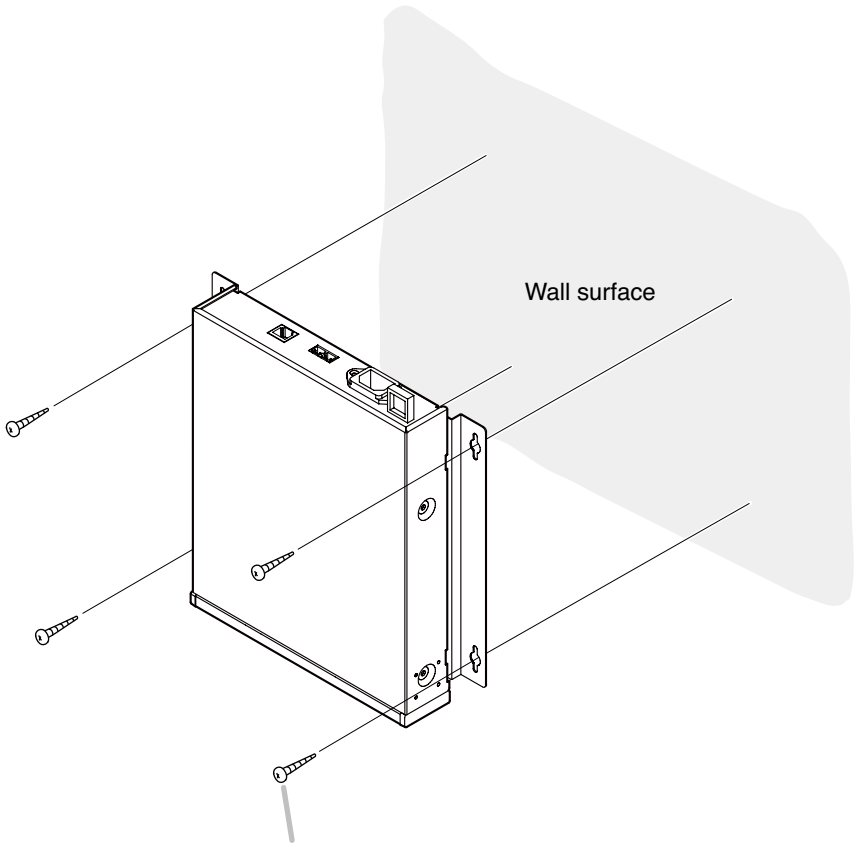
Protect against disconnection (Power supply plug)

Unlock cord clamp and run the power supply cord through it.

Note

Keep the cable length between a power supply plug and cord clamp as short as possible.





Note: This figure represents the N-8000CO/8000AL.

6. INSTALLATION OF THE IP MODULE

Install the SX-200IP IP Module in the module slot of the SX-2000AI or SX-2100AI Audio Input Unit.
For details, refer to the installation manual attached to the SX-200IP.

7. INSTALLATION OF MASTER STATIONS

Master stations can be installed in either of two ways: (1) wall mounting or (2) desk-top installation.

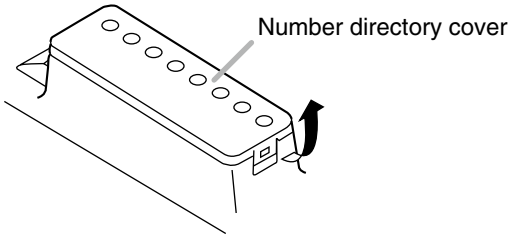
Note
When using the PA paging function, keep the station as far away from the PA paging speaker as possible to avoid acoustic feedback.

7.1. When Mounting the Station on a Wall

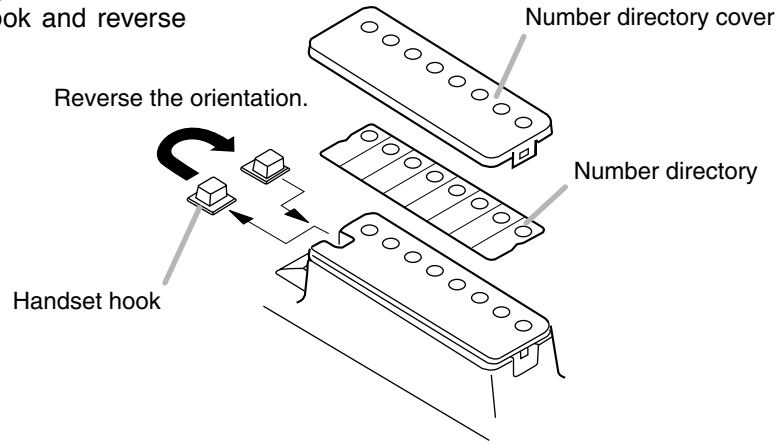
When mounting the station on a wall, the orientation of the handset hook needs to be changed.

7.1.1. N-8000MS/8010MS/8410MS/8500MS/8510MS/8600MS

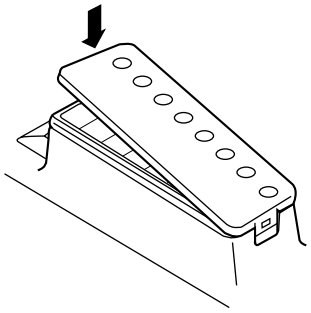
Step 1. Raise the number directory cover forward tab.



Step 2. Remove both the number directory cover and the directory. Remove the handset hook and reverse its orientation, then replace.

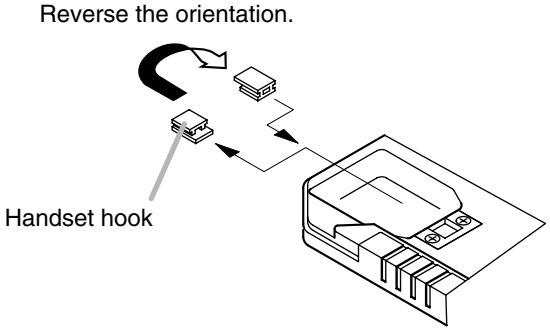


Step 3. After replacing the directory on the station, hook the directory cover's forward tab and push on the upper part of the directory cover.



7.1.2. N-8020MS

Remove the handset hook and reverse its orientation.

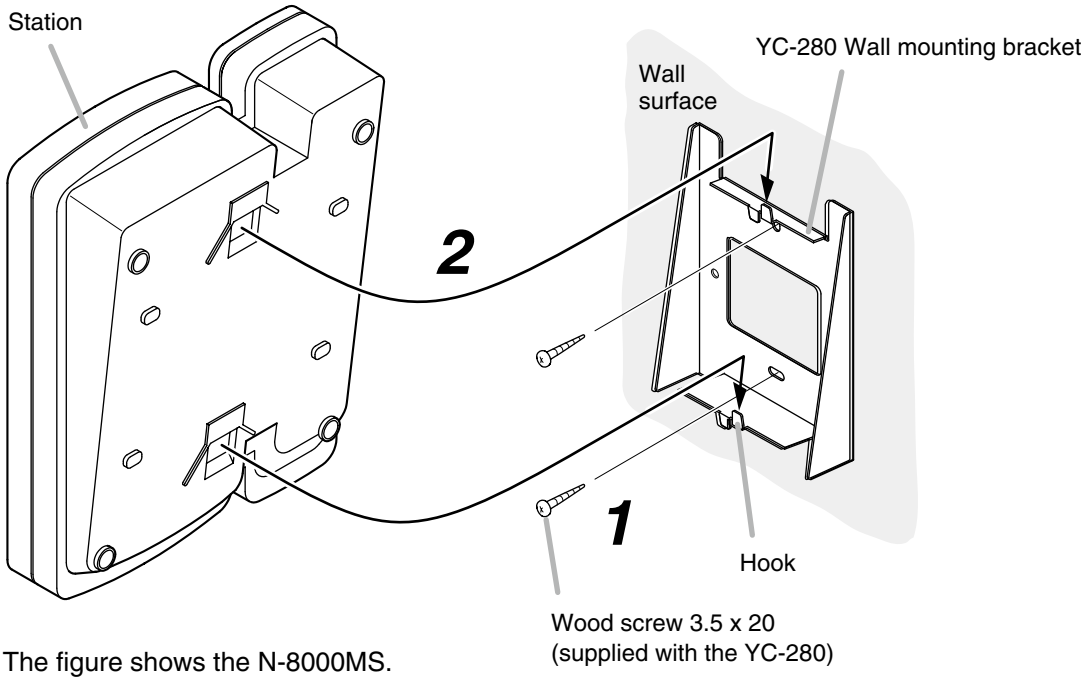


7.2. Wall Hanging

7.2.1. N-8000MS/8010MS/8020MS/8410MS/8500MS/8510MS/8600MS

The station can be mounted on a wall using an optional YC-280 Wall-mounting bracket.
The YC-280 can be installed to a one-gang electrical box.

[Mounting example]



The figure shows the N-8000MS.

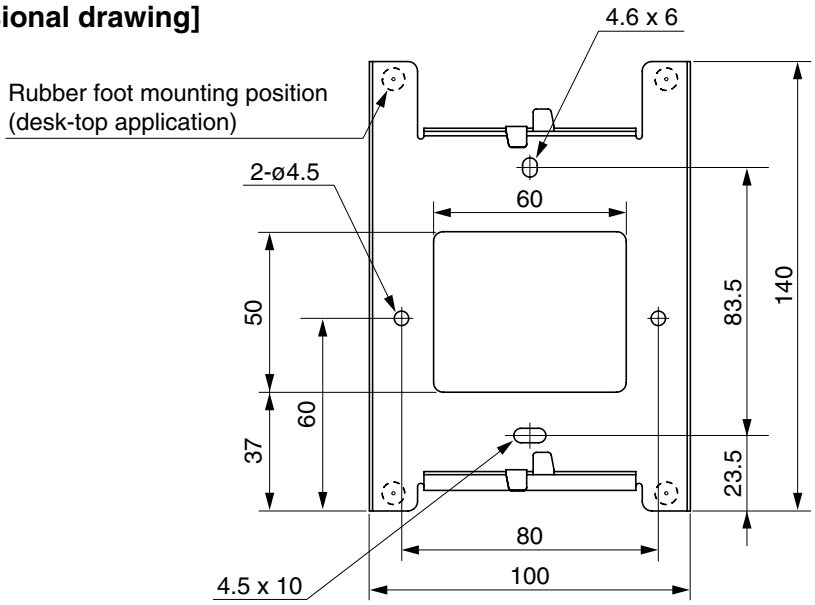
Step 1. Install the YC-280 wall mounting bracket to the wall.

Notes
- Use the appropriate screws for the construction of wall.
- Wood screws 3.5 x 20 are supplied with the YC-280.
- No fitting screws for electrical box are supplied with.
  Use commercially available screws.

Step 2. Hang the station on the wall mounting bracket hook to install.
Push down the station main body in the direction indicated by the arrow.

[YC-280 dimensional drawing]

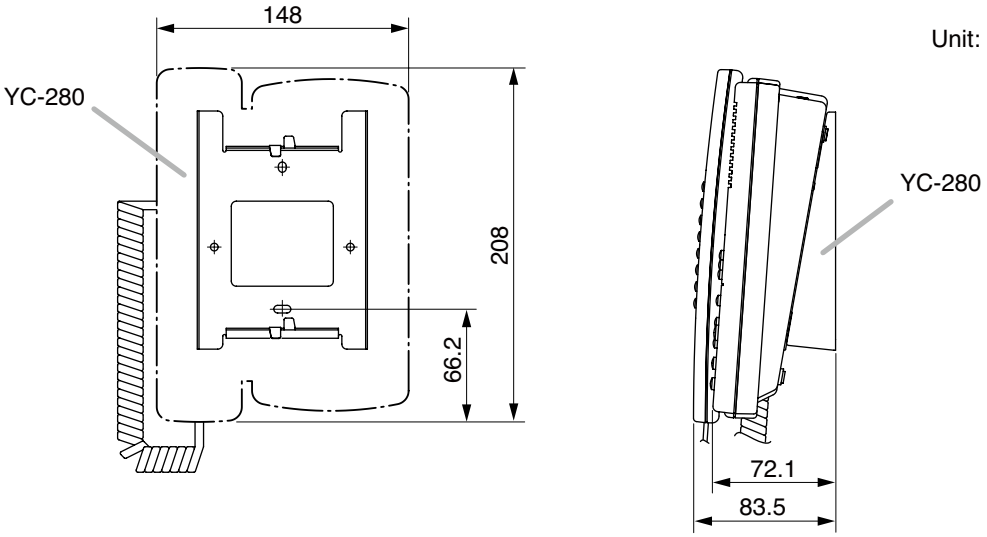
Unit: mm



[Installation completion drawing]

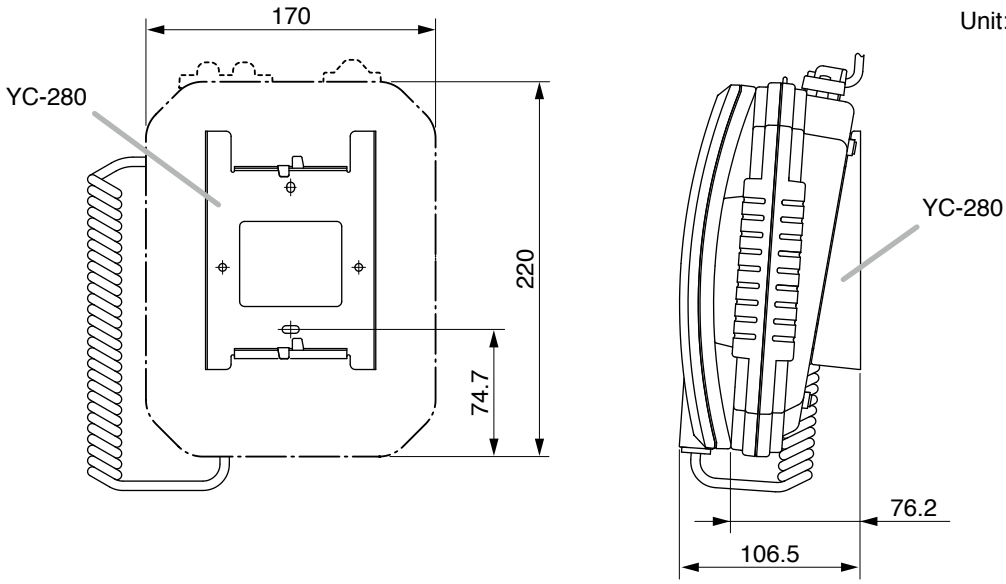
• **N-8000MS/8010MS/8410MS/8500MS/8510MS/8600MS**

Unit: mm



• **N-8020MS**

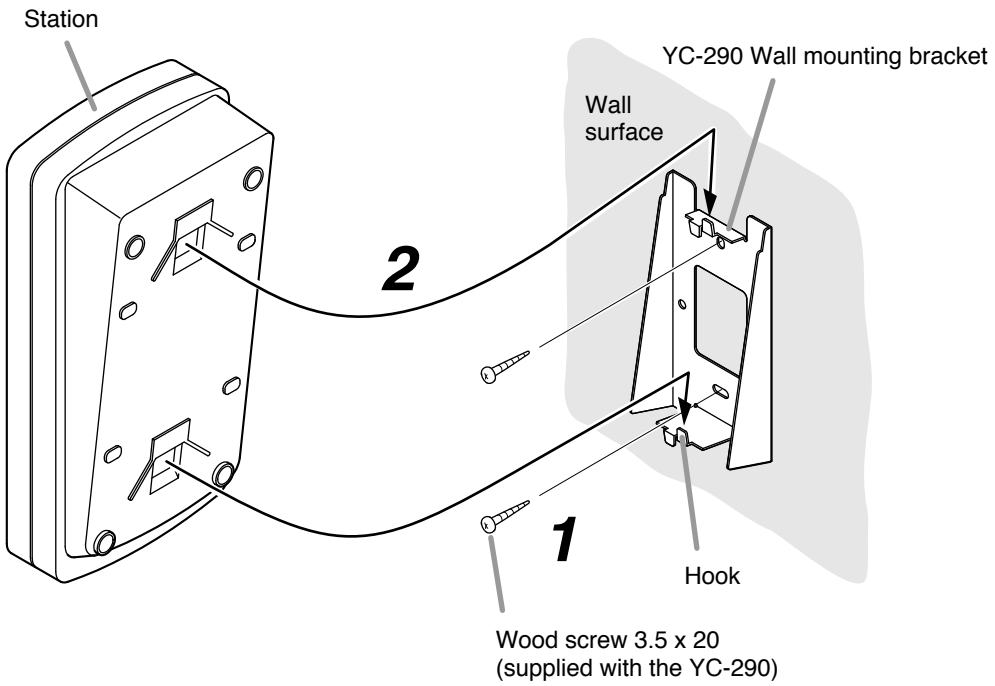
Unit: mm



7.2.2. N-8011MS

The station can be mounted on a wall using an optional YC-290 Wall mounting bracket.
The YC-290 can be installed to a one-gang electrical box.

[Mounting example]



Step 1. Install the YC-290 Wall mounting bracket to the wall.

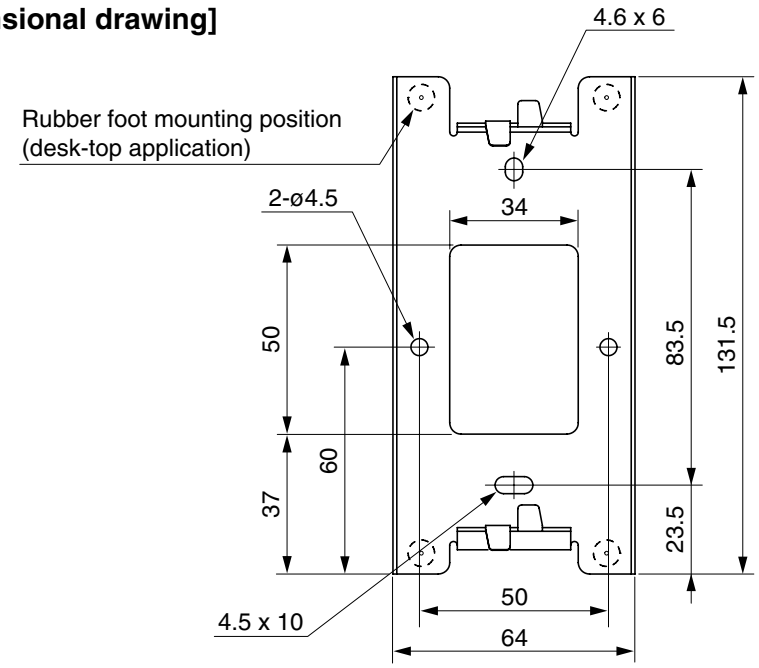
Notes

- Use appropriate screws for the construction of wall.
- Wood screws 3.5 x 20 are supplied with the YC-290.
- No fitting screws for electrical box are supplied.
  Use commercially available screws.

Step 2. Hang the station on the Wall mounting bracket hook to install.
Push down the station main body in the direction indicated by the arrow.

[YC-290 dimensional drawing]

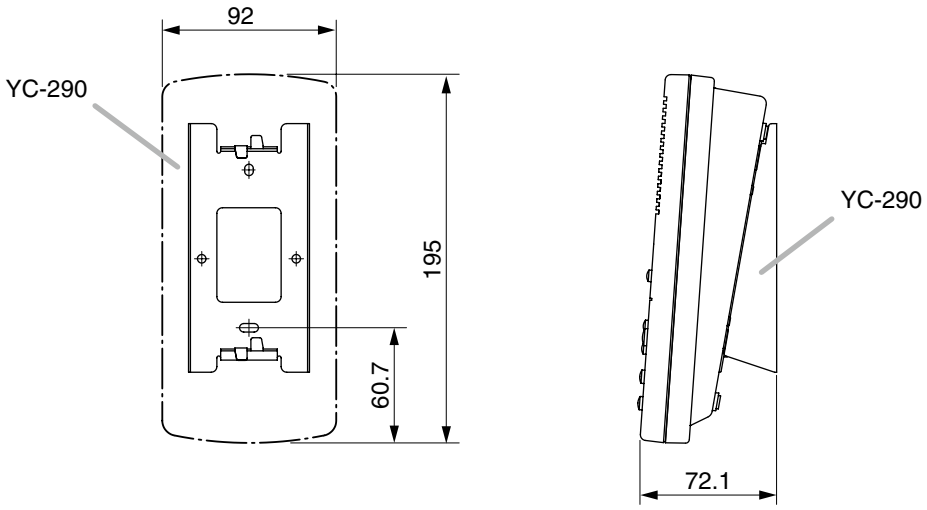
Unit: mm



[Installation completion drawing]

- **N-8011MS**

Unit: mm



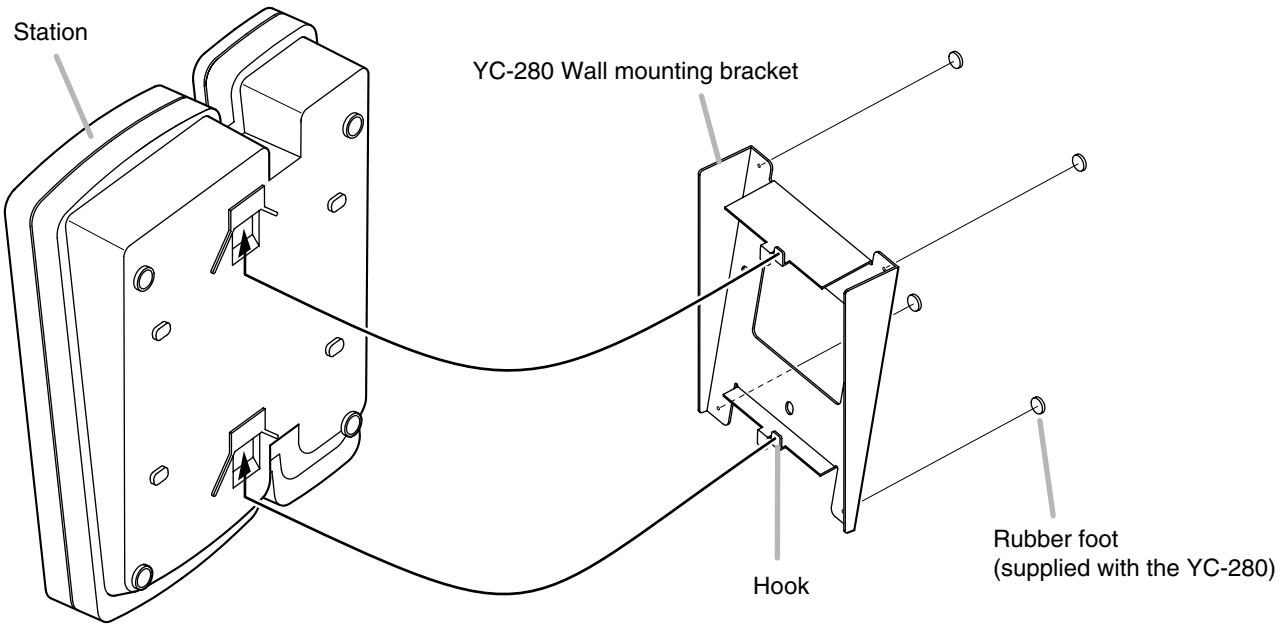
7.3. Desk-Top Installation

7.3.1. N-8000MS/8010MS/8020MS/8410MS/8500MS/8510MS/8600MS

In desktop installations, the front operation panel can be inclined 16˚ from the desk surface for easier operation by attaching the YC-280 Wall mounting bracket to its bottom surface.

[Mounting example]

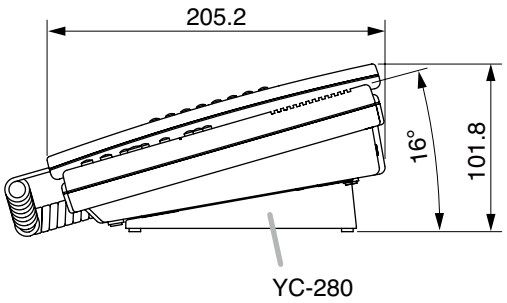
Hang the wall mounting bracket hook on the station's wall bracket mounting slot to install.
Push up the Wall mounting bracket in the direction indicated by the arrow.



The figure shows the N-8000MS.

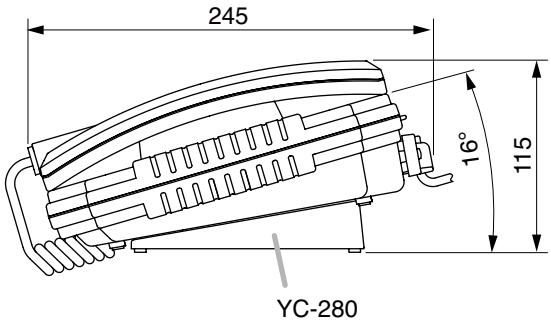
[Installation completion drawing]

- **N-8000MS/8010MS/8410MS/8500MS /8510MS/8600MS**



- **N-8020MS**

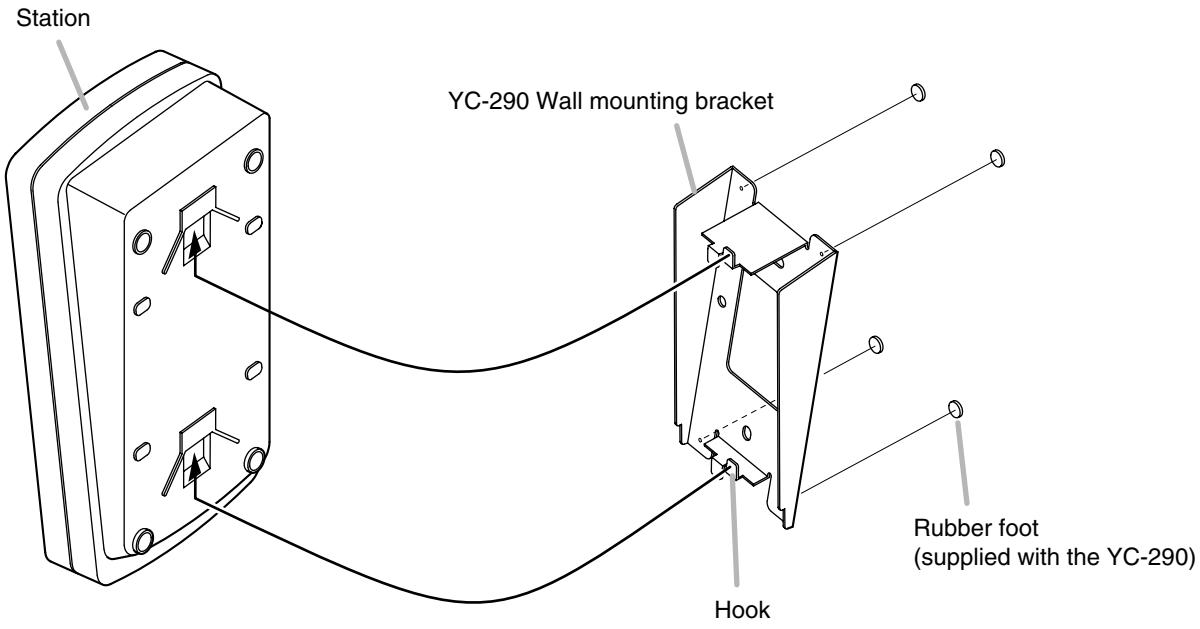
Unit: mm



7.3.2. N-8011MS

In desktop installations, the front operation panel can be inclined 16˚ from the desk surface for easier operation by attaching the YC-290 Wall mounting bracket to its bottom surface.

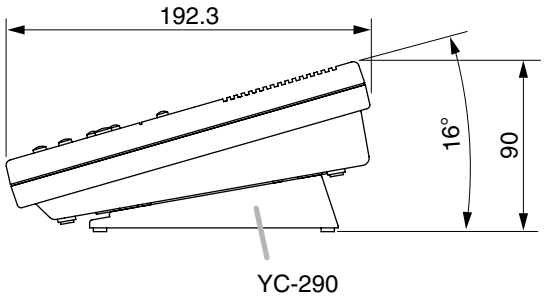
[Mounting example]



Hang the Wall mounting bracket hook on the station's wall bracket mounting slot to install.
Push up the Wall mounting bracket in the direction indicated by the arrow.

[Installation completion drawing]

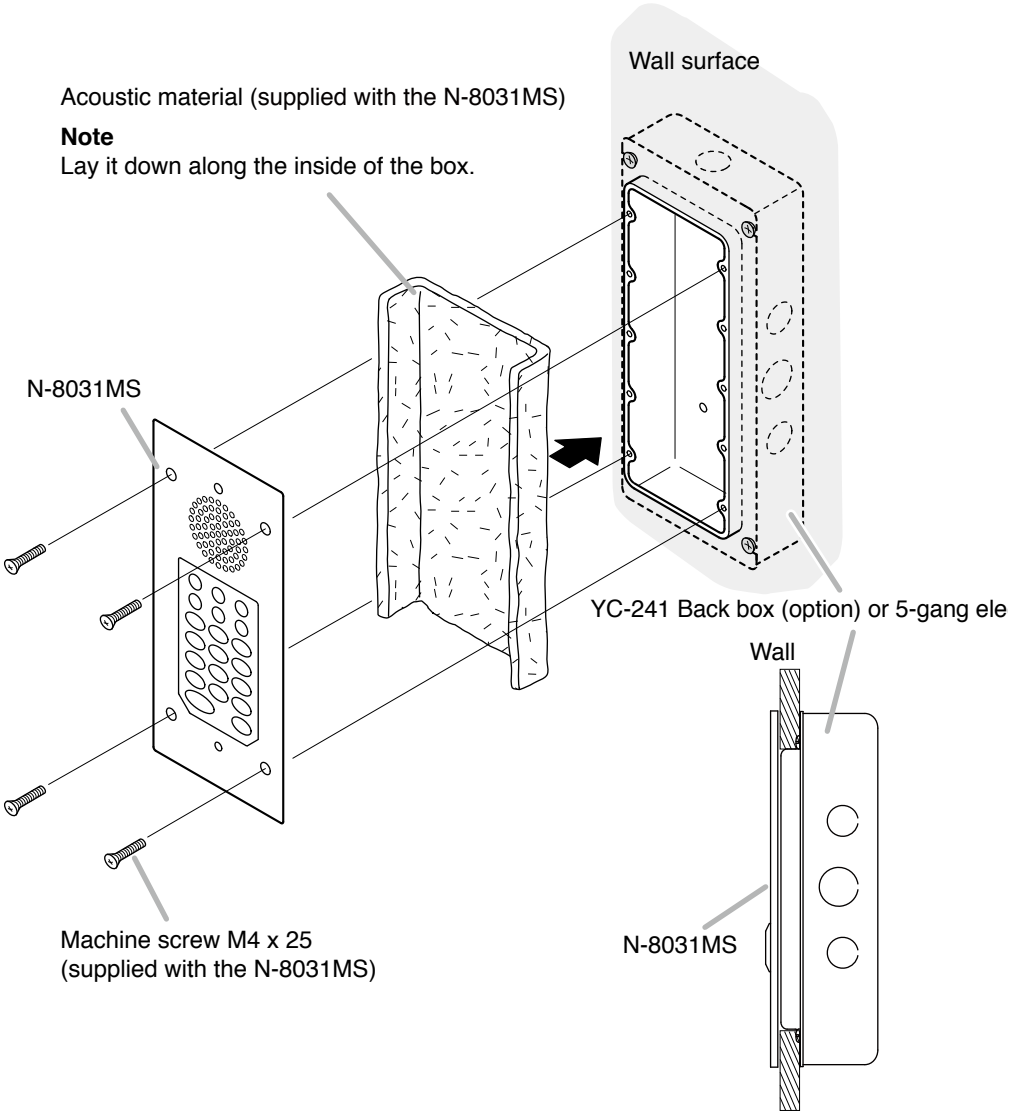
Unit: mm



7.4. Flush Mounting

[N-8031MS]

Attach the N-8031MS to the YC-241 Back box or an electrical box installed in a wall.



[Section view]

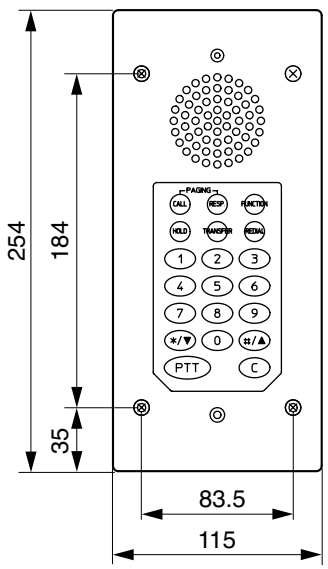
Accessory screws

The N-8031MS comes with 2 types of screws: M4 x 25 and UNC No. 6-32 x 18.
For the electrical box provided with unified threads, use the UNC No. 6-32 x 18.

Note
The wall should be over 12 mm thick, and the opening in the wall for an electrical box should be under 115 mm (wide) by 254 mm (high).

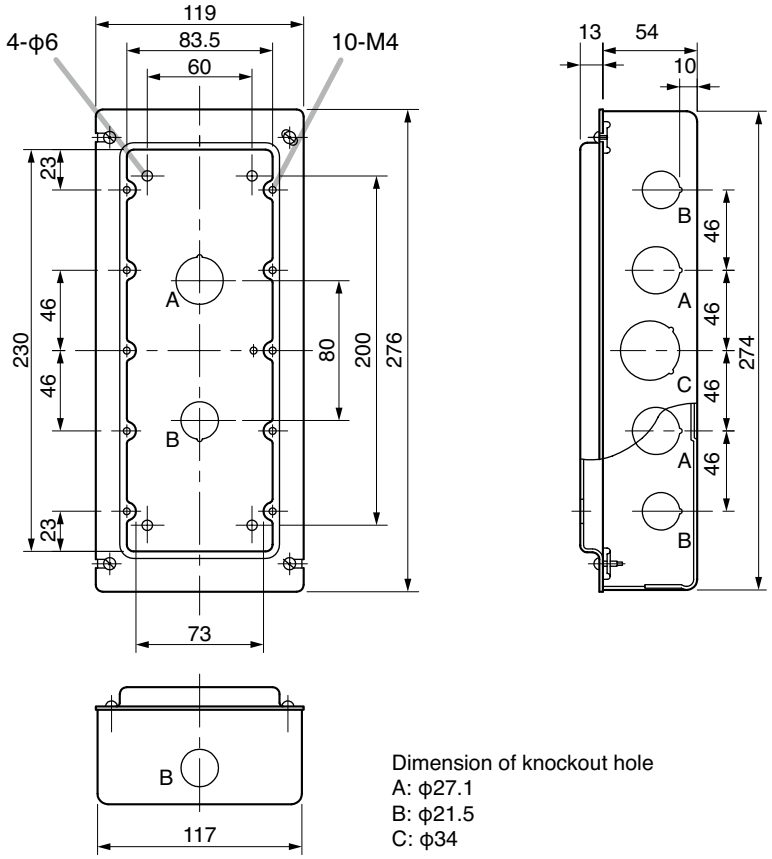
[Installation completion drawing]

Unit: mm



[YC-241 dimensional drawing]

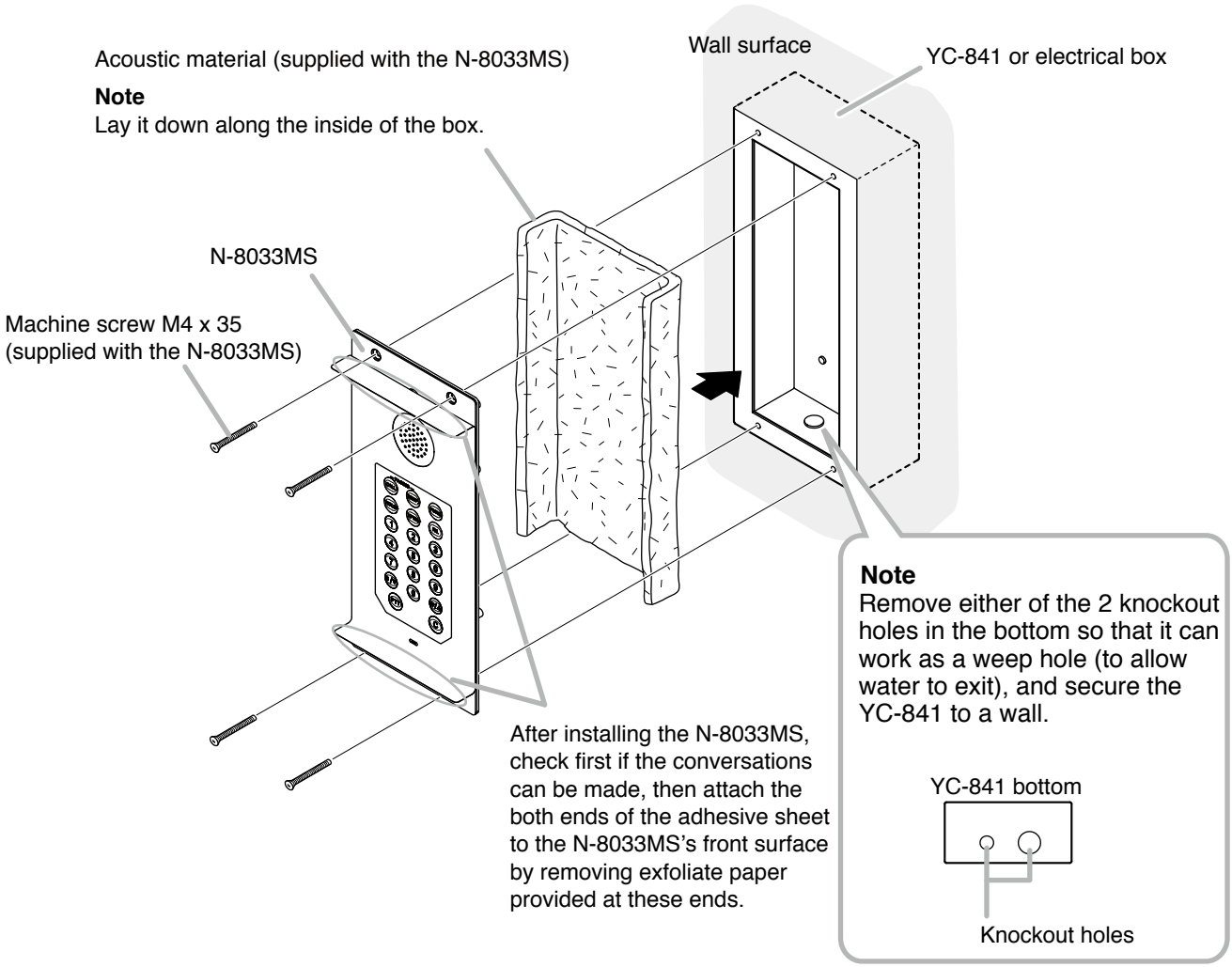
Unit: mm



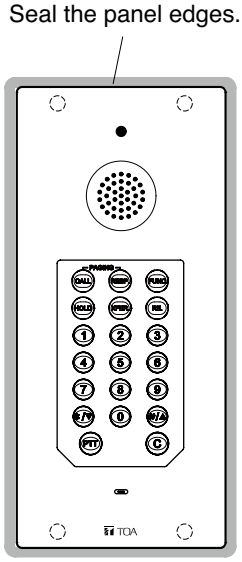
Dimension of knockout hole
A: φ27.1
B: φ21.5
C: φ34

[N-8033MS]

Attach the N-8033MS to the YC-841 Wall-mount box or an electrical box installed in a wall.

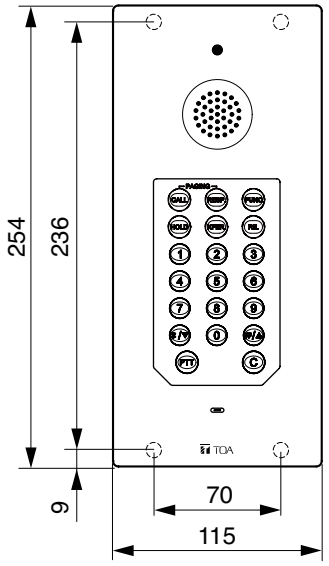


Note
When installing the N-8033MS outdoors or at locations where it gets wet with water, tightly seal the panel edges. For sealing method, consult your TOA dealer.



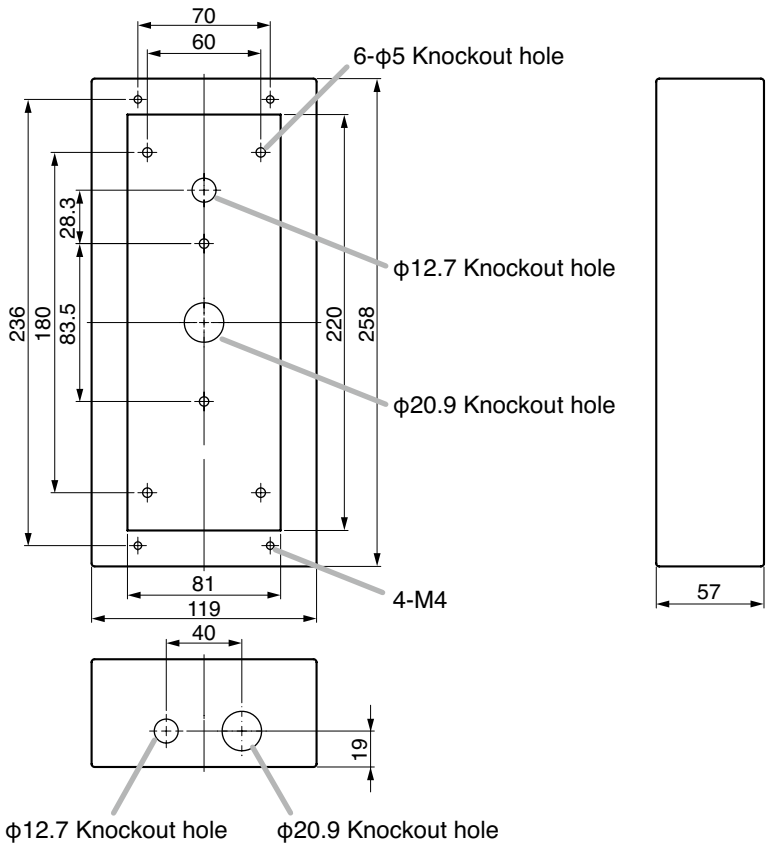
[Installation completion drawing]

Unit: mm



[YC-841 dimensional drawing]

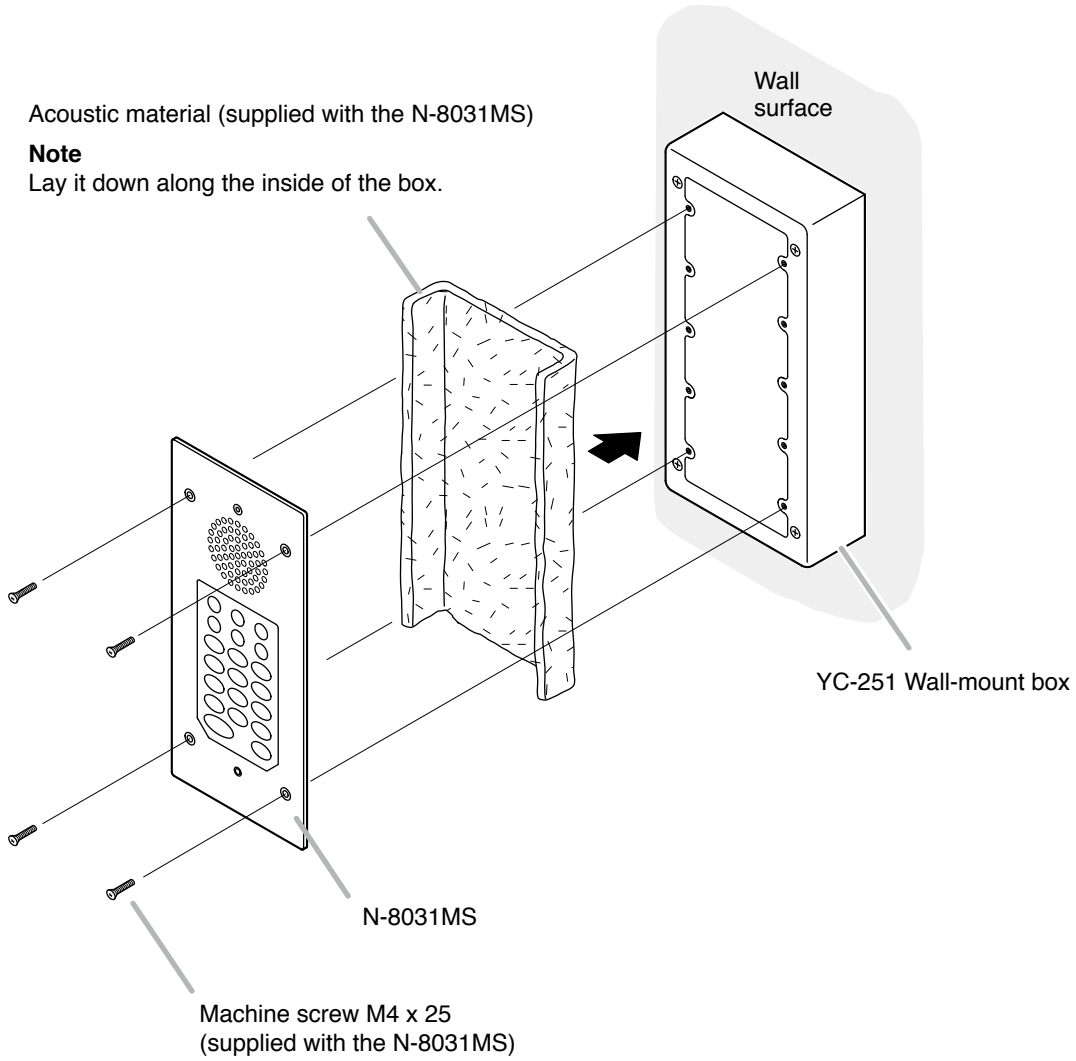
Unit: mm



7.5. Wall Surface Mounting

[N-8031MS]

Attach the N-8031MS to the YC-251 Wall-mount box installed on a wall.

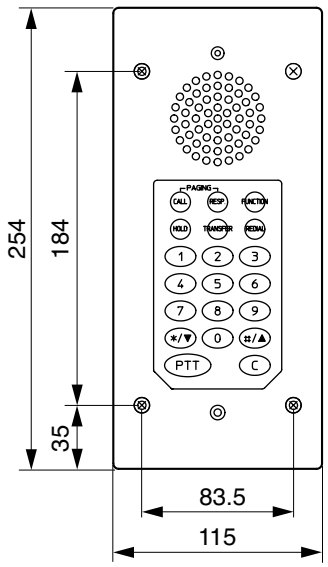


Accessory screws

The N-8031MS comes with 2 types of screws: M4 x 25 and UNC No. 6-32 x 18.
For the electrical box provided with unified threads, use the UNC No. 6-32 x 18.

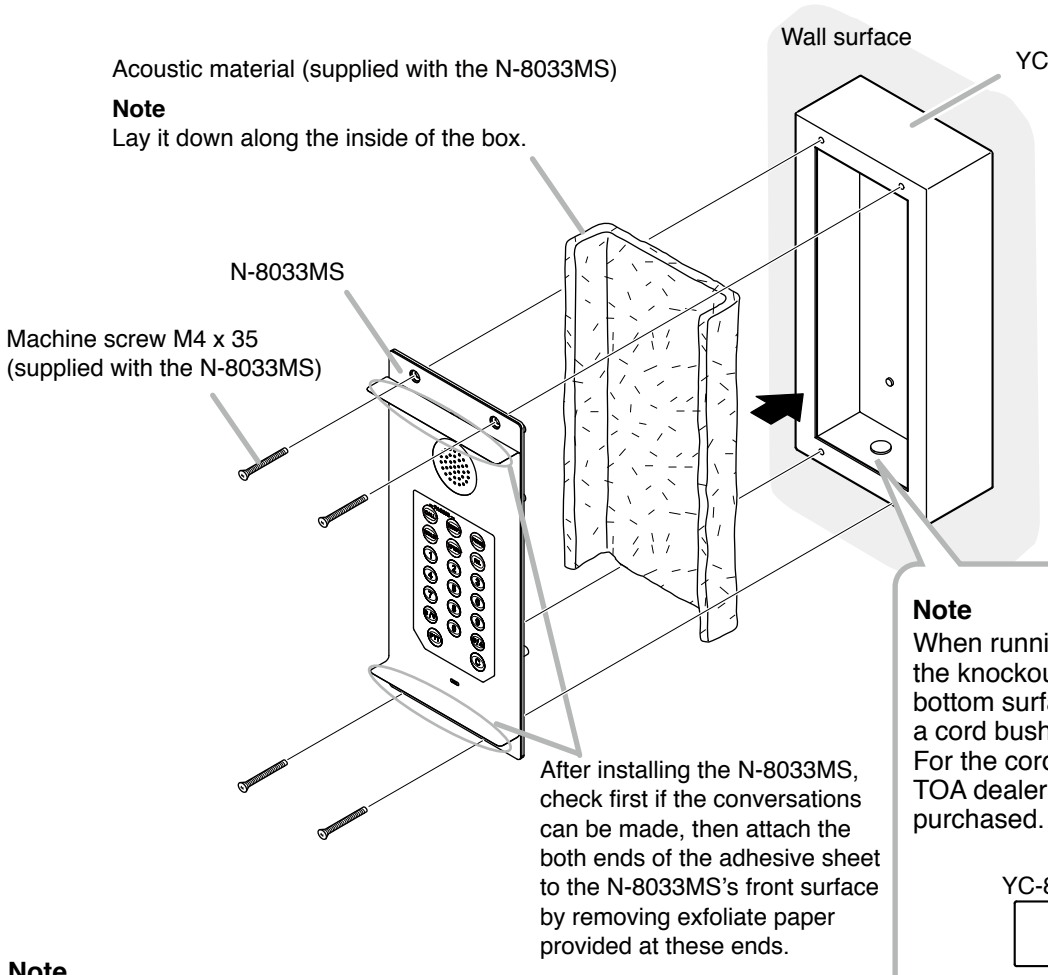
[Installation completion drawing]

Unit: mm



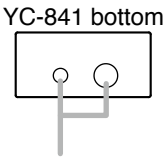
[N-8033MS]

Attach the N-8033MS to the YC-841 Wall-mount box installed on a wall.

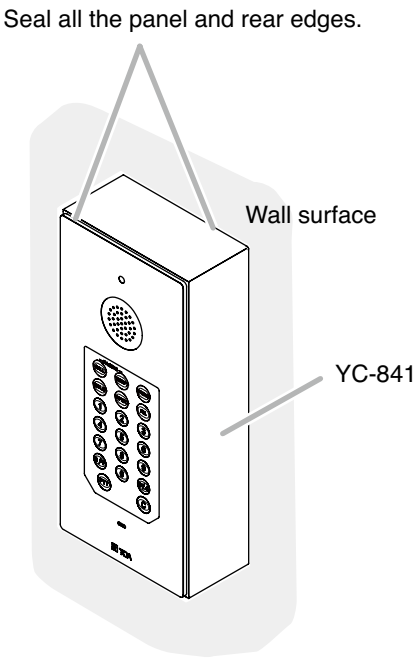


Tip
Refer to p. 3-28 for YC-841 dimensional drawing.

Note
When running the cable through the knockout hole in the YC-841's bottom surface, be sure to attach a cord bush (waterproof type). For the cord bush, contact the TOA dealer where the unit was purchased.

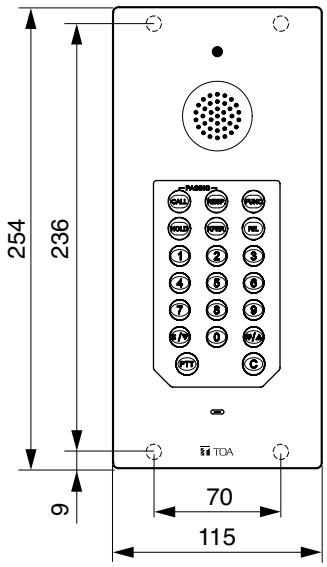


Note
Seal the edges of the panel and those of the box's rear surface in contact with the wall surface when installing the unit outdoors or at locations where it gets wet with water. For sealing method, contact your nearest TOA dealer.



[Installation completion drawing]

Unit: mm



8. INSTALLATION OF REMOTE MICROPHONE STATION

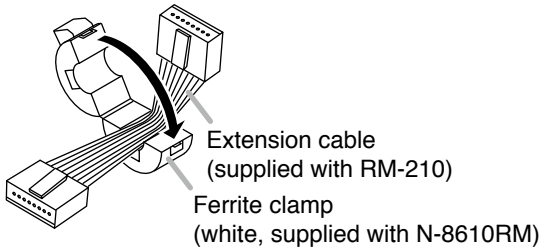
8.1. Desk-Top Installation

8.1.1 N-8610RM expansion with the addition of the RM-210

When adding an RM-210 Remote Microphone Extension to expand the N-8610M, use the RM-210's Extension cable and included Linkage Bracket to link the 2 units.
Follow the procedures below.

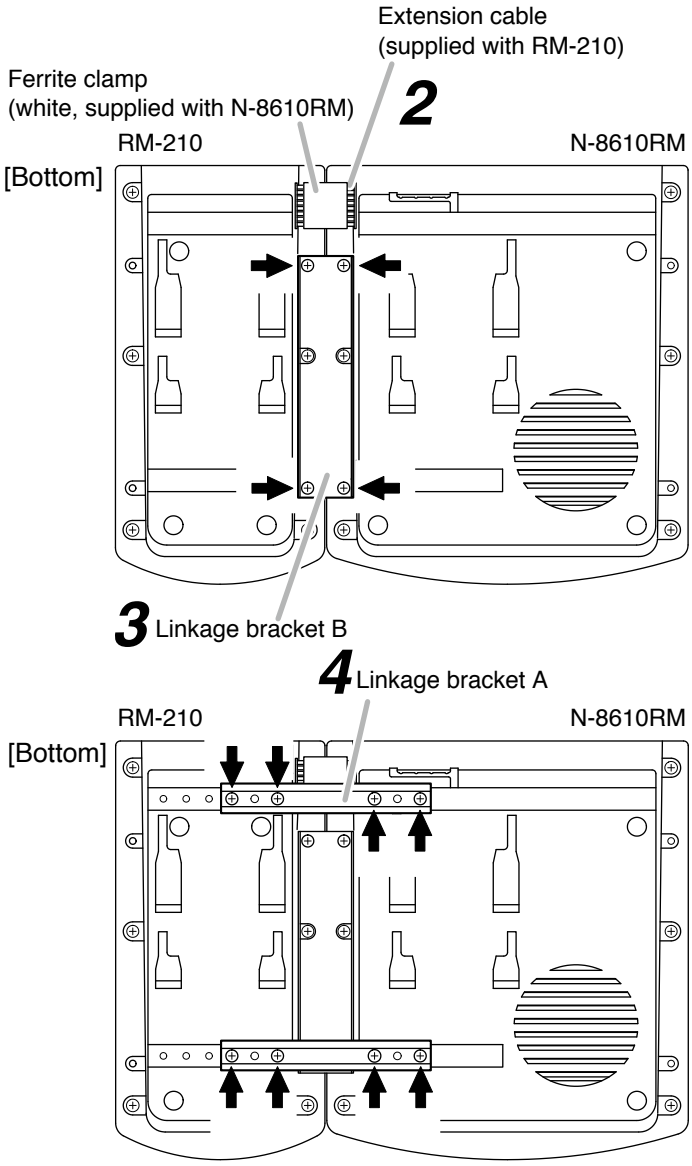
Step 1. Turn over both the N-8610RM and the RM-210, and keep them in close contact with each other.

Step 2. Connect between the RM-210 connection terminal (EXTENSION) on the N-8610RM side and the RM connection terminal (EXTENSION) on the RM-210 side using the extension cable supplied with the RM-210.
In this case, install the ferrite clamp supplied with the N-8610RM on the extension cable as shown below.



Step 3. Link both the N-8610RM and the RM-210 together using the Linkage Bracket B supplied with the RM-210.
Secure the bracket with the 4 supplied screws indicated by arrows.

Step 4. Fix both units securely using the Linkage Bracket A (2 pieces) supplied with the RM-210.
Secure them with the 8 supplied screws indicated by arrows.



Tip
Follow the same procedures when linking additional RM-210. But you need not install the ferrite clamp on the extension cable used to connect between RM-210s.

Notes
- Because the Linkage Bracket A is provided with 2 spare screw holes, use them to link the 2 units if the designated screw threaded holes are damaged.
- If incorrect or loose connection is found between both units, loosen all the bracket fixing screws to disassemble the units and then link them again with the screws.

8.2. Wall Hanging

The N-8610RM can be mounted on a wall using an optional WB-RM200 Wall-Mounting Bracket.

8.2.1 N-8610RM

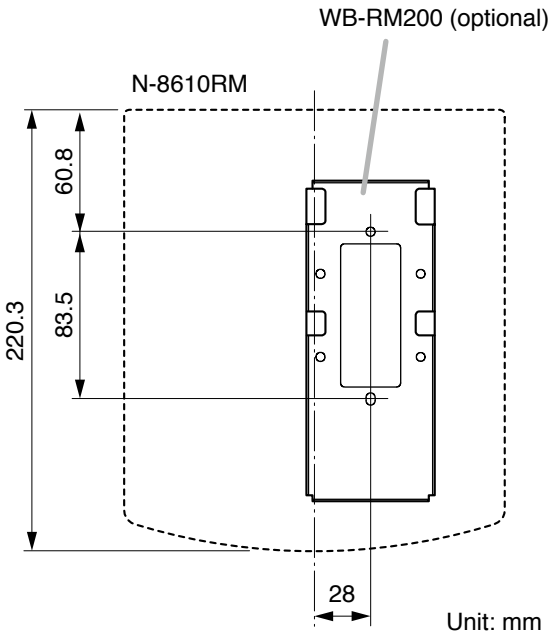
Step 1. Install the WB-RM200 Wall-Mounting Bracket to the wall.
In this case, leave the LAN cable out of the notch in the bracket.

Note
Since there are 2 types of mounting screws supplied with the WB-RM200 for an electrical box and for wall. Select ones according to the mounting method.
For electrical box: Machine screw M3.5 x 20
For wall mounting: Tapping screw 4 x 25

⚠ WARNING

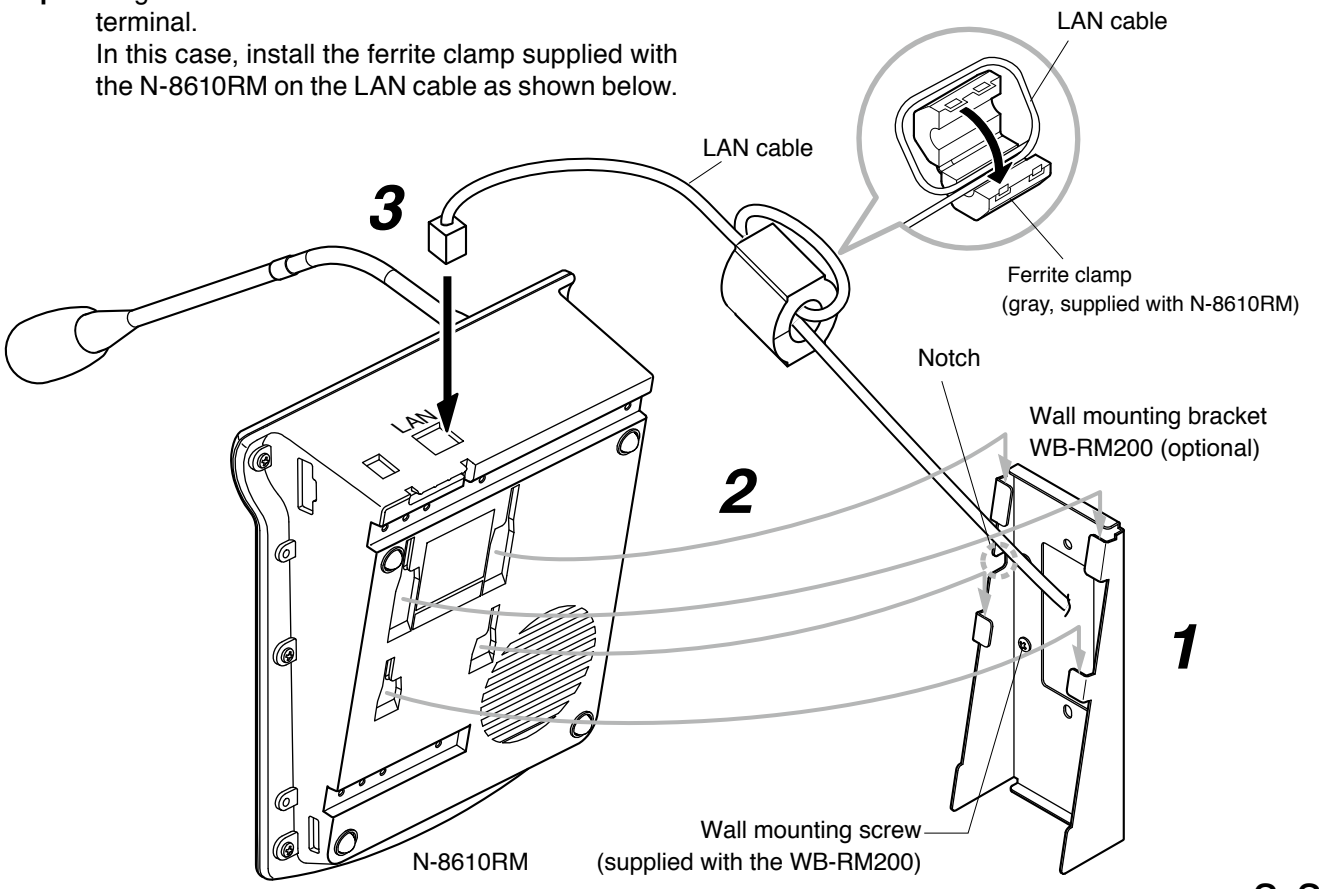
- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- Be sure to use 2 screws when mounting the bracket to the wall.

[WB-RM200 mounting dimensions]



Step 2. Hook the bottom surface of the N-8610RM onto the WB-RM200.

Step 3. Plug the LAN cable into the N-8610RM's LAN terminal.
In this case, install the ferrite clamp supplied with the N-8610RM on the LAN cable as shown below.



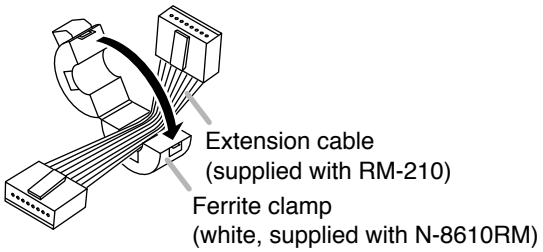
8.2.2 RM-210

The RM-210 can be mounted on a wall using an optional WB-RM200 Wall-Mounting Bracket.

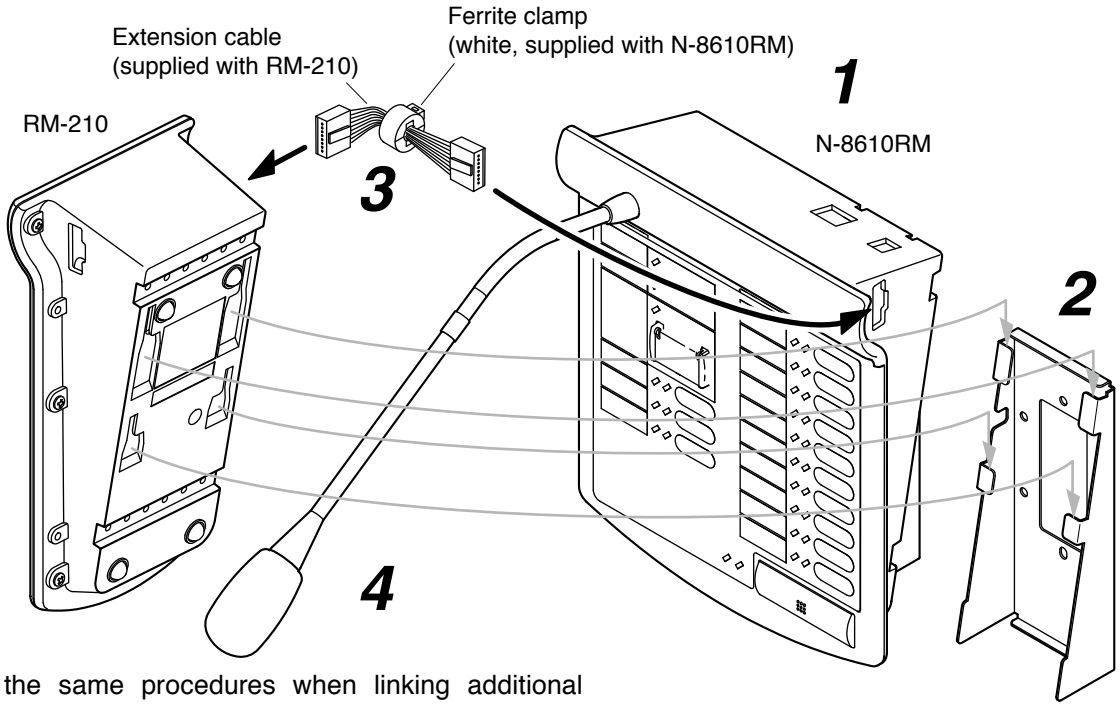
Step 1. Install the N-8610RM to the wall. (Refer to the previous page.)

Step 2. Install the WB-RM200 used for mounting the RM-210 to the wall.

Step 3. Connect between the RM-210 connection terminal (EXTENSION) on the N-8610RM side and the RM connection terminal (EXTENSION) on the RM-210 side using the extension cable supplied with the RM-210. In this case, install the ferrite clamp supplied with the N-8610RM on the LAN cable as shown at right.

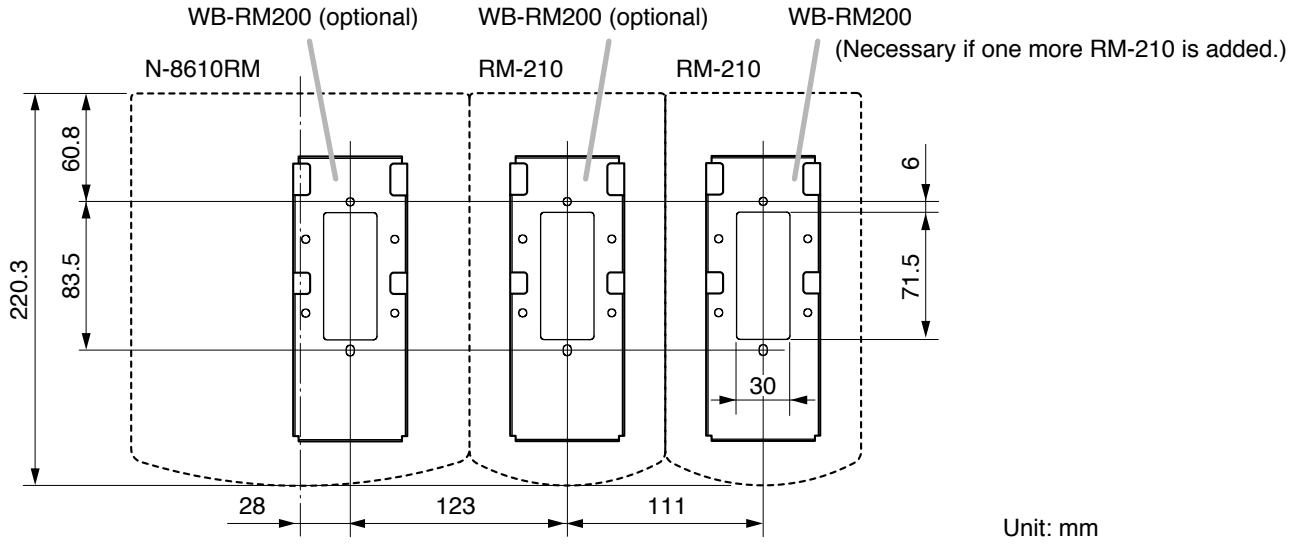


Step 4. Hook the bottom surface of the RM-210 onto the WB-RM200.



Tip
Follow the same procedures when linking additional RM-210. But you need not install the ferrite clamp on the extension cable used to connect between RM-210s.

[WB-RM200 mounting dimensions]



Unit: mm

8.3. Creating Remote Microphone Name Labels

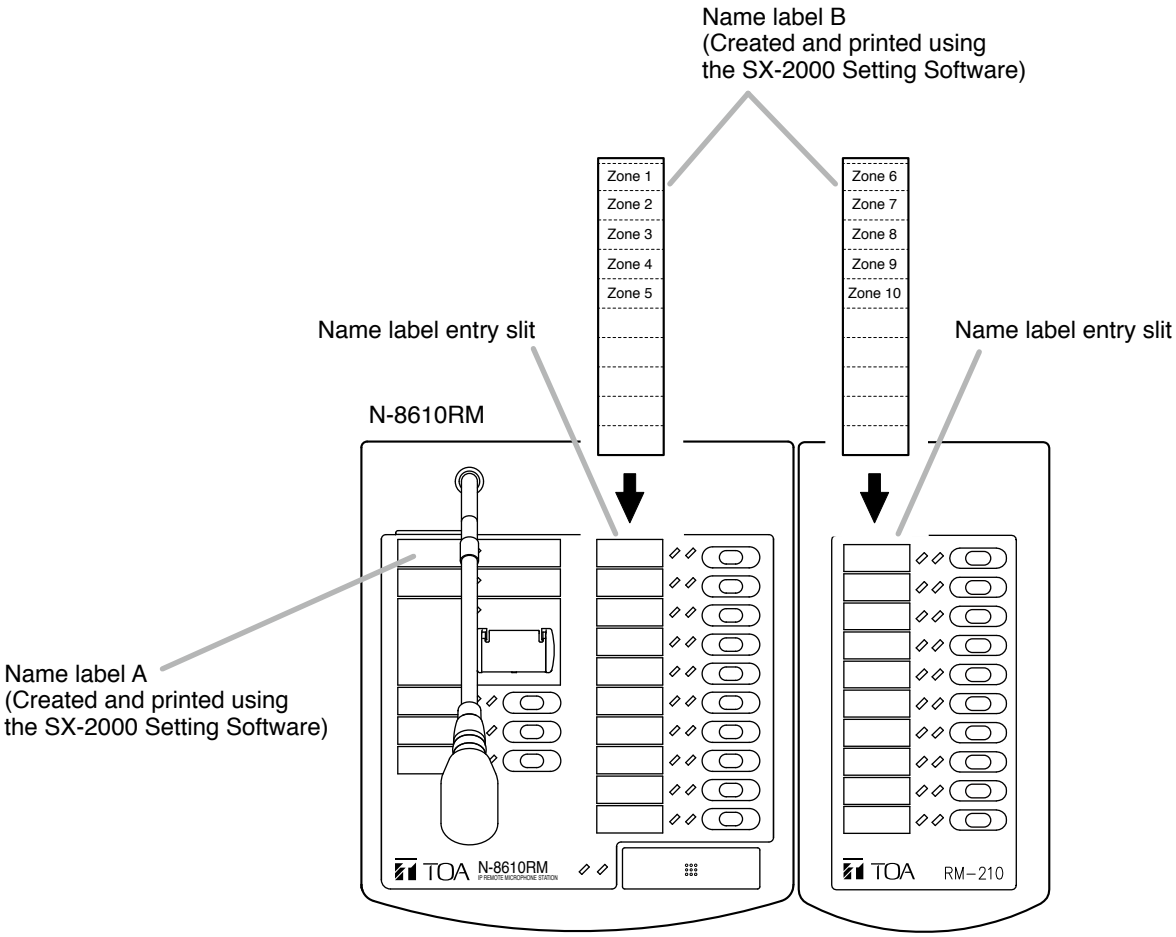
8.3.1. Creating name labels using the SX-2000 Setting Software

Using the SX-2000 Setting Software function, assigned names of preset N-8610RM and RM-210 Function keys can be printed out. Once printed, cut out the printed names with scissors to use them as corresponding name labels. The paper used for the name label must be under 0.2 mm in thickness.

Note
For creating and printing name labels using the SX-2000 Setting Software, see the "Printing Labels for Remote Microphones" section in the setting software Instructions supplied with SX-2000 series unit.

8.3.2 Inserting the name label

- Fully insert the name label cut to the instructed size into the label entry slit.
- To remove the label, pull it out of the slit using the tip of knife blade.



8.3.3. If the name label is not printed correctly

The name label created using the SX-2000 Setting Software may not be printed in correct size depending on the configuration environment of your PC. In such cases, try one of the methods described below.

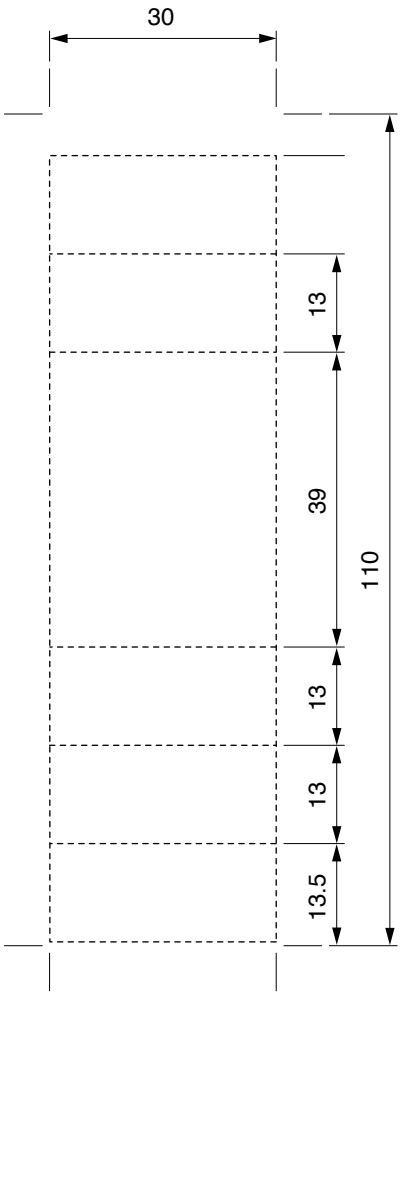
(1) Preparation by hand
Copy the handwriting label on pages 3-36 and 3-37 to a paper with under 0.2 mm in thickness. After writing names, cut out the pattern paper aligning it with the cutting guidelines.

(2) Preparation by using a PC or word processor
Prepare and print according to the instructions given in the "Dimensional diagram for printing devices" shown below. Then cut out to the instructed size. The printing paper should be under 0.2 mm in thickness.

[Dimensional diagram for printing devices]

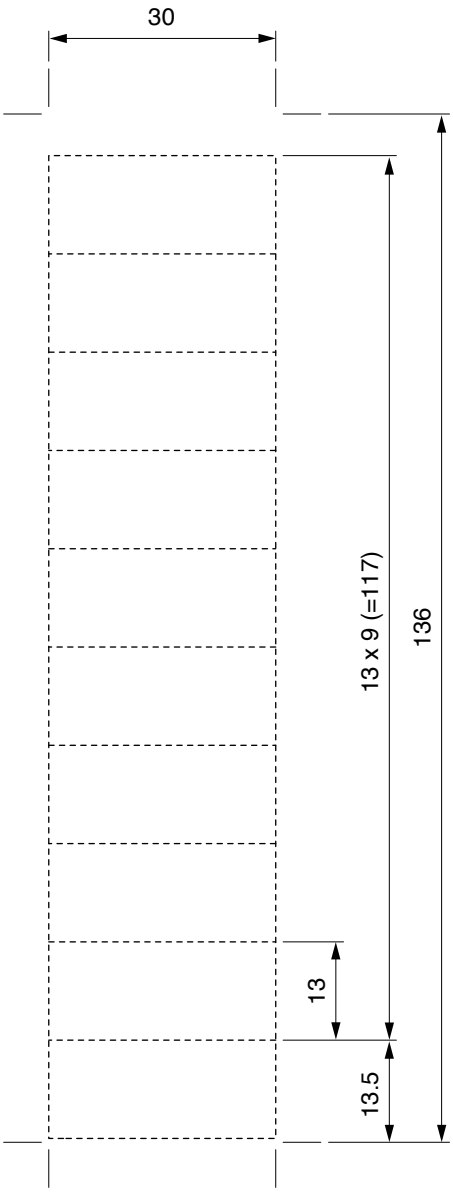
Name label A

Cutting size: 30 x 110 mm



Name label B

Cutting size: 30 x 136 mm



[Preparing handwriting label]

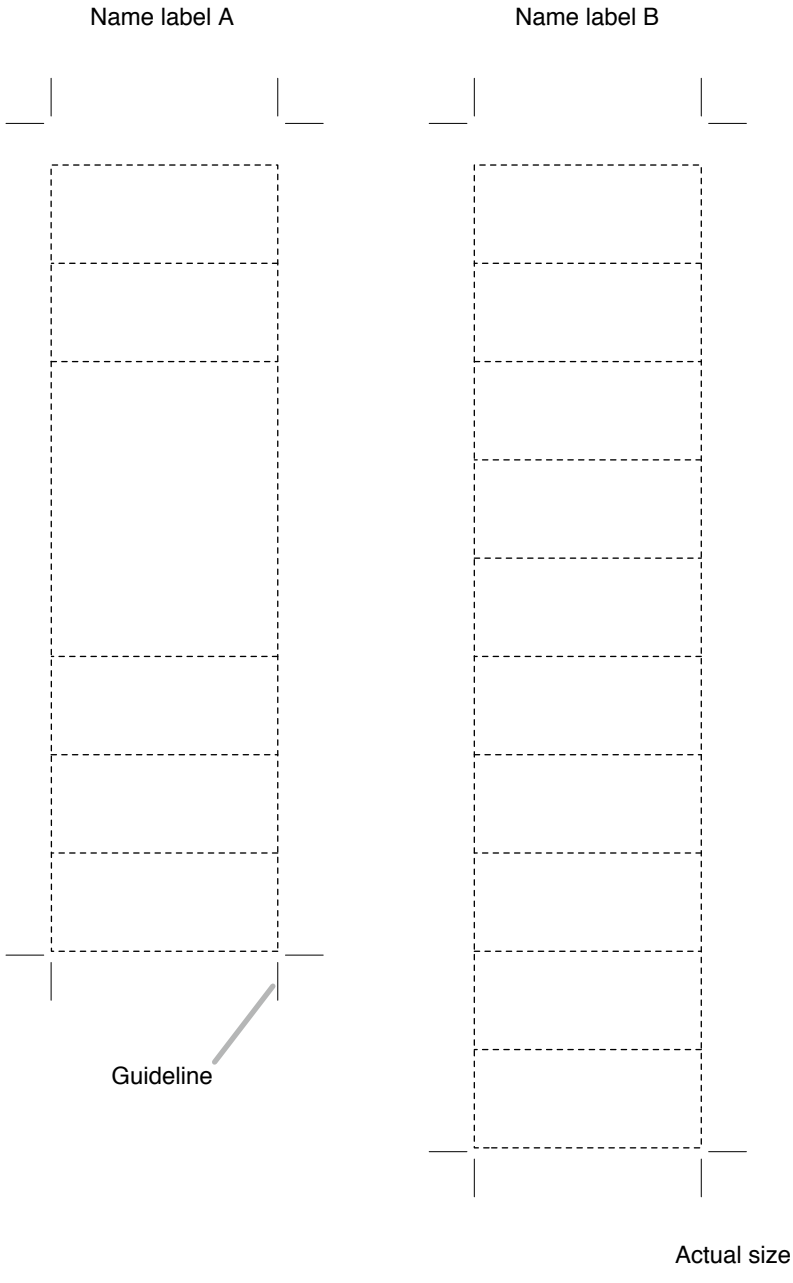
Precautions on Printing
Be sure to print out the corresponding pages of this PDF file 100% in size.
To do so, set the print items of the Adobe Acrobat or Adobe Reader as follows.
Note that the Adobe Acrobat's or Adobe Reader's default setting will reduce the size of pages to be printed.

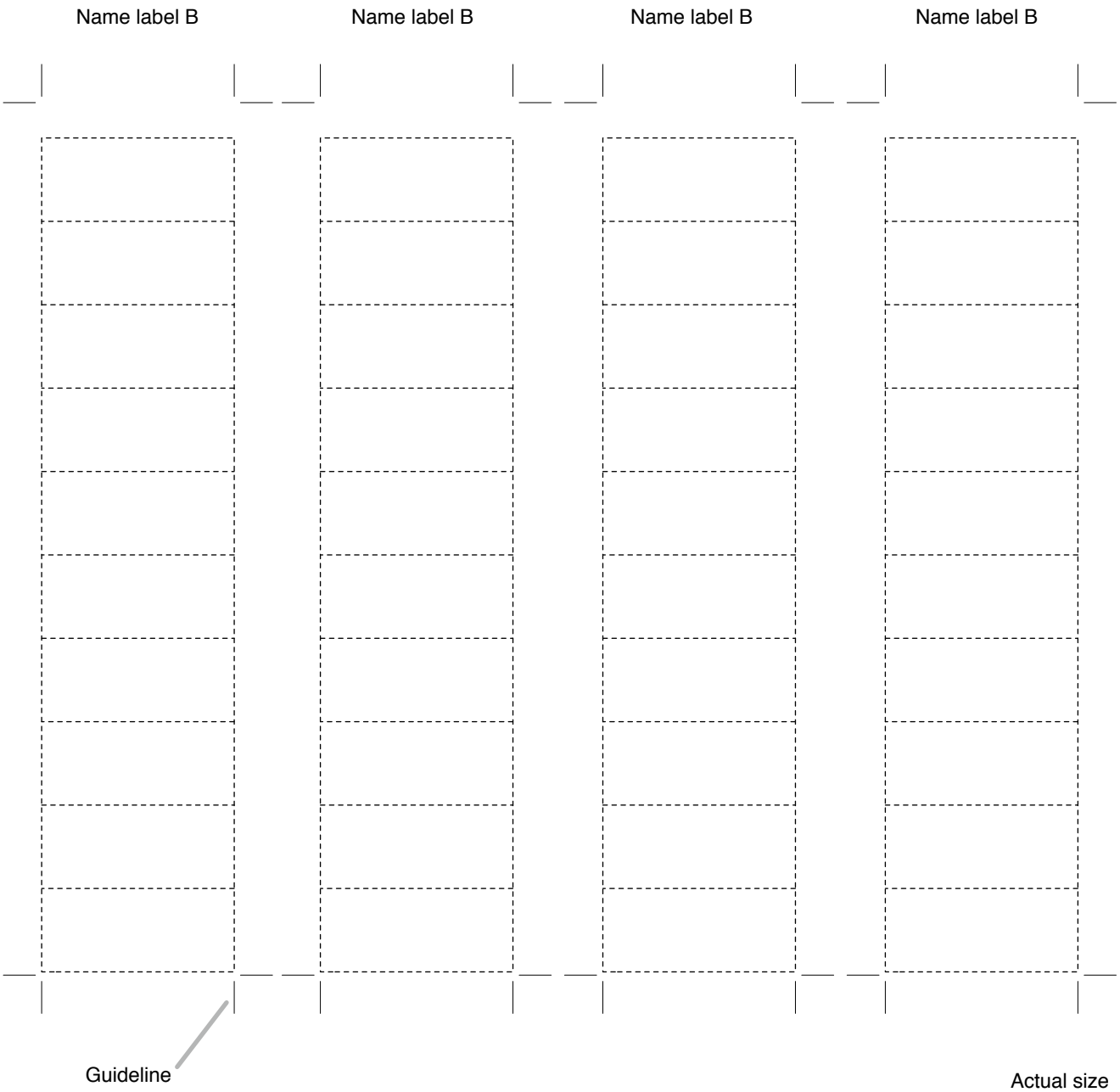
[Adobe Acrobat 6 – 9, Adobe Reader 6 – 9 settings]
Select [File > Print] from the menu, and the Print dialog box appears.
Set the items in the Page Handling section of the dialog box as follows.

"Page Scaling" item:	None
Other items:	Unchecked

[Adobe Acrobat X or XI, Adobe Reader X or XI settings]
Select [File > Print] from the menu, and the Print dialog box appears.
Make settings as shown below.

Page Sizing & Handling:	Size
Size Options:	Actual size




Name label B
Name label B
Name label B
Name label B
Guideline
Actual size

9. INSTALLATION OF DOOR STATIONS

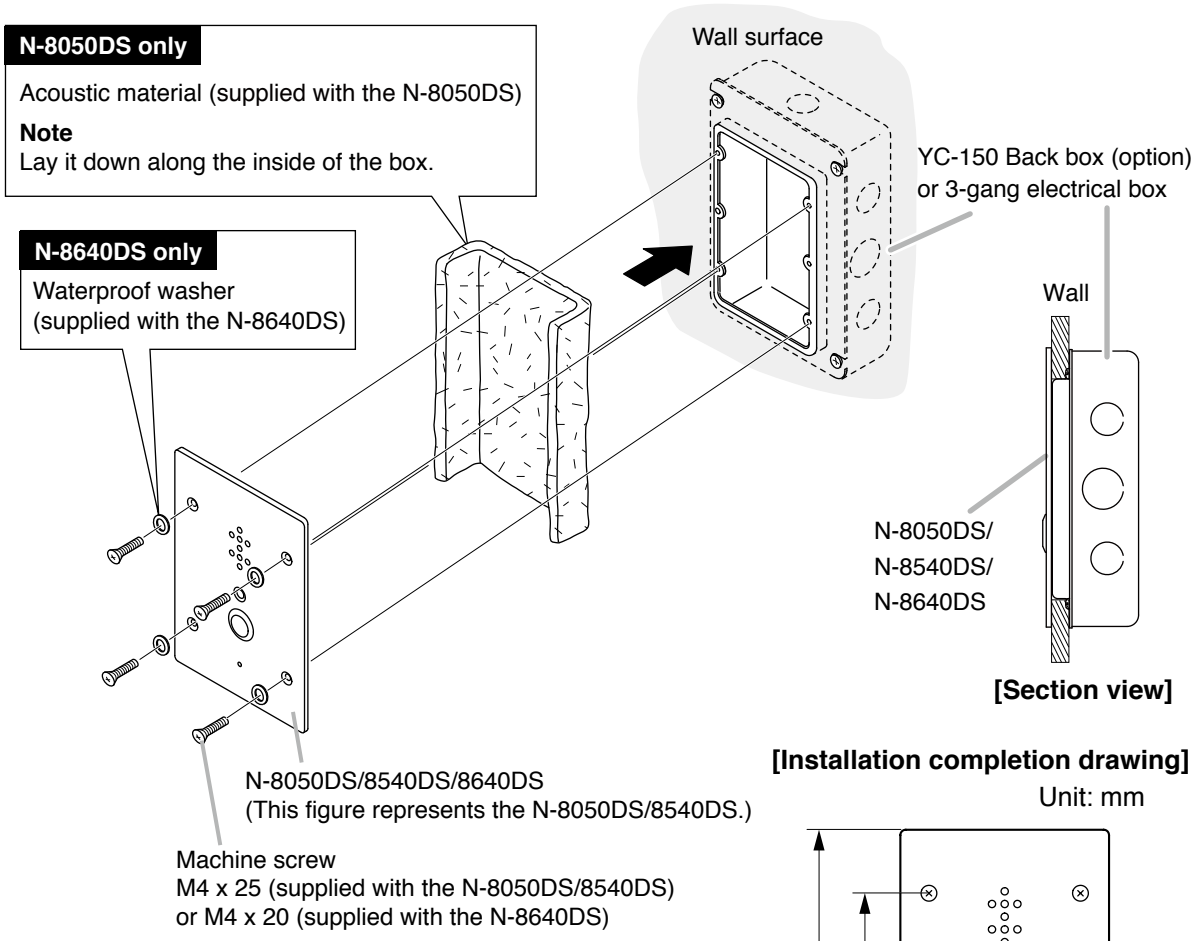
Door station N-8050DS/8540DS/8640DS/8650DS can be installed in either of two ways: (1) flush mounting or (2) wall surface mounting.

Note
When using the PA paging function, keep the station as far away from the PA paging speaker as possible to avoid acoustic feedback.

9.1. Flush Mounting

[N-8050DS/8540DS/8640DS]

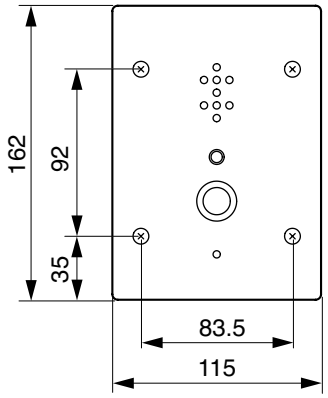
Attach the N-8050DS/8540DS/8640DS to the YC-150 Back box or an electrical box installed in a wall.



[Section view]

[Installation completion drawing]

Unit: mm



Note
This figure represents the N-8050DS/8540DS. Dimensions of the N-8640DS are the same as the N-8050DS/8540DS.

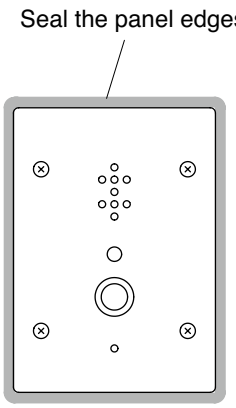
Note
The wall should be over 12 mm thick, and the opening in the wall for an electrical box should be under 115 mm (wide) by 162 mm (high).

Accessory screws

- The N-8050DS/8540DS comes with 2 types of screws: M4 x 25 and UNC No. 6-32 x 18.
  For the electrical box provided with unified threads, use the UNC No. 6-32 x 18.
- The N-8640DS comes with 2 types of screws: M4 x 20 and UNC No. 6-32 x 20.
  For the electrical box provided with unified threads, use the UNC No. 6-32 x 20.

Notes

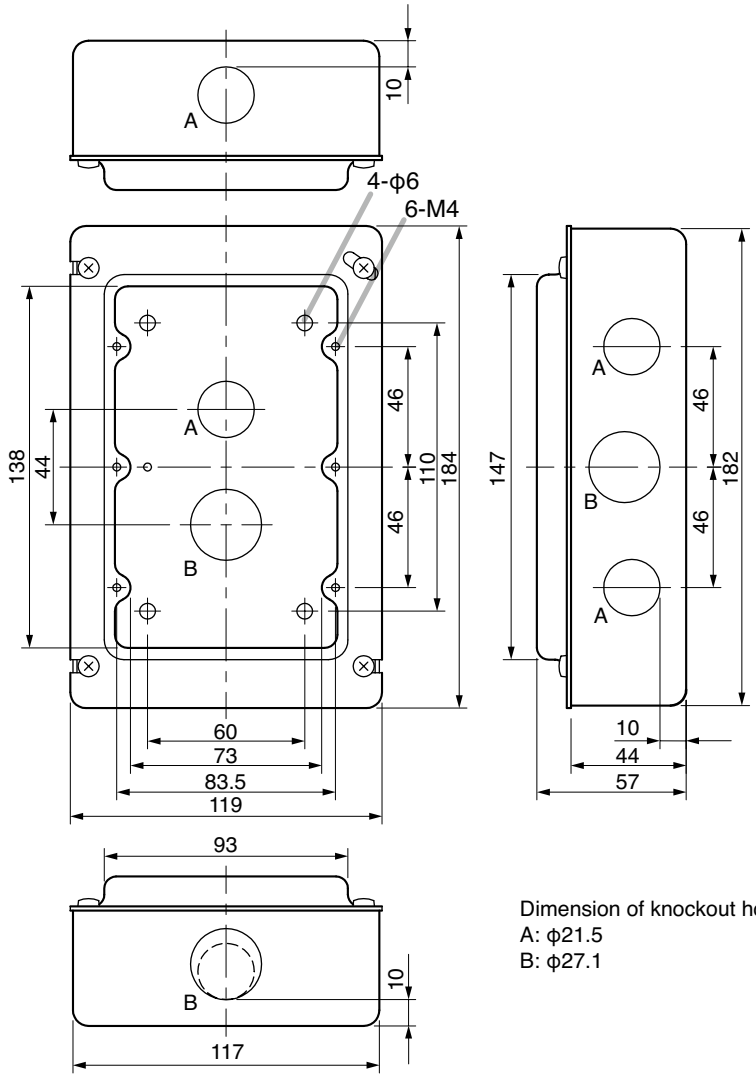
- When controlling an electronic lock with the N-8050DS/8540DS/8640DS unit, use "Torx" screws to attach the unit at installation so that it cannot be detached easily.
- For the N-8050DS installation, be sure to ground the YC-150 or electrical box.
  For the N-8540DS installation, be sure to ground the YC-150, electrical box, or the frame ground terminal on the unit's rear (p. 3-79).
- For the N-8640DS installation, be sure to ground both the YC-150 or electrical box, and the frame ground terminal on the unit's rear (p. 3-80).
- When installing the unit at outdoor or locations where it gets wet with water, tightly seal the panel edges. Besides, provide a weep hole at the underside of the mounting box to permit water to drain off.
- When installing the N-8050DS/8540DS under difficult environmental conditions such as in coastal areas or at humid locations, cover the inside of the N-8050DS/8540DS with coating. For the coating method, consult your TOA dealer.
- Treat unused cables so as not to short-circuit. (N-8640DS only)



The figure represents N-8500DS/8540DS's front panel.

[YC-150 dimensional drawing]

Unit: mm

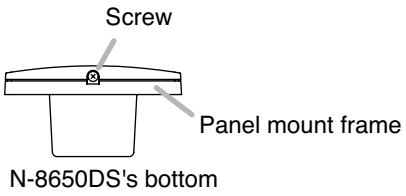


Dimension of knockout hole
A: φ21.5
B: φ27.1

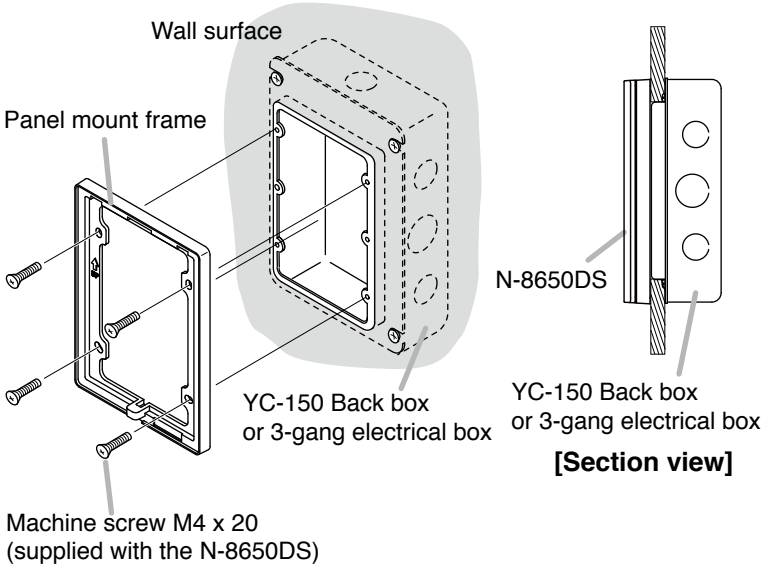
[N-8650DS]

Mount the panel mount frame to the YC-150 Back box or 3-gang electrical box installed in a wall, then attach the N-8650DS to the panel mount frame.

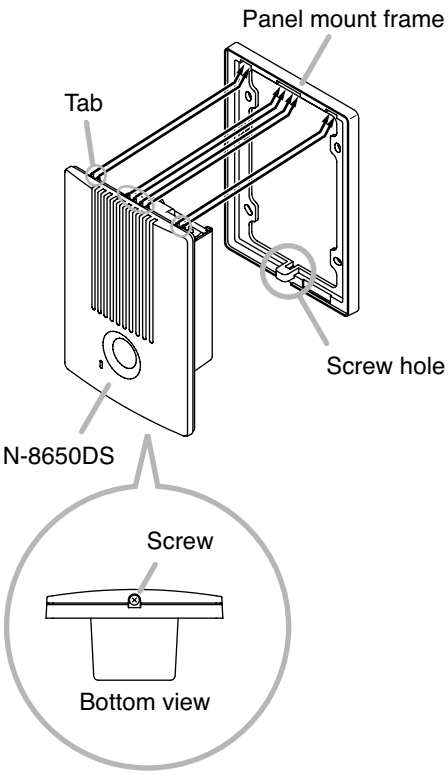
Step 1. Loosen the screw on the N-8650DS's bottom, then detach the panel mount frame.



Step 2. Mount the panel mount frame to the YC-150 or electrical box.



Step 3. Attach the N-8650DS to the panel mount frame.
Hook the tabs on the N-8650DS's upper side into the panel mount frame's slots, fit them into place, then secure the both bottom sides with a screw.



Accessory screws

- The N-8650DS comes with 2 type of screws: M4 x 20 and UNC N0. 6-32 x 20.
- For the electrical box provided with unified threads, use the UNC N0. 6-32 x 20.

Note

Treat unused cables so as not to short-circuit.

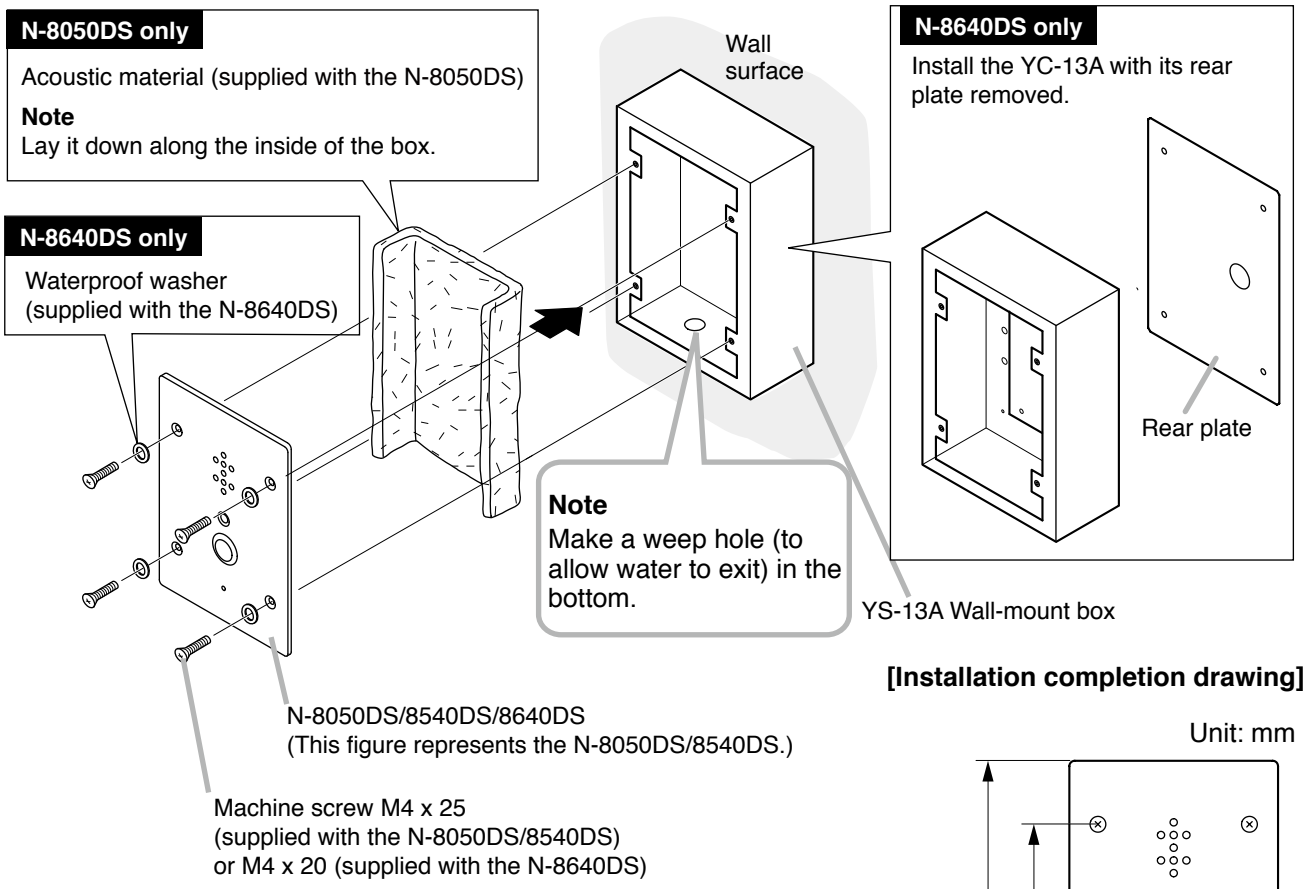
Tip

Refer to p. 3-39 for YC-150 dimensional drawing.

9.2. Wall Surface Mounting

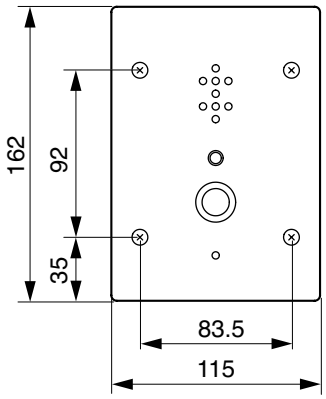
[N-8050DS/8540DS/8640DS]

Attach the N-8050DS/8540DS/8640DS to the YS-13A Wall-mount box installed on a wall.



[Installation completion drawing]

Unit: mm



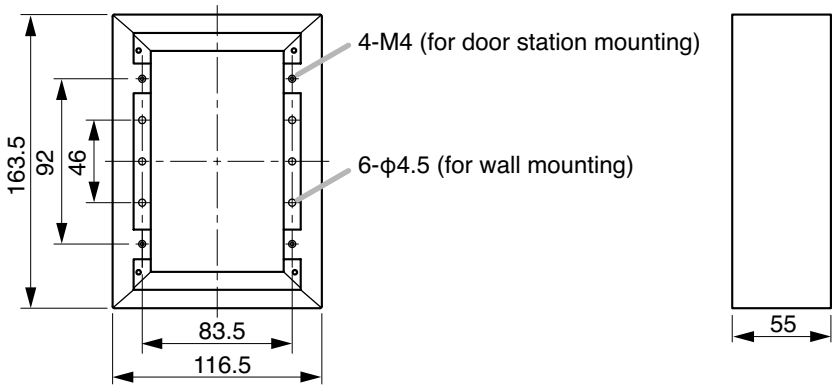
Note
This figure represents the N-8050DS/8540DS. Dimensions of the N-8640DS are the same as the N-8050DS/8540DS.

Accessory screws

- The N-8050DS/8540DS comes with 2 type of screws: M4 x 25 and UNC No. 6-32 x 18.
  Use the M4 x 25 screw.
- The N-8640DS comes with 2 types of screws: M4 x 20 and UNC No. 6-32 x 20.
  Use the M4 x 20 screw.

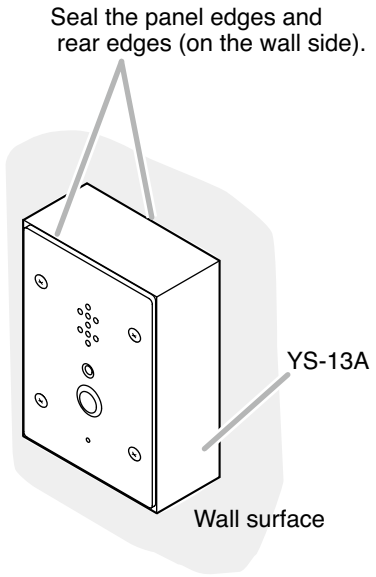
[YS-13A dimensional drawing]

Unit: mm



Notes

- When controlling an electronic lock with the N-8050DS/8540DS/8640DS unit, use "Torx" screws to attach the unit at installation so that it cannot be detached easily.
- For the N-8640DS installation, be sure to ground the rear-mounted frame ground terminal (p. 3-80).
- When installing the unit outdoors or at locations where it gets wet with water, tightly seal the edges of the panel and those of the box's rear surface in contact with the wall surface. Besides, make a weep hole (to allow water to exit) in the YS-13A's bottom.
- When installing the N-8050DS/8540DS under difficult environmental conditions such as in coastal areas or at humid locations, cover the inside of the N-8050DS/8540DS with coating. For the coating method, consult your TOA dealer.
- Treat unused cables so as not to short-circuit. (N-8640DS only)

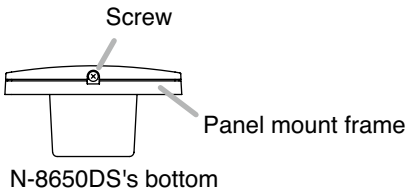


The figure represents the N-8050DS/8540DS.

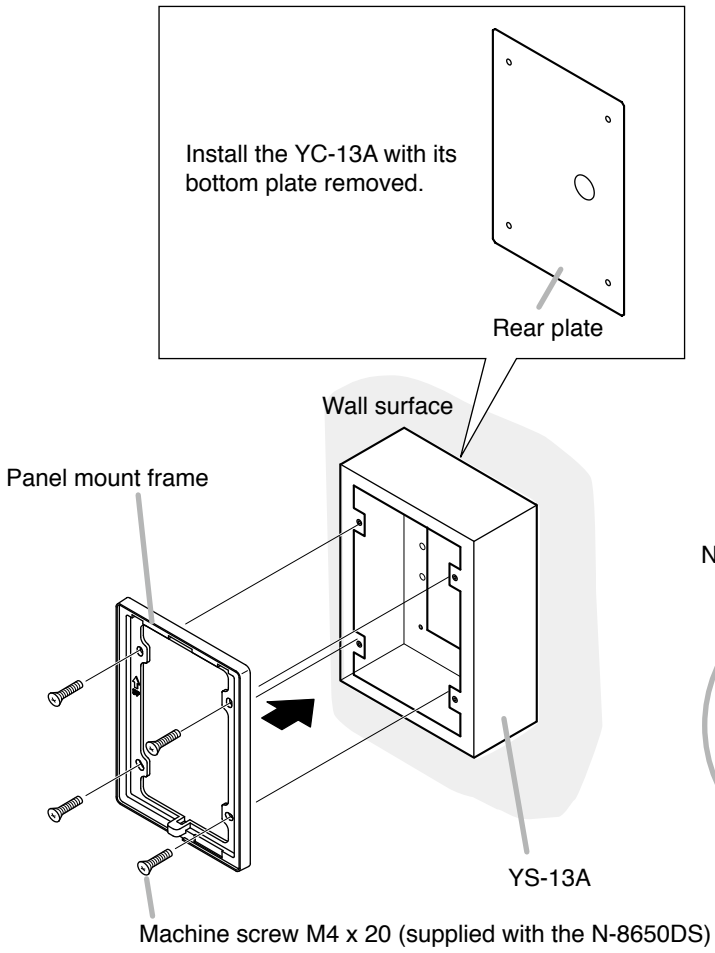
[N-8650DS]

Attach the N-8650DS to the YS-13A Wall-mount box installed on a wall.

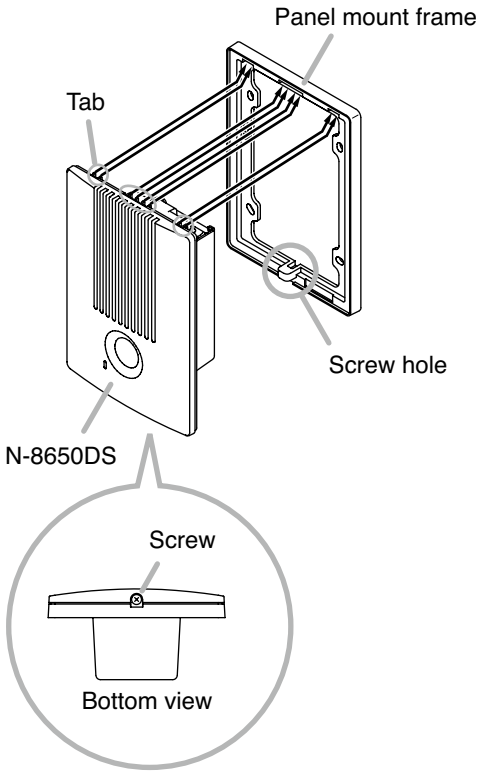
Step 1. Loosen the screw on the N-8650DS's bottom, then detach the panel mount frame.



Step 2. Mount the panel mount frame to the back box.



Step 3. Attach the N-8650DS to the panel mount frame.
Hook the tabs on the N-8650DS's upper side into the panel mount frame's slots, fit them into place, then secure the both bottom sides with a screw.



Accessory screws

The N-8650DS comes with 2 types of screws: M4 x 20 and UNC No. 6-32 x 20. Use the M4 x 20 screw.

Note

Treat unused cables so as not to short-circuit.

Tip

Refer to p. 3-41 for YS-13A dimensional drawing.

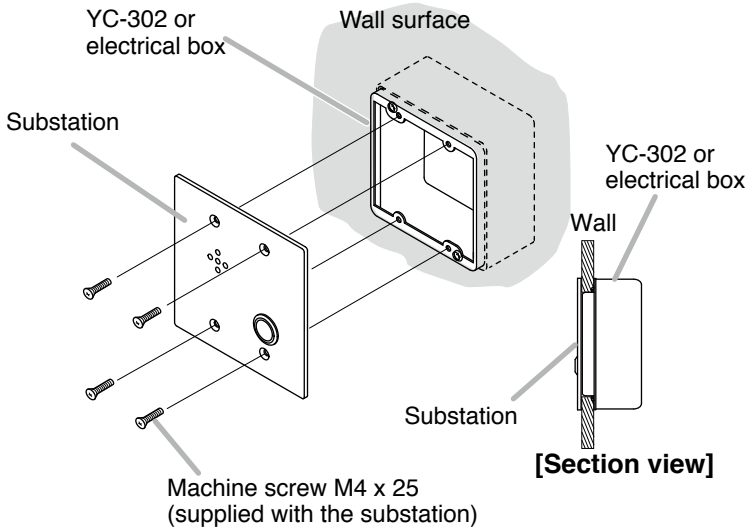
10. INSTALLATION OF SUBSTATIONS

The Substations can be installed in either of 2 ways: flush mounting using the YC-302 2-gang electrical box or commercial electrical box, or wall surface mounting using the YC-822/823 Wall-mount box.

Note
When using the PA paging function, keep the station as far away from the PA paging speaker as possible to avoid acoustic feedback.

10.1. Flush Mounting

Mount the substation to the YC-302 or electrical box mounted in the wall.



[Section view]

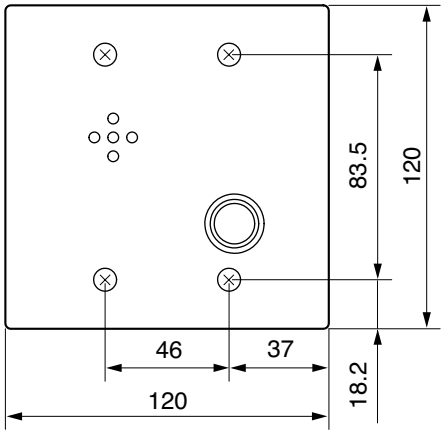
Note: This figure represents the RS-160/170.

Accessory screws

Substations come with 2 types of screws: M4 x 25 and UNC No. 6-32 x 18.
For the electrical box provided with unified threads, use the UNC No. 6-32 x 18.

[Installation completion drawing]

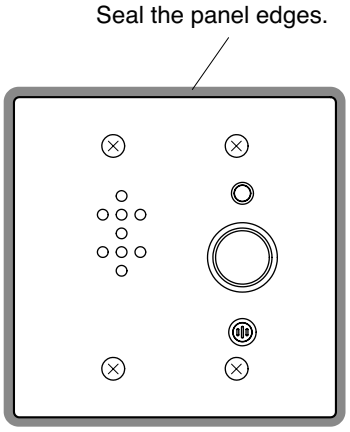
Unit: mm



Note: This figure represents the RS-160/170.

Note

When installing the RS-170/180/470/480 at outdoor or locations where it gets wet with water, tightly seal the panel edges. Besides, provide a weep hole at the underside of the mounting box to permit water to drain off.

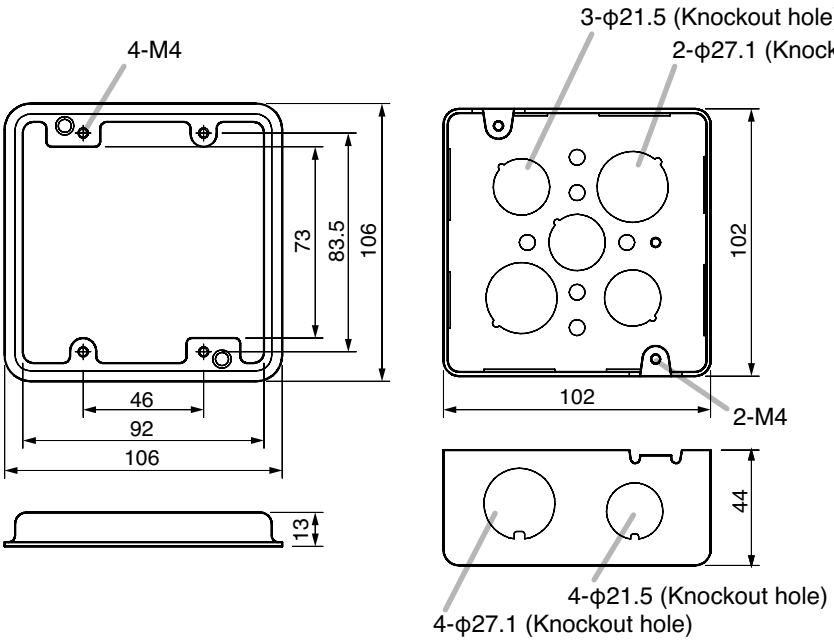


Note: This figure represents the RS-480.

[YC-302 dimensional drawing]

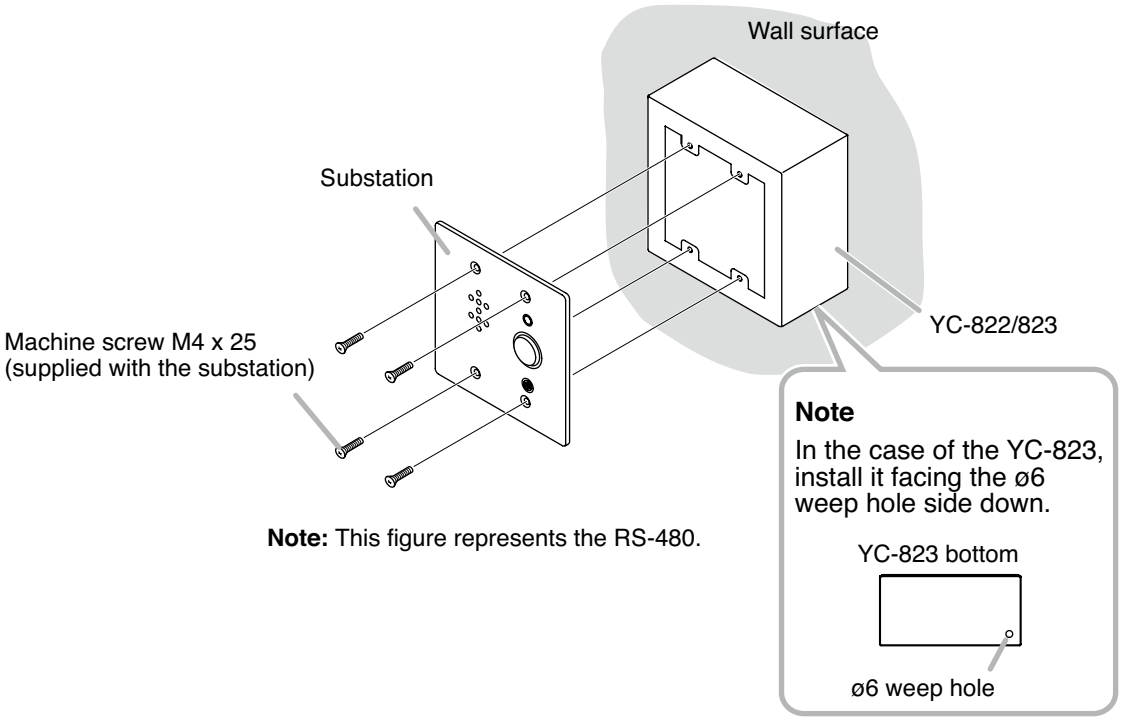
[Cover] [Outlet box]

Unit: mm



10.2. Wall Surface Mounting

Attach the Substation to the YC-822 or YC-823 Wall-mount box installed on a wall.



Note: This figure represents the RS-480.

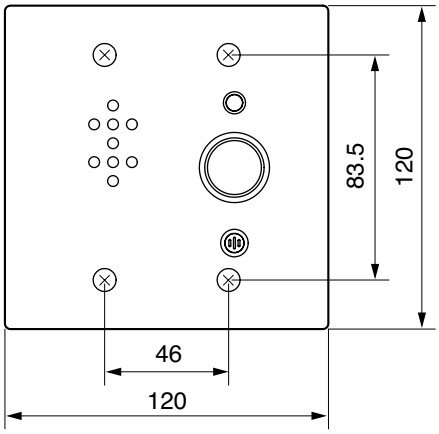
Note: This figure represents the YC-822.

Accessory screws

The substation comes with 2 types of screws: M4 x 25 and UNC No. 6-32 x 18. Use the M4 x 25 screw.

[Installation completion drawing]

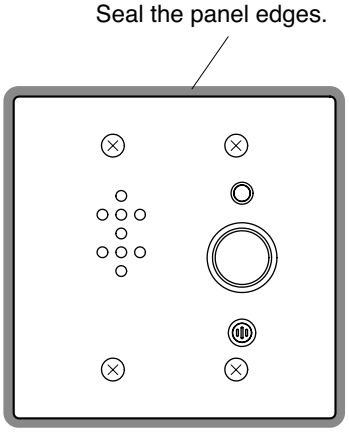
Unit: mm



Note: This figure represents the RS-480.

Note

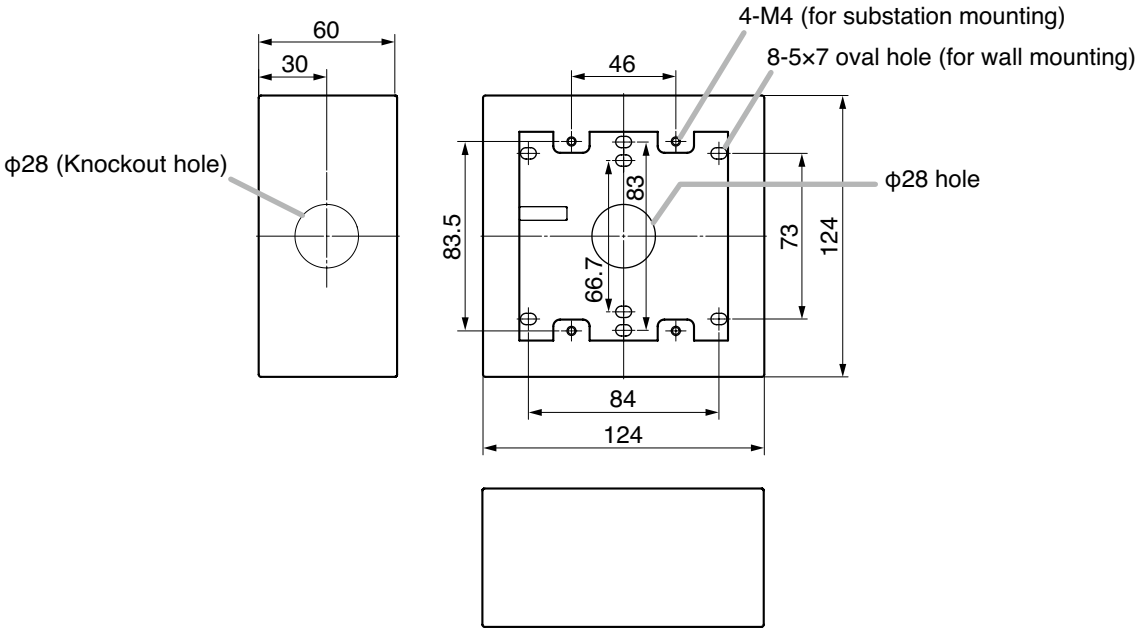
When installing the RS-170/180/470/480 outdoors or at locations where it gets wet with water, tightly seal the panel edges. Besides, provide a weep hole on the underside of the mounting box to permit water to drain off.



Note: This figure represents the RS-480.

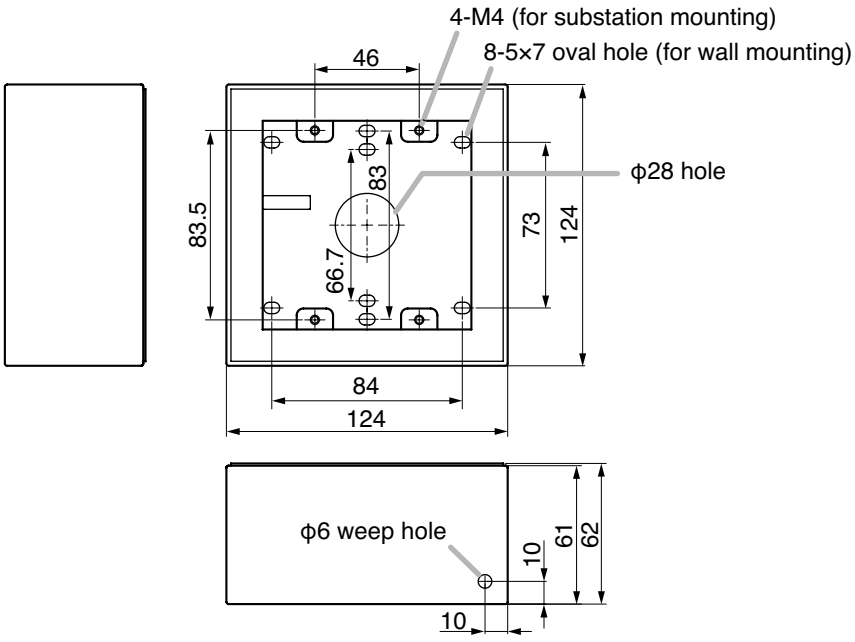
[YC-822 dimensional drawing]

Unit: mm



[YC-823 dimensional drawing]

Unit: mm

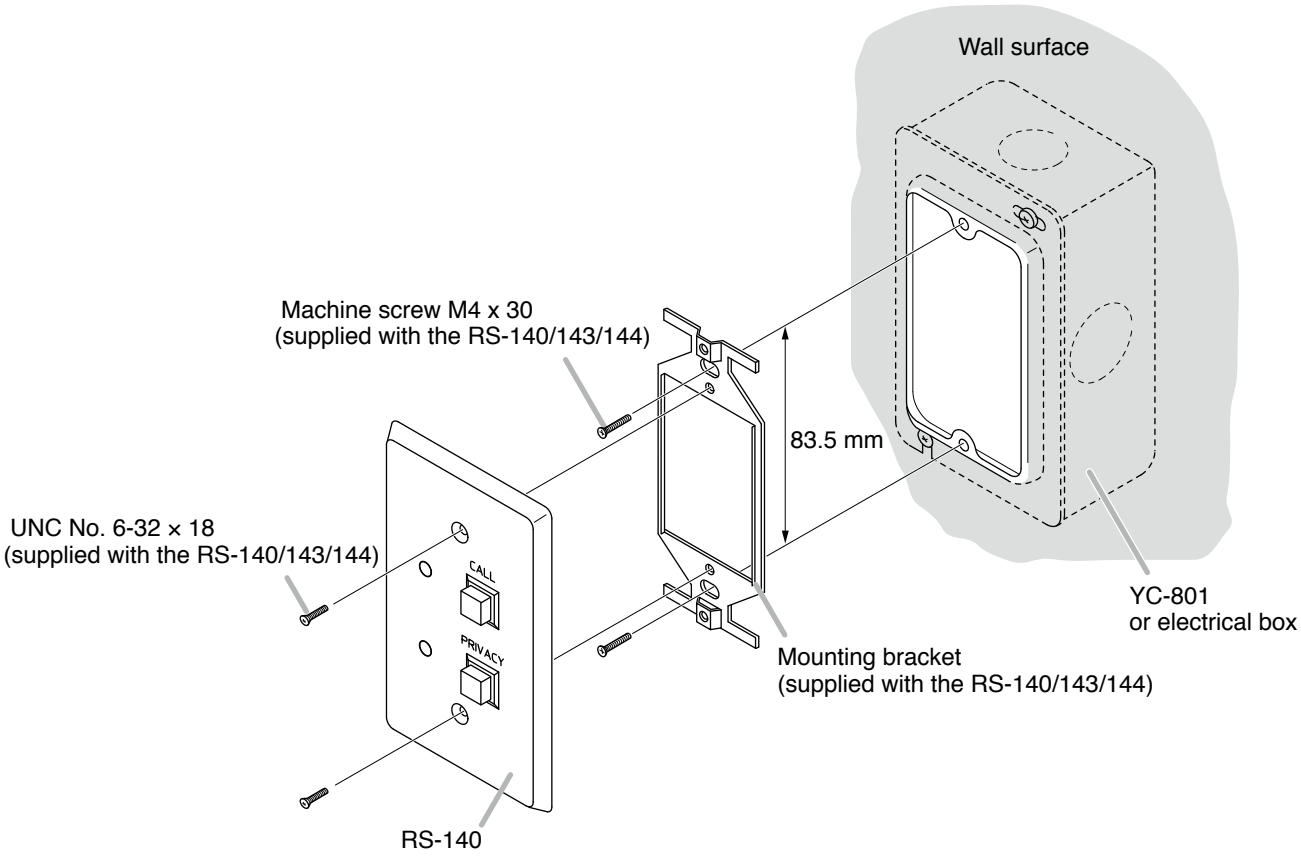


11. INSTALLATION OF SWITCH PANEL

Switch panel RS-140/143/144 can be installed in either of two ways: (1) flush mounting or (2) wall surface mounting.

11.1. Flush Mounting

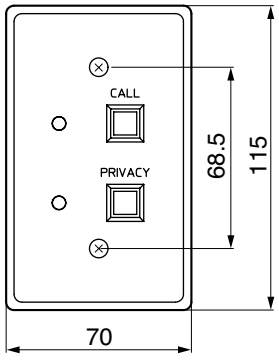
Mount the Switch panel to the YC-801 Flush-mount box or electrical box mounted in the wall.



Accessory screws

The RS-140/143/144 comes with 2 types of screws to match the box screw threads: M4 x 30 and UNC No. 6-32 x 30.
For the electrical box provided with unified threads, use the UNC No. 6-32 x 30.

[Installation completion drawing]

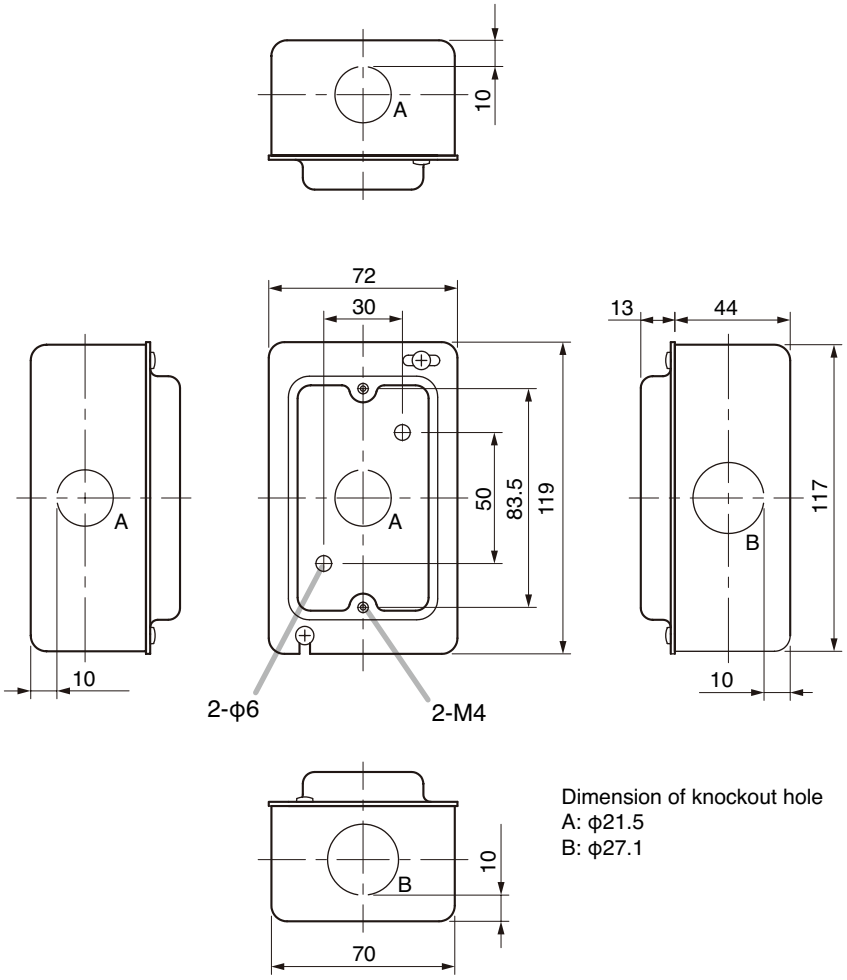


Unit: mm

Note: This figure represents the RS-140.

[YC-801 dimensional drawing]

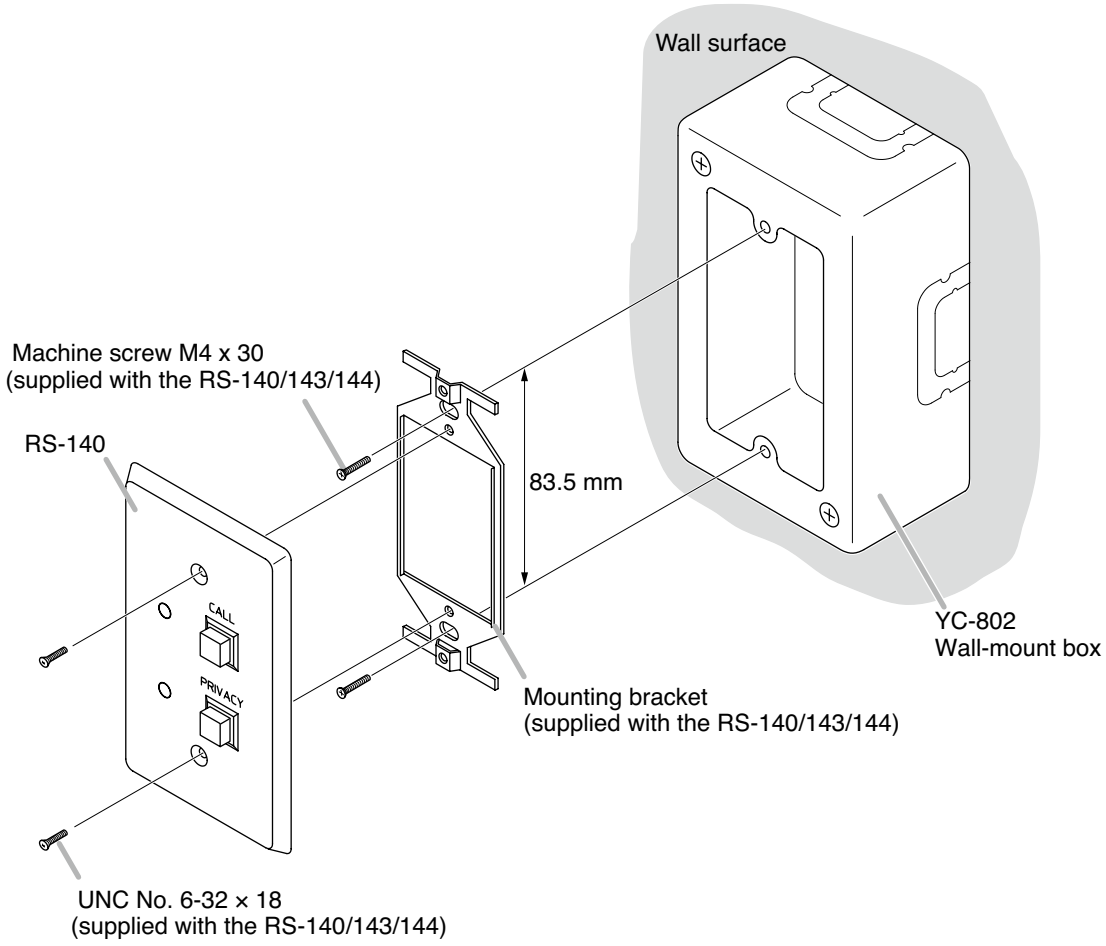
Unit: mm



Dimension of knockout hole
A: ϕ21.5
B: ϕ27.1

11.2. Wall Surface Mounting

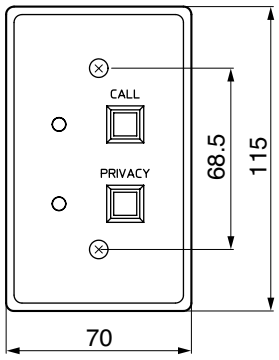
Attach the Switch panel to the YC-802 Wall-mount box installed on a wall.



Accessory screws

The RS-140/143/144 comes with 2 types of screws to match the box screw threads: M4 x 30 and UNC No. 6-32 x 30.
Use the M4 x 30 screw.

[Installation completion drawing]

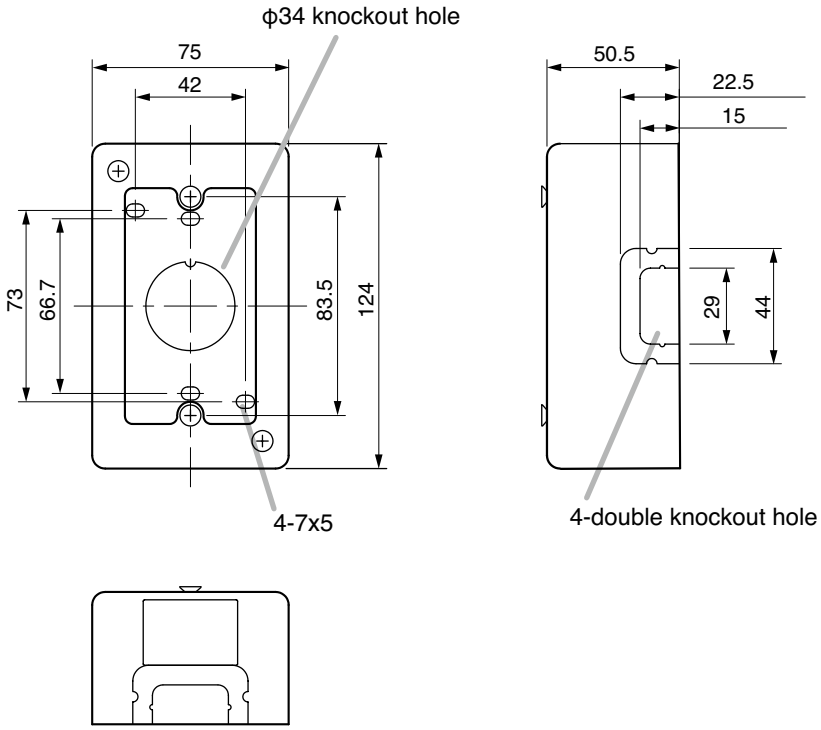


Unit: mm

Note: This figure represents the RS-140.

[YC-802 dimensional drawing]

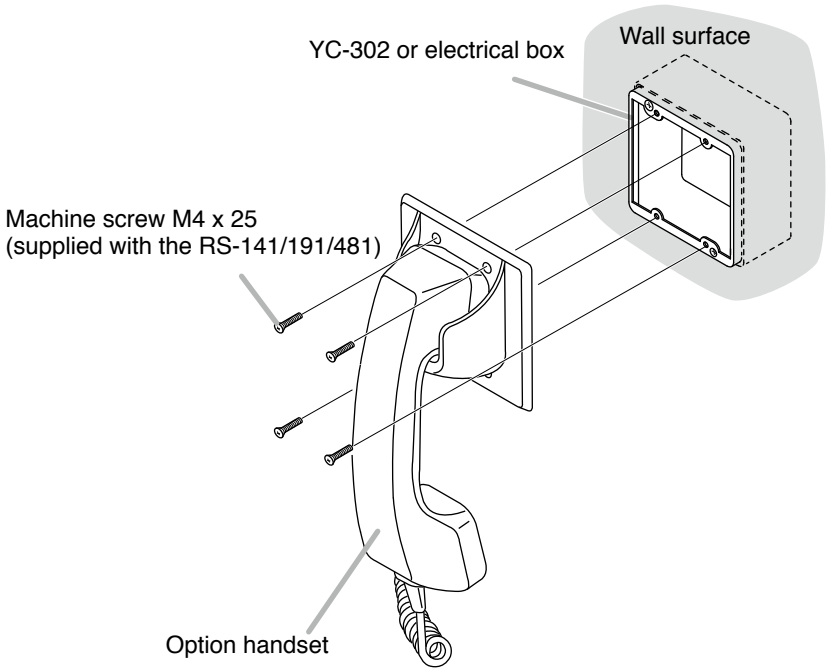
Unit: mm



12. INSTALLATION OF OPTION HANDSET

Option handset RS-141/191/481 can be installed in a wall.

Mount the option handset to the YC-302 or electrical box mounted in the wall.



Note: This figure represents the RS-191.

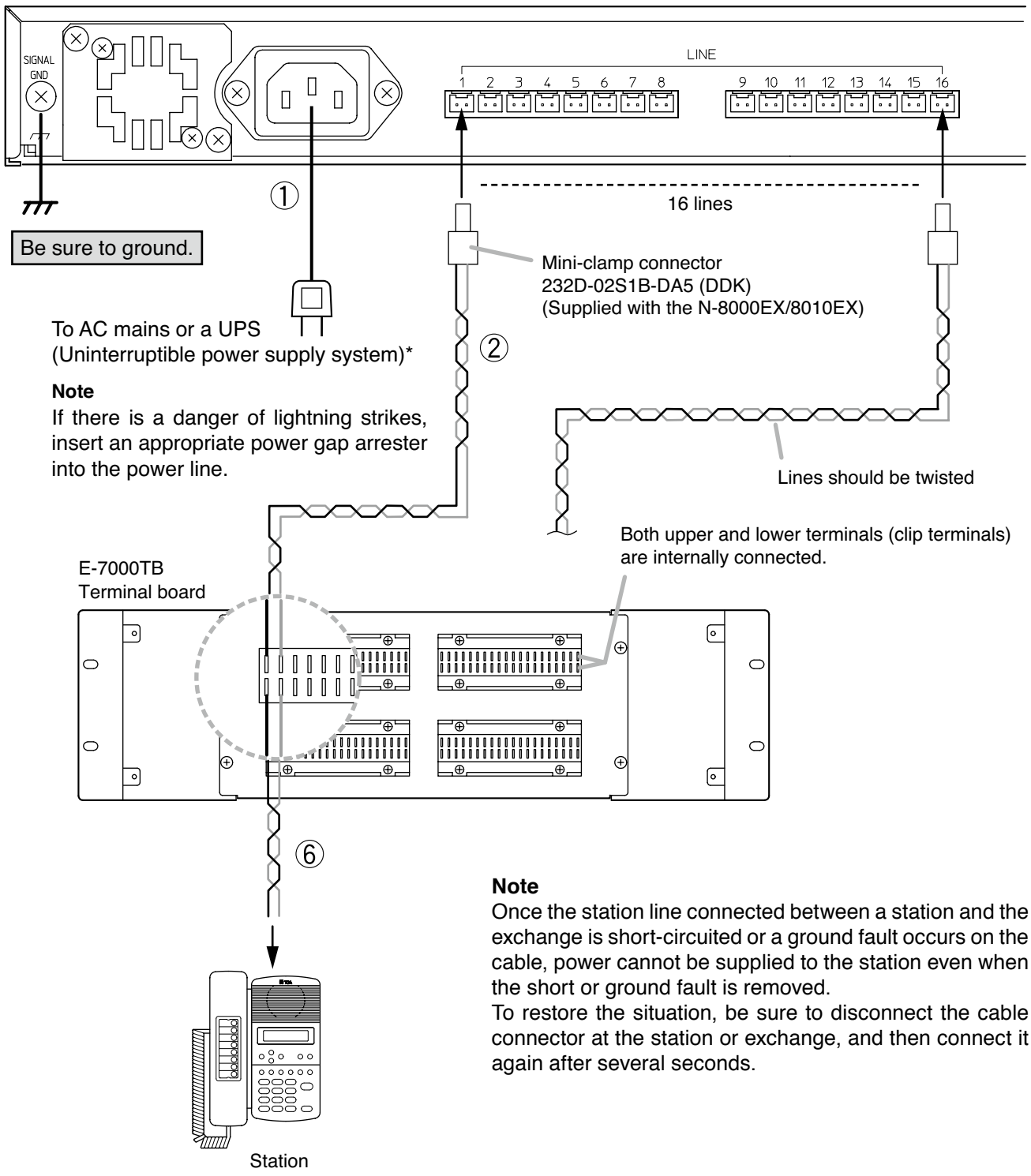
Accessory screws

The RS-141/191/481 comes with 2 types of screws: M4 x 25 and UNC No. 6-32 x 18.
For the electrical box provided with unified threads, use the UNC No. 6-32 x 18.

13. WIRING

13.1. Exchange Connection

N-8000EX/8010EX Exchange

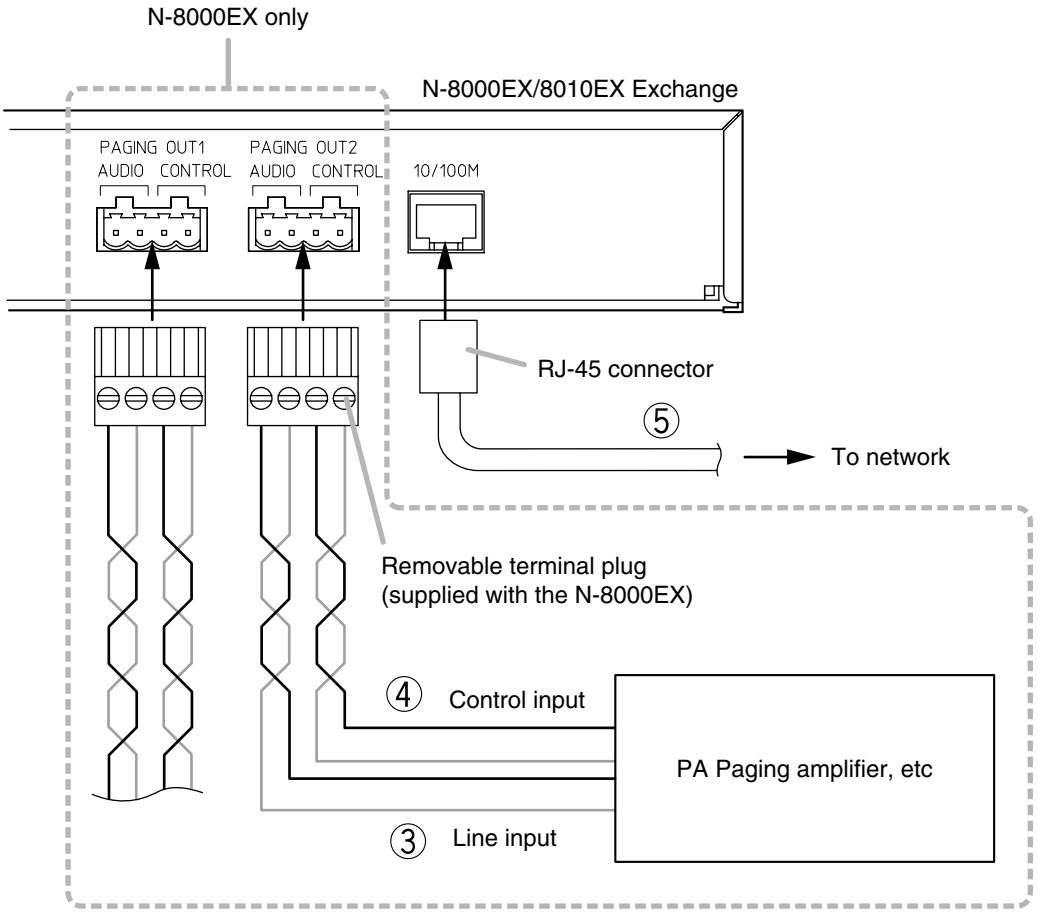


Note
If there is a danger of lightning strikes, insert an appropriate power gap arrester into the power line.

Note
Once the station line connected between a station and the exchange is short-circuited or a ground fault occurs on the cable, power cannot be supplied to the station even when the short or ground fault is removed.
To restore the situation, be sure to disconnect the cable connector at the station or exchange, and then connect it again after several seconds.

* Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.

Reference
Exchange: 50 W (rated)
8-Port 10M/100M Switching Hub: 10 W (Differs depending on products.)



[General description of connection]
For cables, refer to p. 3-81.

1. Power supply connection
Connect the supplied power supply cord to AC Mains or a UPS (Uninterruptible power supply feeder).

About power supply cord handling
The supplied power supply cord is designed for exclusive use with the N-8000EX/8010EX.
Never use it with other equipment.

2. Line terminal connection
The line terminals have no polarity.
(Refer to p. 3-83, Mini-clamp connector connection.)

3. Paging audio output terminal connection (N-8000EX only)
Paging audio output terminals have no polarity.
(Refer to p. 3-83, Terminal plug connection.)
[Specification of paging audio output]
0 dB*, 600 Ω, balanced

4. Paging contact output terminal connection (N-8000EX only)
Paging contact output terminals have no polarity.
(Refer to p. 3-83, Terminal plug connection.)
[Specification of paging contact output]
No voltage make contact output
Withstand voltage: Max. 24 V DC
Control current: Max. 0.5 A

5. Network connection
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Use a straight through cable of UTP category 5 or more for this connection.

6. Station connection
The connection method differs depending on types of stations. (Refer to p. 3-55, Station and Exchange connection.)

* 0 dB = 1 V

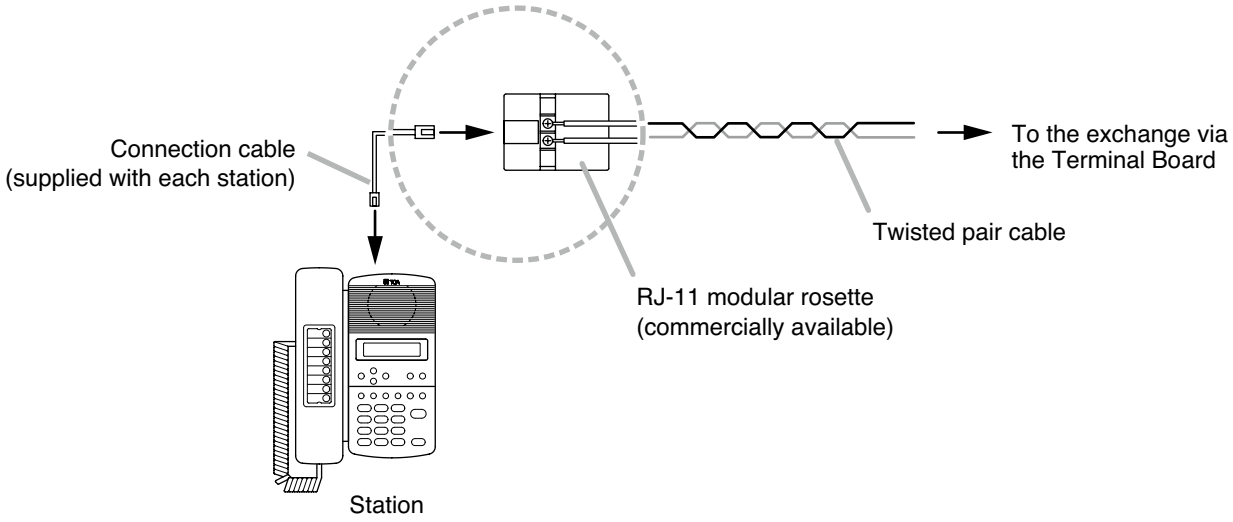
13.2. Connections of Stations Used in conjunction with the Exchange

13.2.1. Station and Exchange connection

The cables from the N-8000EX Exchange to the Station have no polarity.

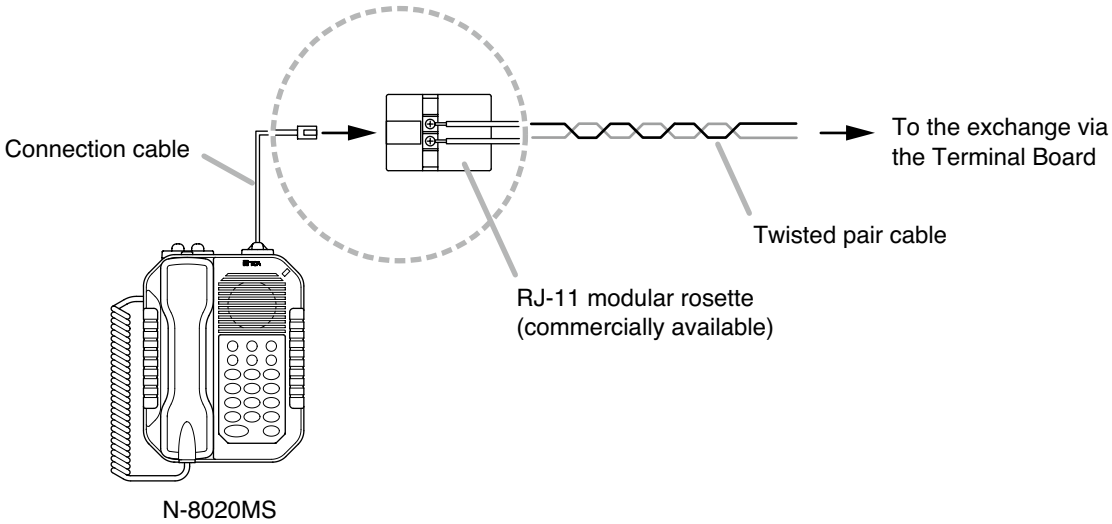
[N-8000MS/8010MS/8011MS]

To connect the cables from the N-8000EX Exchange to the Master Station, use the connection cable supplied with each station and a commercially available RJ-11 modular jack.



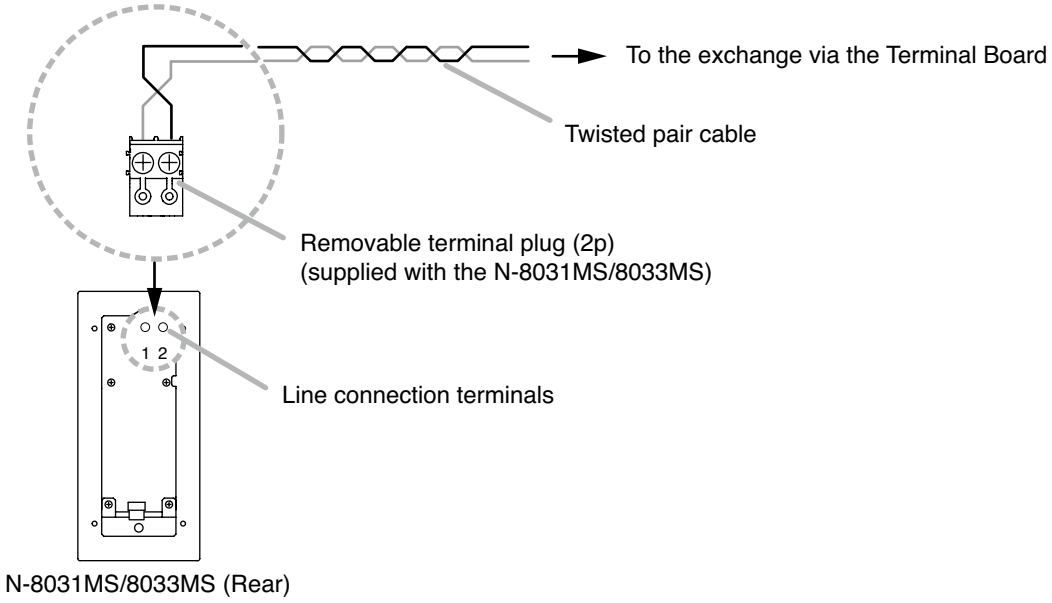
[N-8020MS]

To connect the cables from the N-8000EX Exchange to the Master Station, use the connection cable directly attached to the station and a commercially available RJ-11 modular jack.



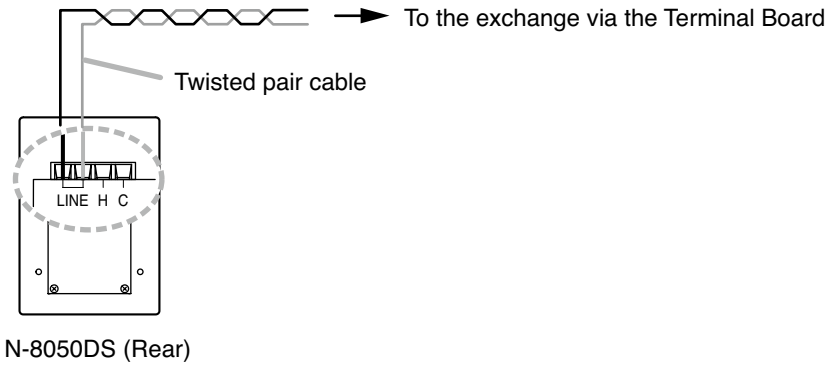
[N-8031MS/8033MS]

To connect the cables from the N-8000EX Exchange to the Master station, use the removable terminal plug (2P) supplied with the N-8031MS/8033MS.
Refer to p. 3-83 "Terminal plug connection."

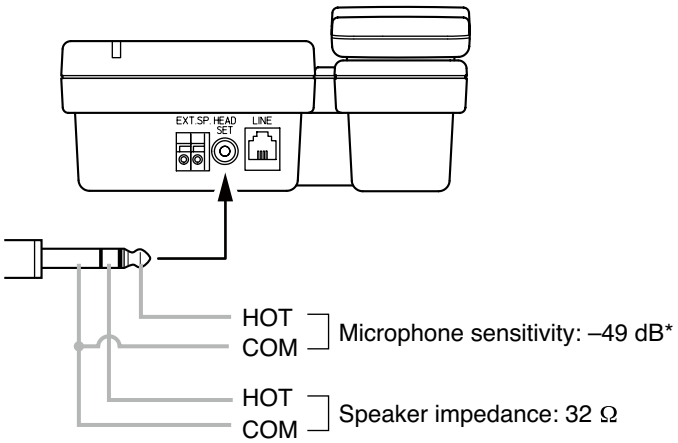


[N-8050DS]

Directly connect the cable coming from the Terminal Board to the N-8050DS's line connection terminals.
Refer to p. 3-83 "Terminal plug connection."



13.2.2. Headset plug connection (N-8000MS only)



* 0 dB = 1 V/pa (1 kHz)

13.2.3. External speaker terminals and control output terminals connections

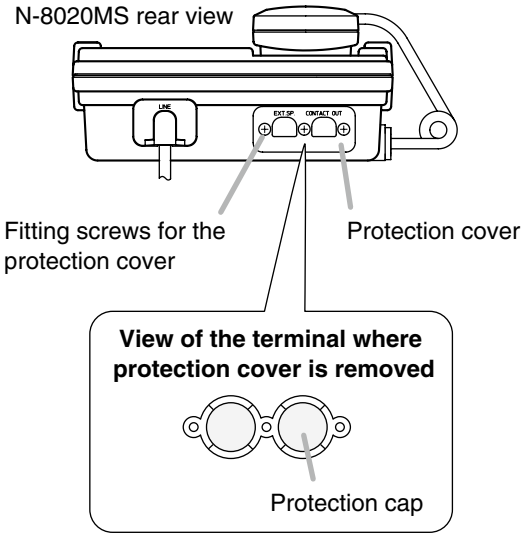
[N-8000MS]

These terminals are designed for exclusive connection with external speakers.
Press down the desired push-in terminal button on the rear panel with a tip of standard driver, and insert the cable securely.

[N-8020MS]

Follow the procedure below for external speaker terminals and control output terminals connections.

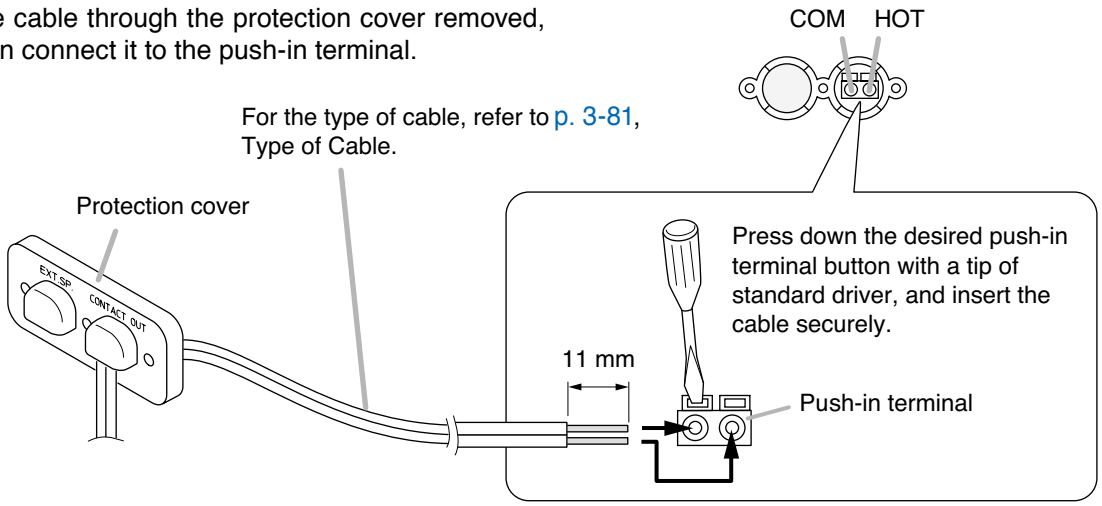
Step 1. Remove a protection cover.
Unscrew the 3 fitting screws securing the protection cover.



Step 2. Pull out a protection cap on the desired terminal.

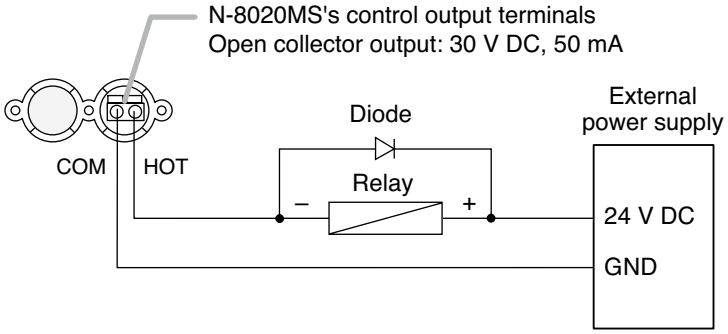
Note
Do not remove the protection cover on the unused terminal.

Step 3. Run the cable through the protection cover removed, and then connect it to the push-in terminal.

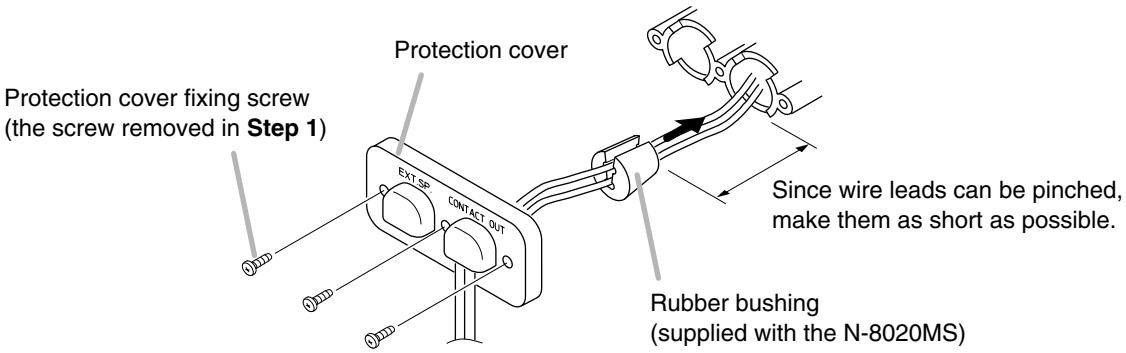


[Connection example of control output terminals]

The terminals permit connection of an external device such as an indicator or relay.



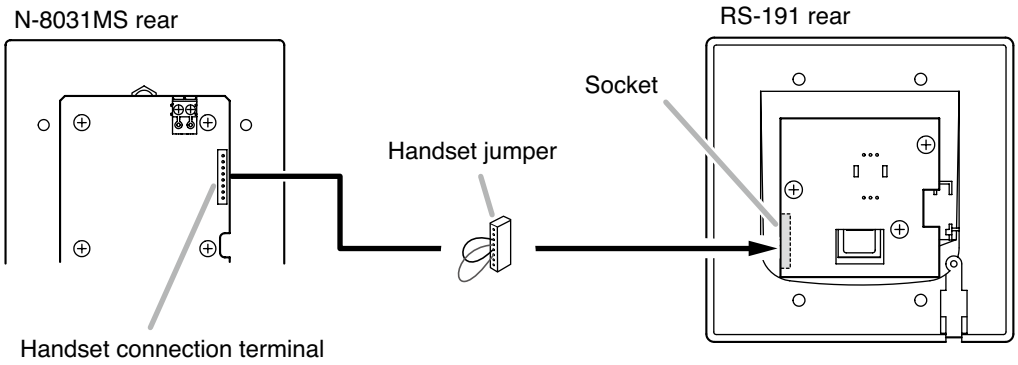
Step 4. After inserting the cables in the supplied rubber bushing, insert the bushing into the station, then put the protection cover back in place.



13.2.4. N-8031MS and RS-191 connections

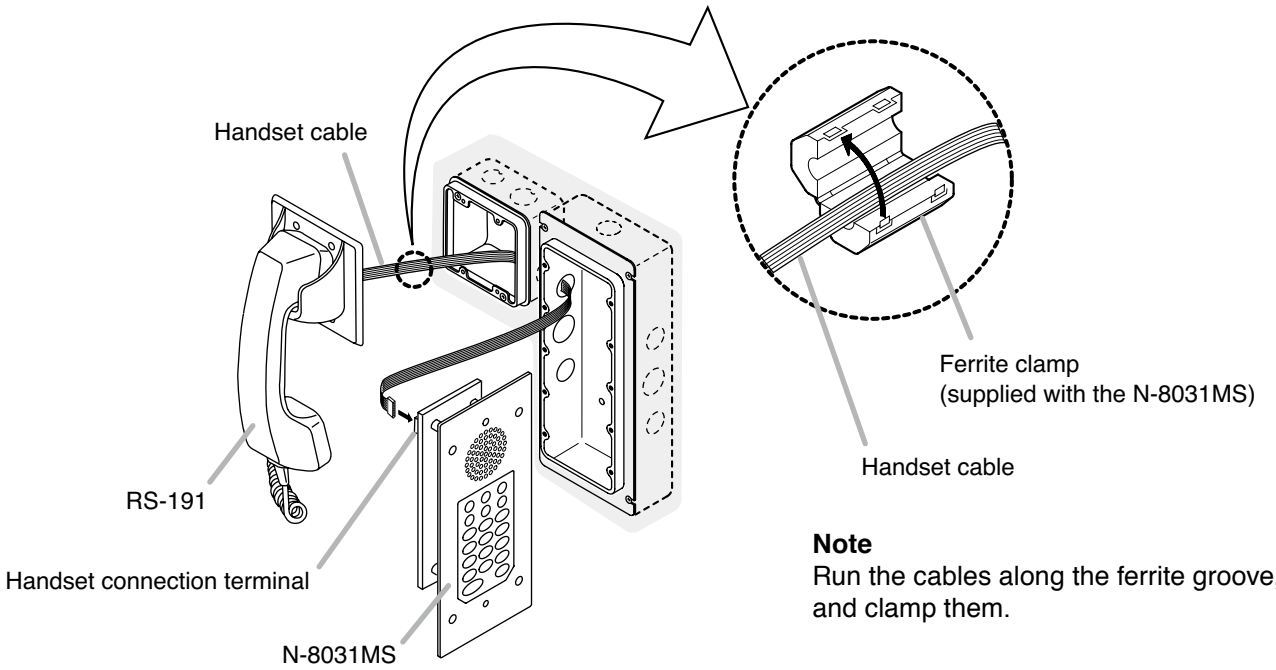
Connecting the RS-191 Option Handset to the N-8031MS permits handset conversation.

Step 1. Remove the handset jumper attached to the N-8031MS's handset connection terminal, then insert it to the socket on the RS-191's rear PC board.



Note
Though the socket on the PC board is faced inside, you can insert the handset jumper into the socket from the side.

Step 2. Install the ferrite clamp (supplied with the N-8031MS) onto the RS-191's handset cables. Then, connect the cables to the N-8031MS's handset connection terminal.



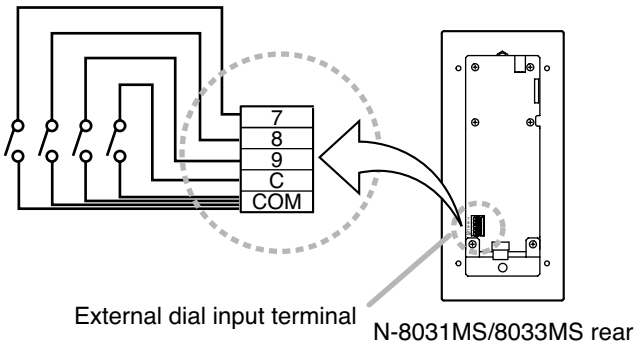
Note
Run the cables along the ferrite groove, and clamp them.

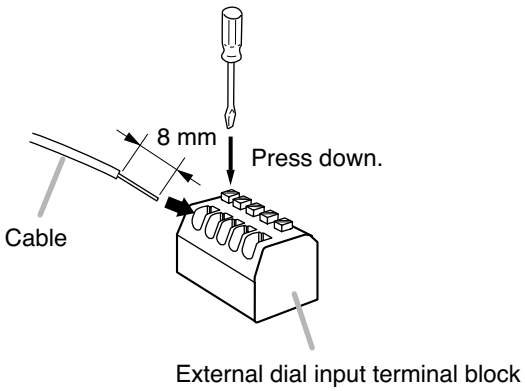
13.2.5. N-8031MS/8033MS and external switch connections

External switches such as footswitches can be connected to the N-8031MS's/8033MS's external dial input terminal.

Note
The cable length from the external switch should not exceed 3 m.

[Connections]



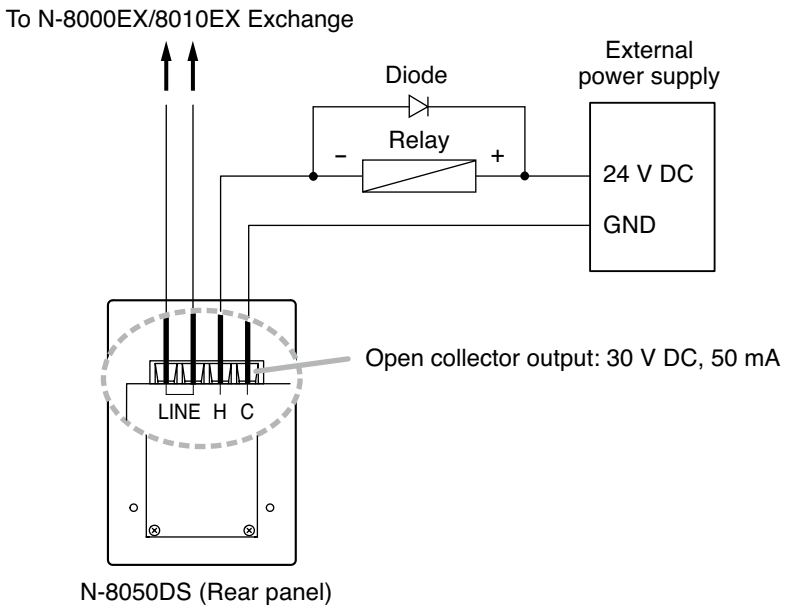


Note: For cables, refer to p. 3-81.

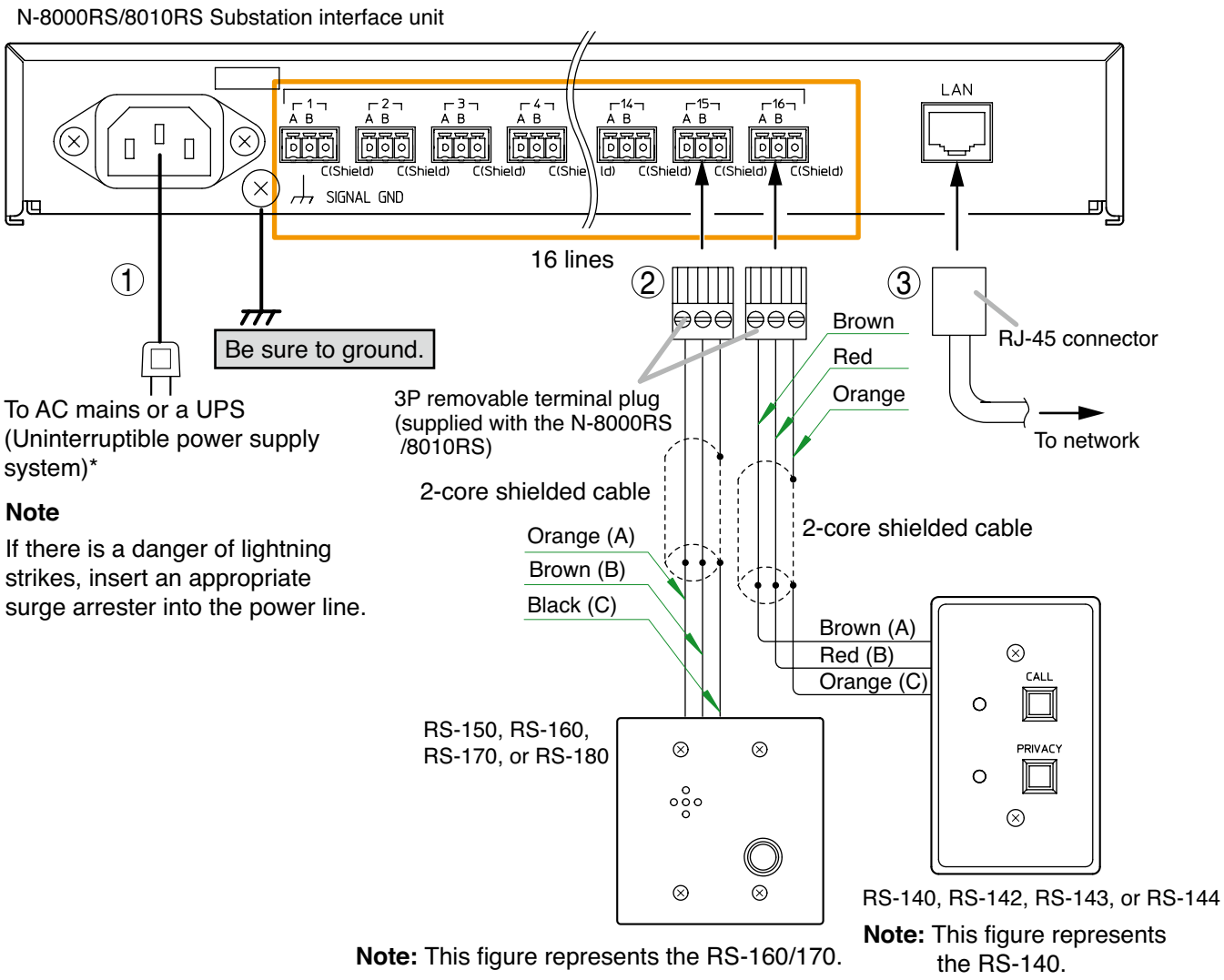
Turning on each switch connected to the terminal [7], [8], [9], or [C] permits the same operation as performed by pressing the dial [7], [8], [9], or [C].
For example, the pre-programmed station numbers can be called by pressing the foot switch if one-touch dialing is programmed into these dials.
Refer to p. 2-12, 5-83.

13.2.6. N-8050DS and external relay connections

An external relay can be connected to the N-8050DS's external output terminals. (Refer to p. 3-83 "Terminal plug connection.")



13.3. N-8000RS/8010RS Substation Interface Unit Connection



Note

If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

Note: This figure represents the RS-160/170.

Note: This figure represents the RS-140.

[General description of connection]
For cables, refer to p. 3-81.

1. Power supply connection
Connect the supplied power supply cord to AC Mains or a UPS (Uninterruptible power supply).

About power supply cord handling
The supplied power supply cord is designed for exclusive use with the N-8000RS/8010RS.
Never use it with other equipment.

2. Substation, Switch panel, or Switch board Connections
(Refer to p. 3-83, Terminal plug connection.)

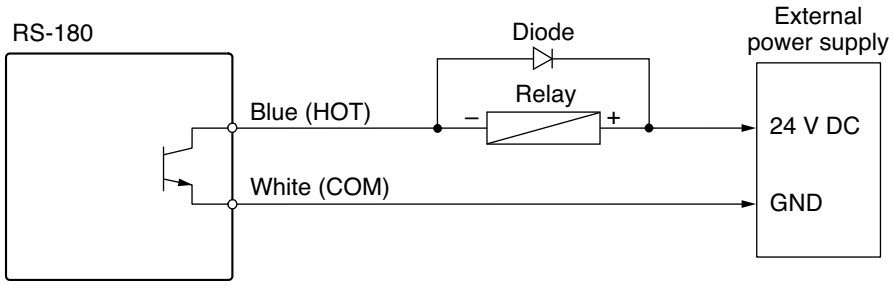
3. Network connection
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Use a straight through cable of UTP category 5 or more for this connection.

* Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.

Reference
N-8000RS: 40 W (rated) for CE version, 35 W (rated) for CU version
N-8010RS: 30 W (rated) for CE version, 25 W (rated) for CU version
8-Port 10M/100M Switching Hub: 10 W (Differs depending on products.)

13.4. Connections of Stations Used in conjunction with the N-8000RS/8010RS

13.4.1. RS-180 and external relay connections



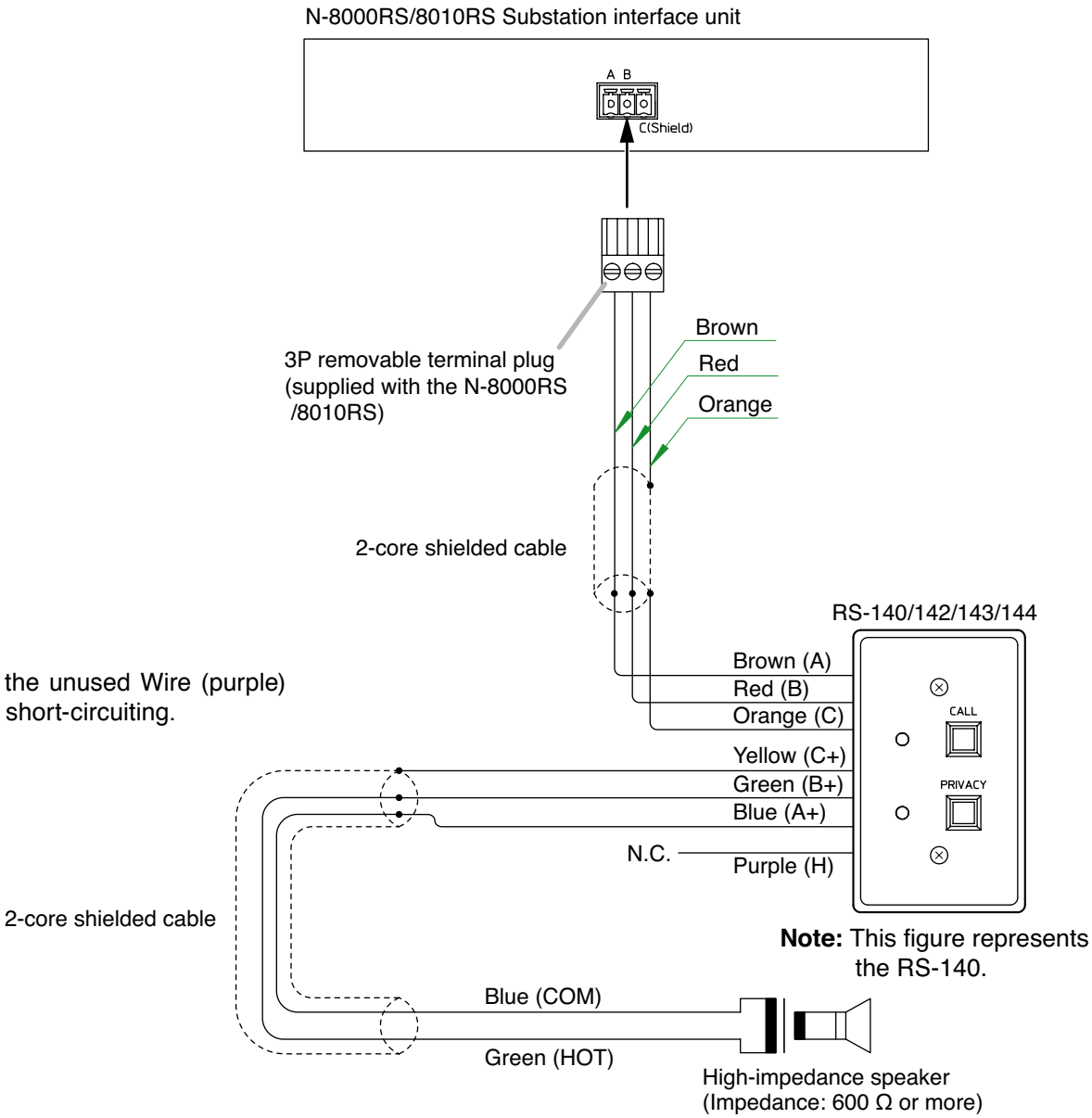
Open collector output: 24 V DC, Max. 30 mA

Note: Cut out the control cables if they are not used to avoid short-circuiting.

13.4.2. Substation interface unit and RS-140 Switch panel connections

Connect the cables from the RS-140 to the N-8000RS/8010RS using the supplied removable terminal plug.

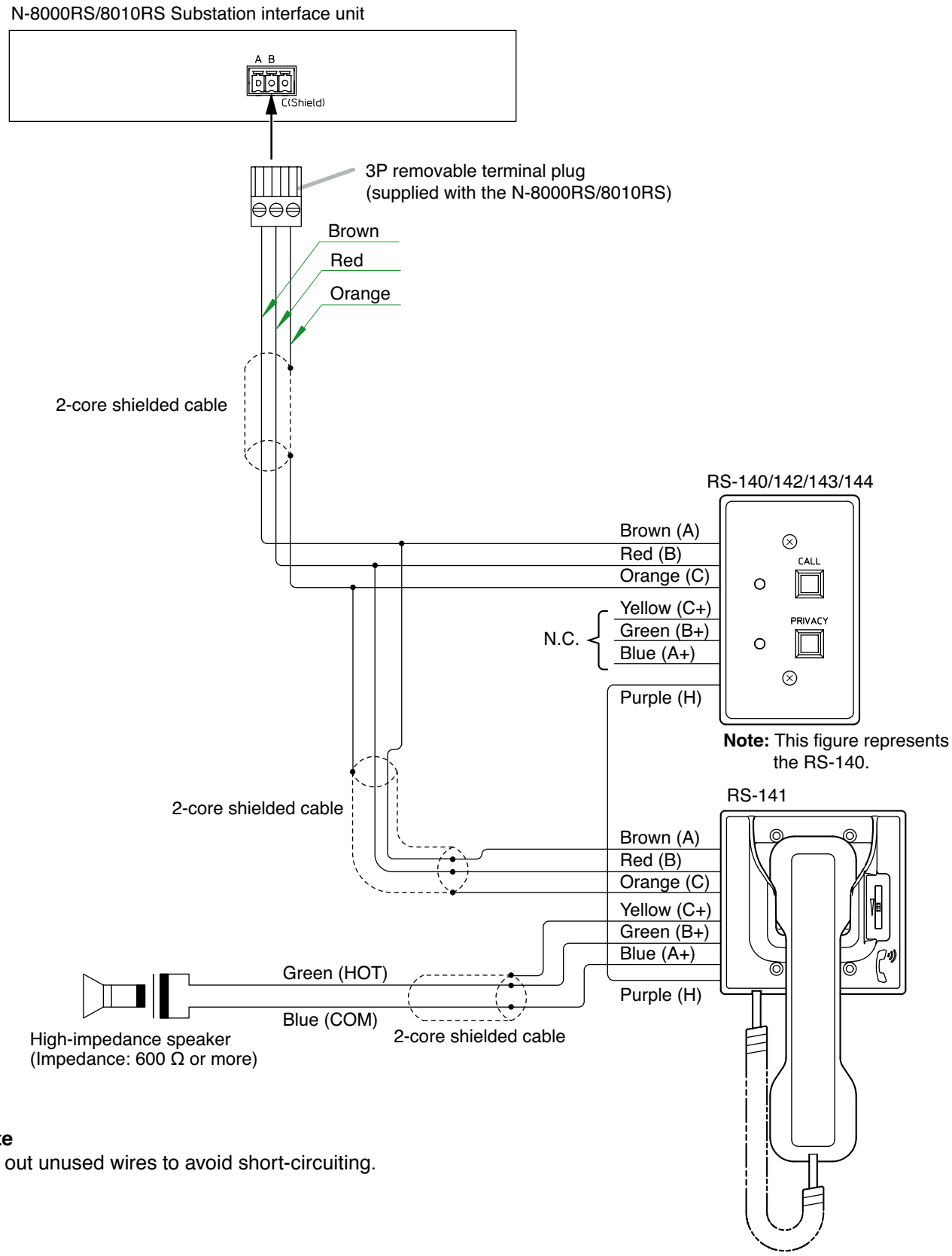
13.4.3. RS-140/142/143/144 and speaker connections



Note
Cut out the unused Wire (purple) to avoid short-circuiting.

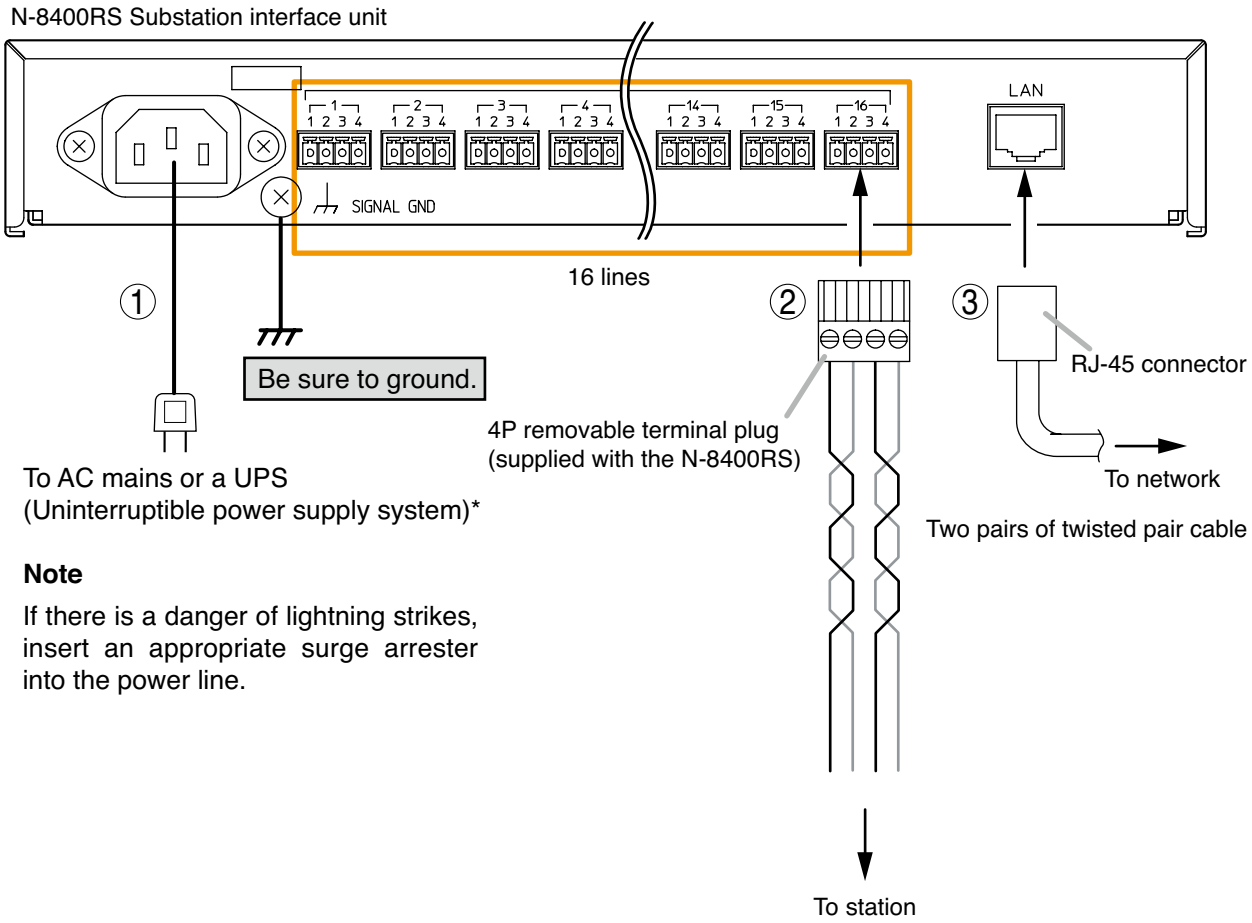
Note: This figure represents the RS-140.

13.4.4. RS-140/142/143/144, RS-141, and speaker connections



Note
Cut out unused wires to avoid short-circuiting.

13.5. N-8400RS Substation Interface Unit Connection



Note

If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

[General description of connection]
For cables, refer to p. 3-81.

1. Power supply connection
Connect the supplied power supply cord to AC Mains or a UPS (Uninterruptible power supply).

About power supply cord handling
The supplied power supply cord is designed for exclusive use with the N-8400RS.
Never use it with other equipment.

2. Station connections
The connection method differs depending on types of stations.
(Refer to p. 3-64 for station connections, and p. 3-83 for Terminal plug connection.)

3. Network connection
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Use a straight through cable of UTP category 5 or more for this connection.

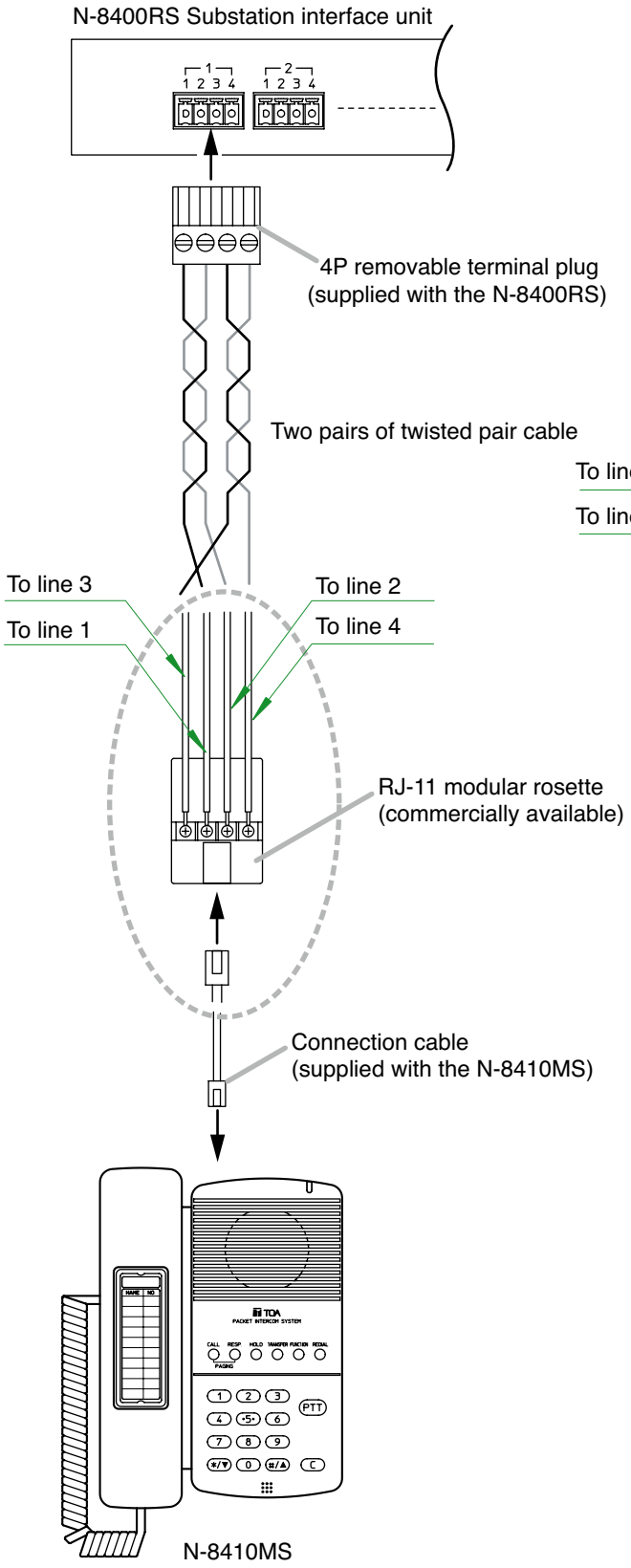
* Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.

Reference
N-8400RS: 35 W (rated) for CE version, 31 W (rated) for CU version
8-Port 10M/100M Switching Hub: 10 W (Differs depending on products.)

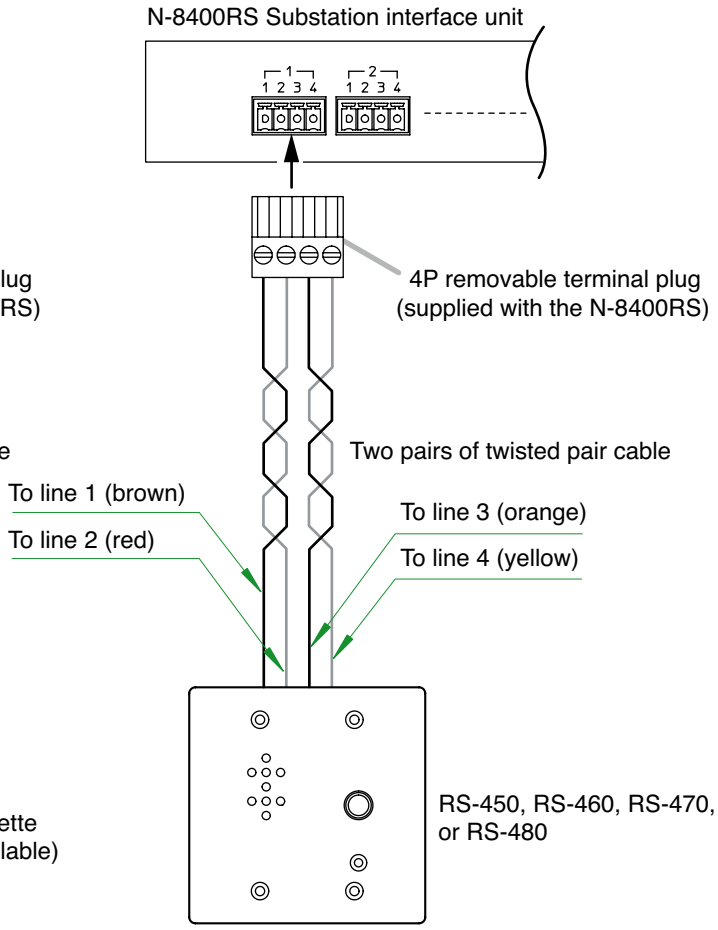
13.6. Connections of Stations Used in conjunction with the N-8400RS

13.6.1. Station and substation interface unit connections

[N-8410MS]

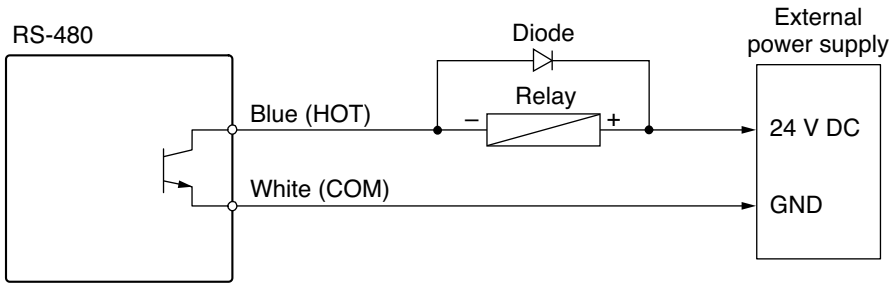


[RS-450/460/470/480]



Note: This figure represents the RS-450.

13.6.2. RS-480 and external relay connections

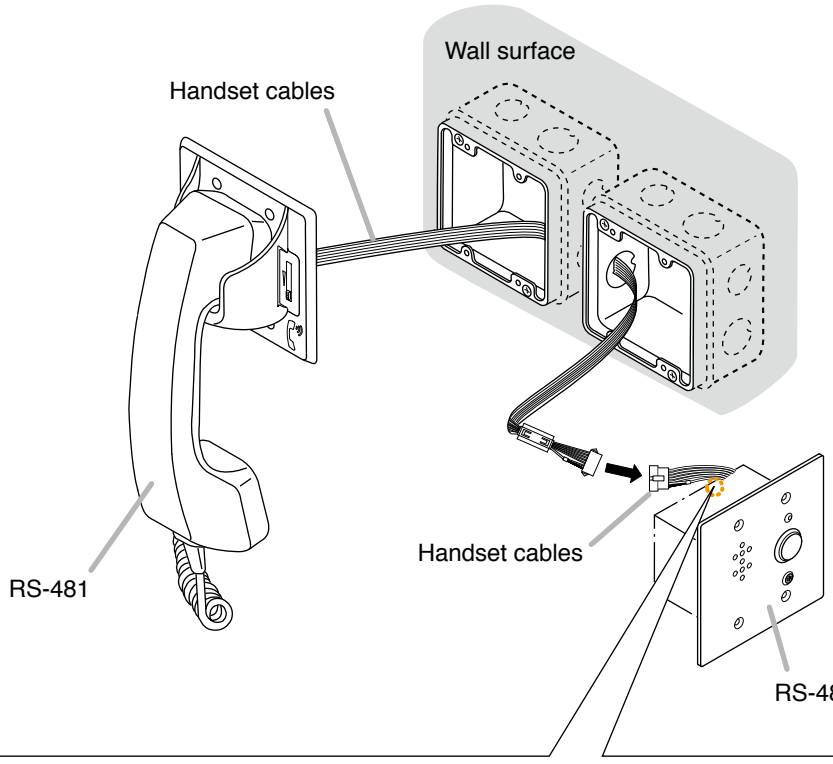


Open collector output: 24 V DC, Max. 30 mA

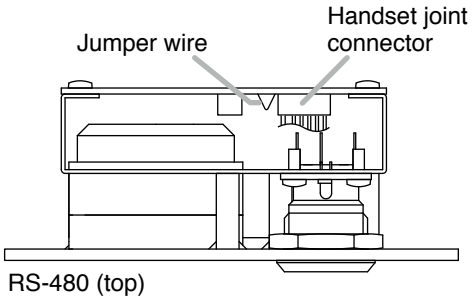
Note: Cut out the control cables if they are not used to avoid short-circuiting.

13.6.3. RS-480 and RS-481 connections

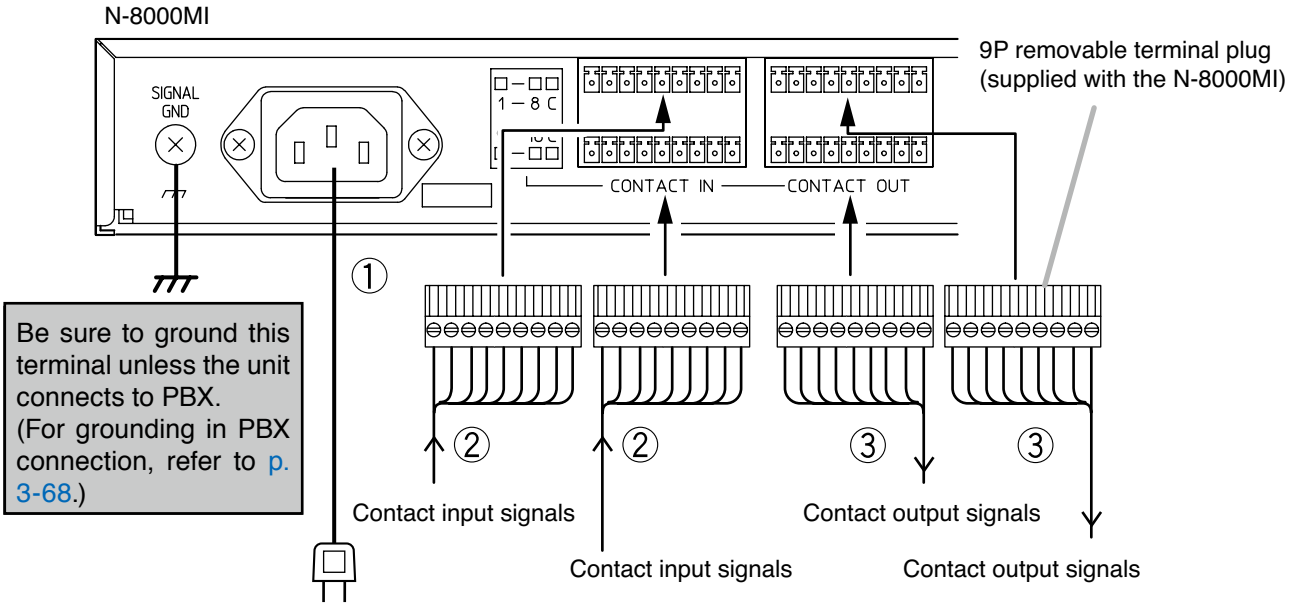
Connect the RS-480 handset cables to the RS-481's handset connection cables.



Note
When using the RS-481 Option handset, cut the jumper wire next to the handset joint connector on the circuit board as illustrated at right.
If not cut, sound comes out from the RS-480's front speaker and returns back to the handset's microphone, resulting in acoustic feedback.



13.7. Multi Interface Unit Connection



Note

If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

[General description of connection]

For cables, refer to p. 3-81.

1. Power supply connection

Connect the supplied power supply cord to AC Mains or a UPS (Uninterruptible power supply).

About power supply cord handling

The supplied power supply cord is designed for exclusive use with the N-8000MI.
Never use it with other equipment.

2. Contact input terminal connection

(Refer to p. 3-83, Terminal plug connection.)
[Specification of no-voltage make contact input]
Short-circuit current: 10 mA
Open-circuit voltage: 12 V

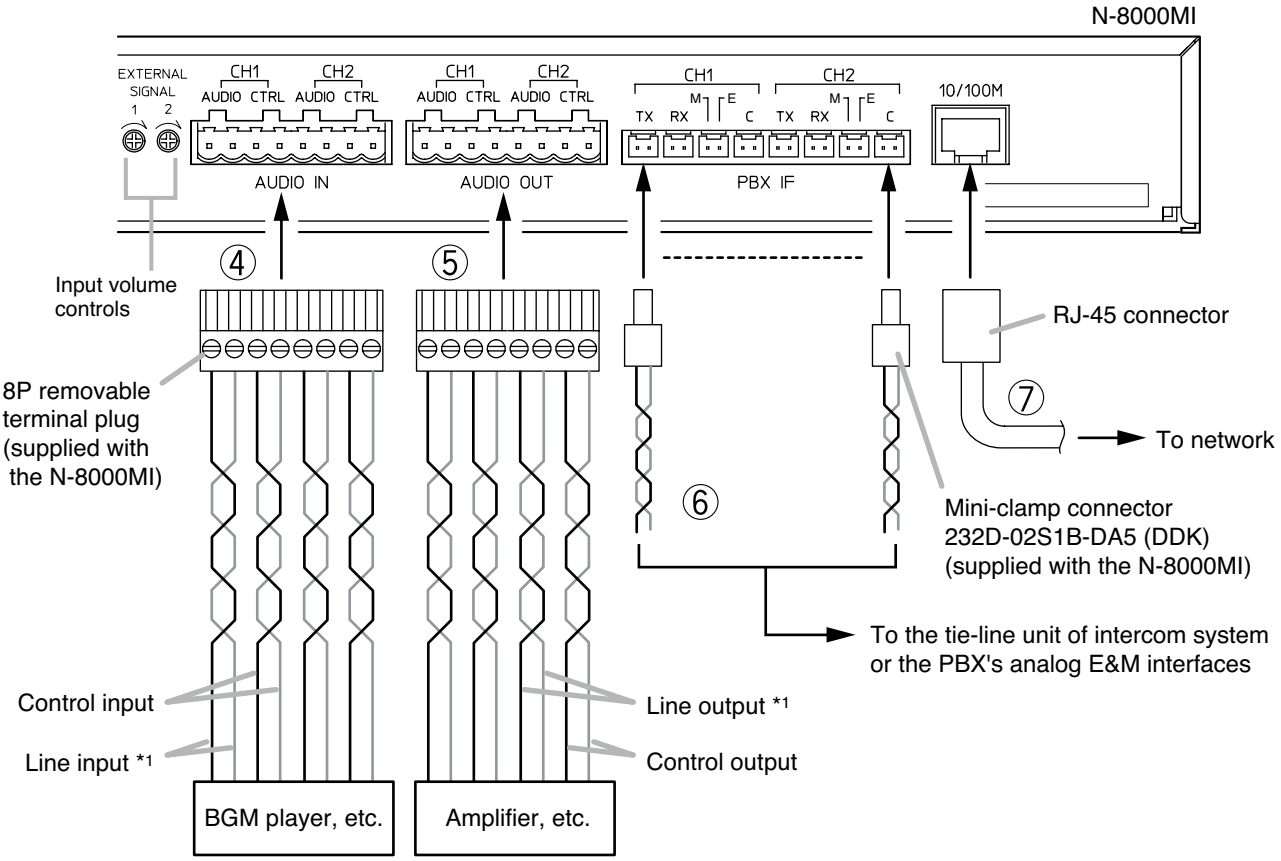
3. Contact output terminal connection

Contact output terminals have no polarity.
(Refer to p. 3-83, Terminal plug connection.)
[Specification of relay contact output]
Withstand voltage: 24 V DC
Control current: Max. 0.5 A

* Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.

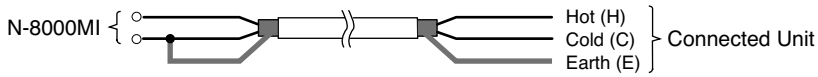
Reference

Multi interface unit: 19 W (rated) for CE version, 16 W (rated) for CU version
8-Port 10M/100M Switching Hub: 10W (Differs depending on products.)

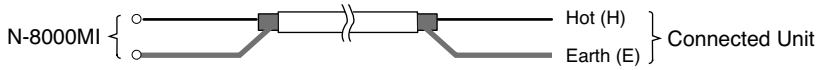


*1 Connect the Line input cables in a way as shown below according to the type of connected unit's input or output.

• Connecting to a balanced input or output



• Connecting to an unbalanced input or output



Note
You can use only either of the Audio input/output CH1 terminals or the PBX interface CH1 terminal. Likewise, it is the same for CH2.

4. Audio input terminal connection
Audio input terminals have no polarity.
(Refer to p. 3-83, Terminal plug connection.)
[Specification of audio input]
Max. 0 dB*2, over 10 kΩ, balanced
Audio input sensitivity for each channel can be adjusted in the range of 0 to –25 dB*2 with the input volume control. Adjust the input sensitivity depending on the equipment to be connected. (Default factory setting: 0 dB*2)
[Specification of control input]
No-voltage make contact
Short-circuit current: 10 mA
Open-circuit voltage: 12 V

5. Audio output terminal connection
Audio output terminals have no polarity.
(Refer to p. 3-83, Terminal plug connection.)
[Specification of audio output]
Max. 0 dB*2, under 600 Ω, balanced
[Specification of control output]
Relay contact output
Withstand voltage: 24 V DC
Control current: Max. 0.5 A

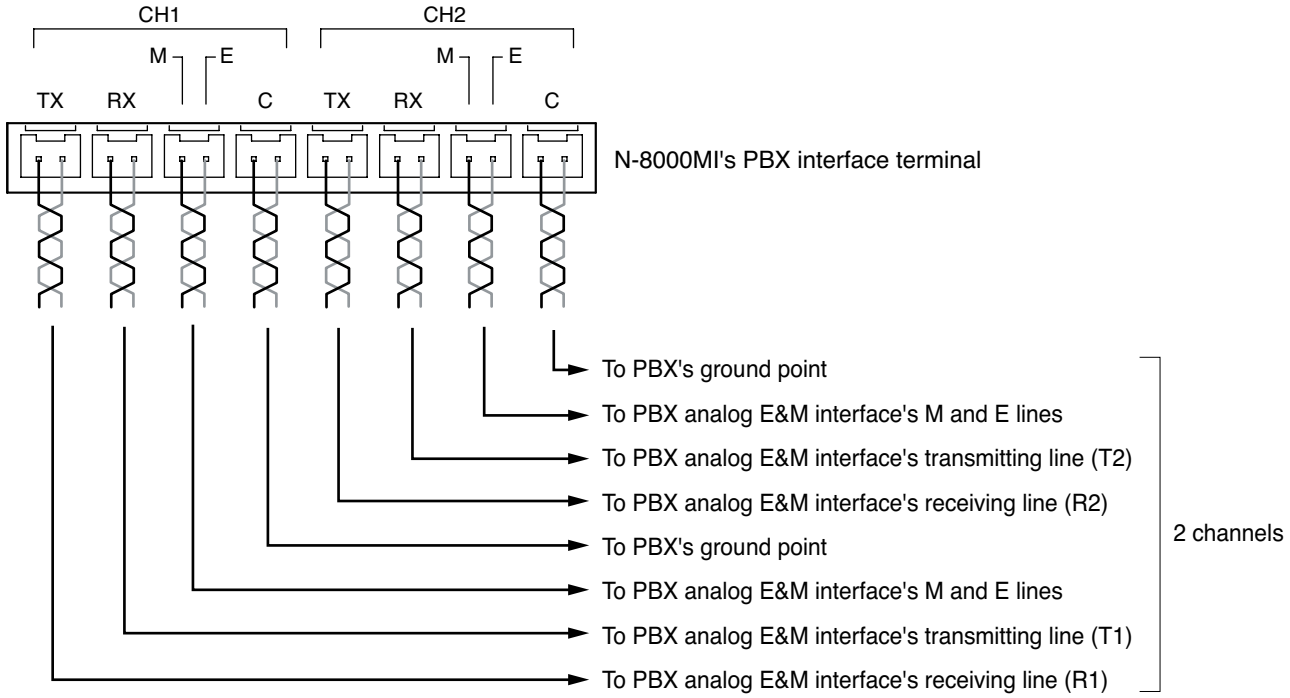
6. PBX interface terminal connection
Differs depending on the connections to the Exchange of the EXES-2000 or EXES-6000 by a tie-line, or to the PBX exchange via the analog E&M interface.
(Refer to p. 3-68 for the connection method.)
(Refer to p. 3-83, Mini-clamp connector connection.)

7. Network connection
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Use a straight through cable of UTP category 5 or more for this connection.

*2 0 dB = 1 V

[Connecting to the PBX's analog E&M interface]

Connect the PBX's transmitting line to the unit's RX terminal, and the PBX's receiving line to the TX terminal. Also connect the PBX's M (Mouth) line to the unit's E (Ear) terminal, and the PBX's E line to the M terminal.



Notes

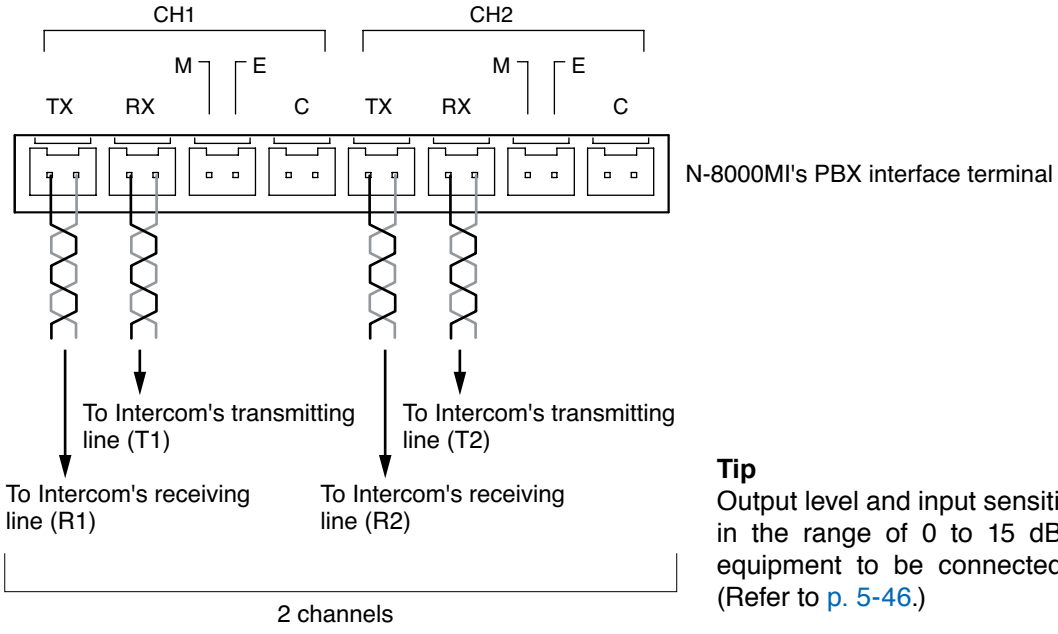
- The "C" terminals for CH1 and CH2 are internally connected to the unit body (functional earth terminal).
- Do not ground the Functional earth terminal (No. 6 on p. 1-60) in this PBX connection.

Tips

- Output level and input sensitivity can be adjusted in the range of 0 to 15 dB depending on the equipment to be connected and cable length. (Refer to p. 5-46.)
- The Line attribute (Address signaling) and Line start method (Start dial supervision signaling) can be set for the connected equipment. (Refer to p. 5-46.)

[Connecting to the Intercom's Tie-Line Unit]

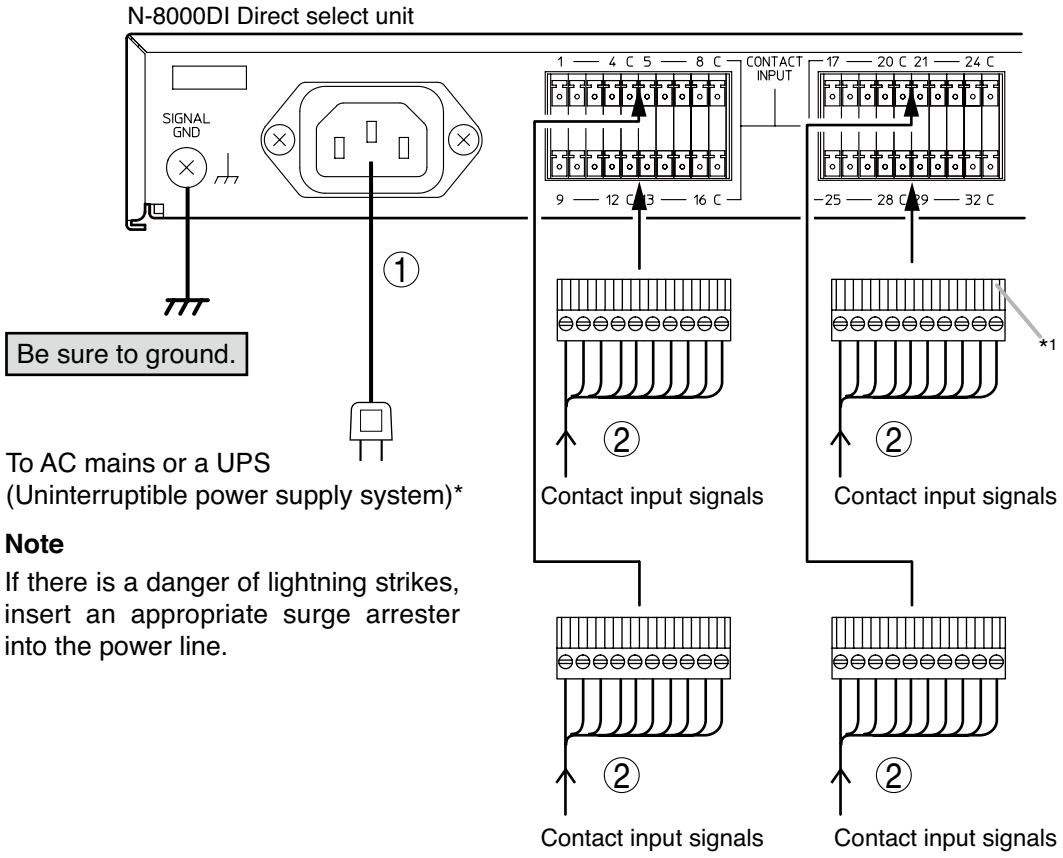
Connect the intercom's transmitting line to the unit's RX terminal, and the receiving line to the TX terminal.



Tip

Output level and input sensitivity can be adjusted in the range of 0 to 15 dB depending on the equipment to be connected and cable length. (Refer to p. 5-46.)

13.8. Direct Select Unit Connection



Note

If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

*1 10P removable terminal plug (supplied with the N-8000DI)

[General description of connection]

For cables, refer to p. 3-81.

1. Power supply connection

Connect the supplied power supply cord to AC Mains or a UPS (Uninterruptible power supply).

About power supply cord handling

The supplied power supply cord is designed for exclusive use with the N-8000DI.
Never use it with other equipment.

2. Contact input terminal connection

(Refer to p. 3-83, Terminal plug connection.)

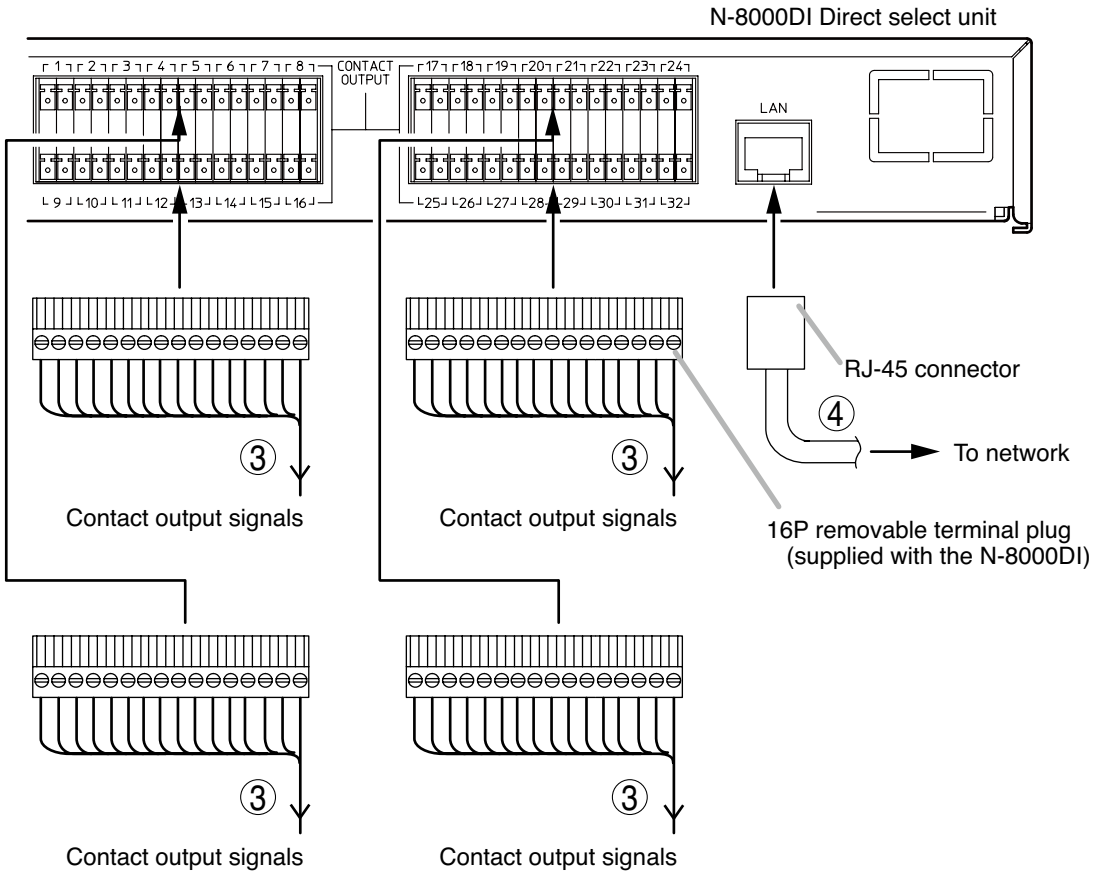
[Specification of no-voltage make contact input]

Short-circuit current: 5 mA
Open-circuit voltage: 24 V

* Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.

Reference

Direct select unit: 16 W (rated) for CE version, 16 W (rated) for CU version
8-Port 10M/100M Switching Hub: 10 W (Differs depending on products.)



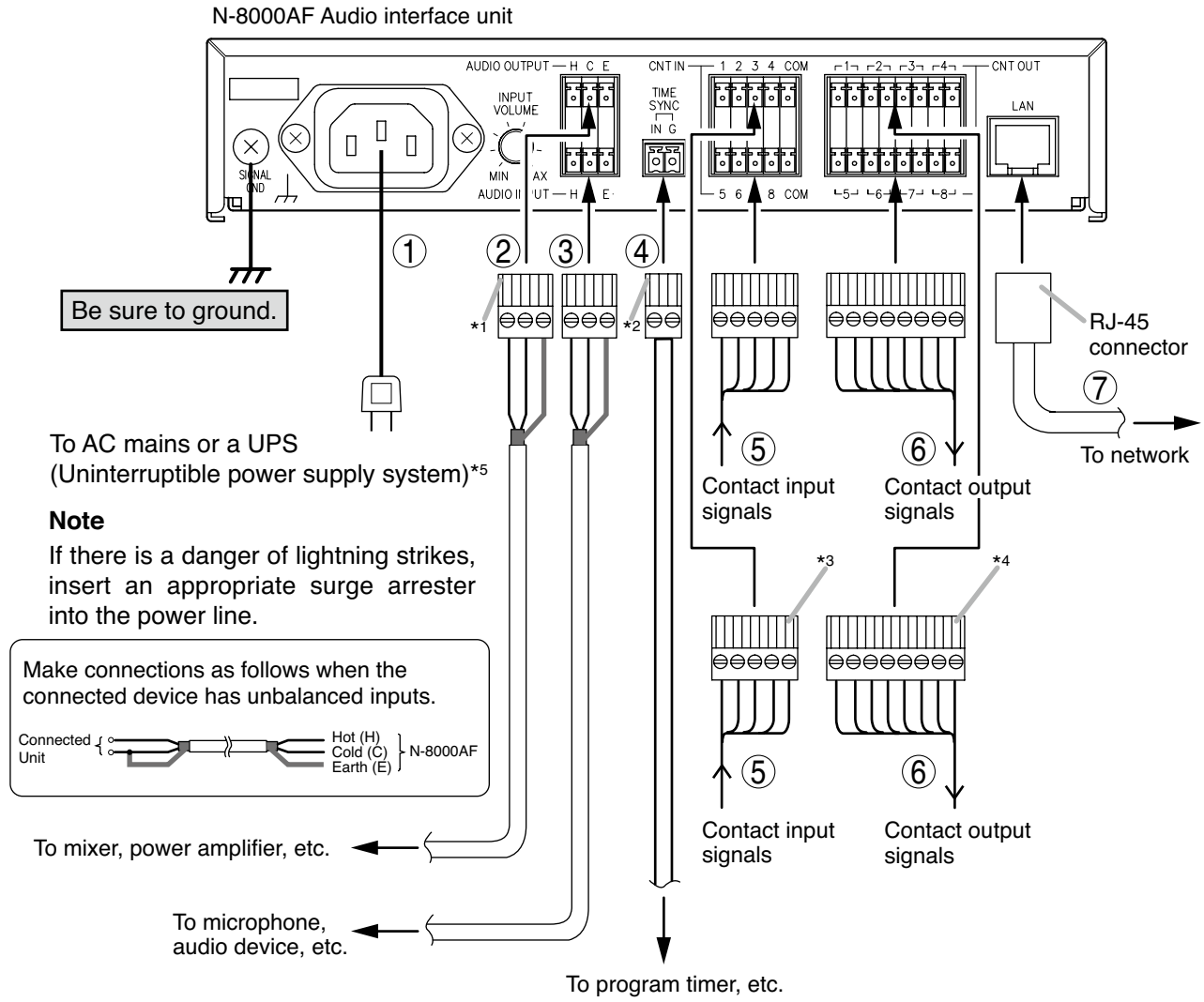
3. Contact output terminal connection

Contact output terminals have no polarity.
(Refer to p. 3-83, Terminal plug connection.)
[Specification of relay contact output]
Withstand voltage: 24 V DC
Control current: 2 mA – 500 mA

4. Network connection

Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Use a straight through cable of UTP category 5 or more for this connection.

13.9. Audio Interface Unit Connection



Note

If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

*1 3P removable terminal plug (supplied with the N-8000AF)

*2 2P removable terminal plug (supplied with the N-8000AF)

*3 5P removable terminal plug (supplied with the N-8000AF)

*4 8P removable terminal plug (supplied with the N-8000AF)

[General description of connection]

For cables, refer to p. 3-81.

1. Power supply connection

Connect the supplied power supply cord to AC Mains or a UPS (Uninterruptible power supply).

About power supply cord handling

The supplied power supply cord is designed for exclusive use with the N-8000AF.
Never use it with other equipment.

2. Audio output terminal connection

Connect the mixer, power amplifier, etc. to this terminal using the two-core shielded cable.
(Refer to p. 3-83, Terminal plug connection.)

[Audio output terminal specifications]

0 dB*6, 600 Ω, balanced.
This terminal outputs line level audio signal.
H: Hot
C: Cold
E: Earth

*6 0 dB = 1 V

*5 Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.

Reference

Audio interface unit: 7 W (rated) for CE version, 7 W (rated) for CU version
8-Port 10M/100M Switching Hub: 10W (Differs depending on products.)

3. Audio input terminal connection

Connect the microphone, audio device, etc. to this terminal using the two-core shielded cable.
(Refer to p. 3-83, Terminal plug connection.)
[Audio input terminal specifications]
-58 – 0 dB*6, 2 kΩ, balanced.
This terminal inputs microphone level or line level audio signals.
Use software to switch signal levels between microphone and line.
H: Hot
C: Cold
E: Earth

4. Time sync input terminal connections

Connect the program timer, etc. to this terminal.
(Refer to p. 3-83, Terminal plug connection.)
[Specification of no-voltage make contact input]
Short-circuit current: 5 mA
Open-circuit voltage: 24 V

5. Contact input terminal connection

(Refer to p. 3-83, Terminal plug connection.)
[Specification of no-voltage make contact input]
Short-circuit current: 5 mA
Open-circuit voltage: 24 V

6. Contact output terminal connection

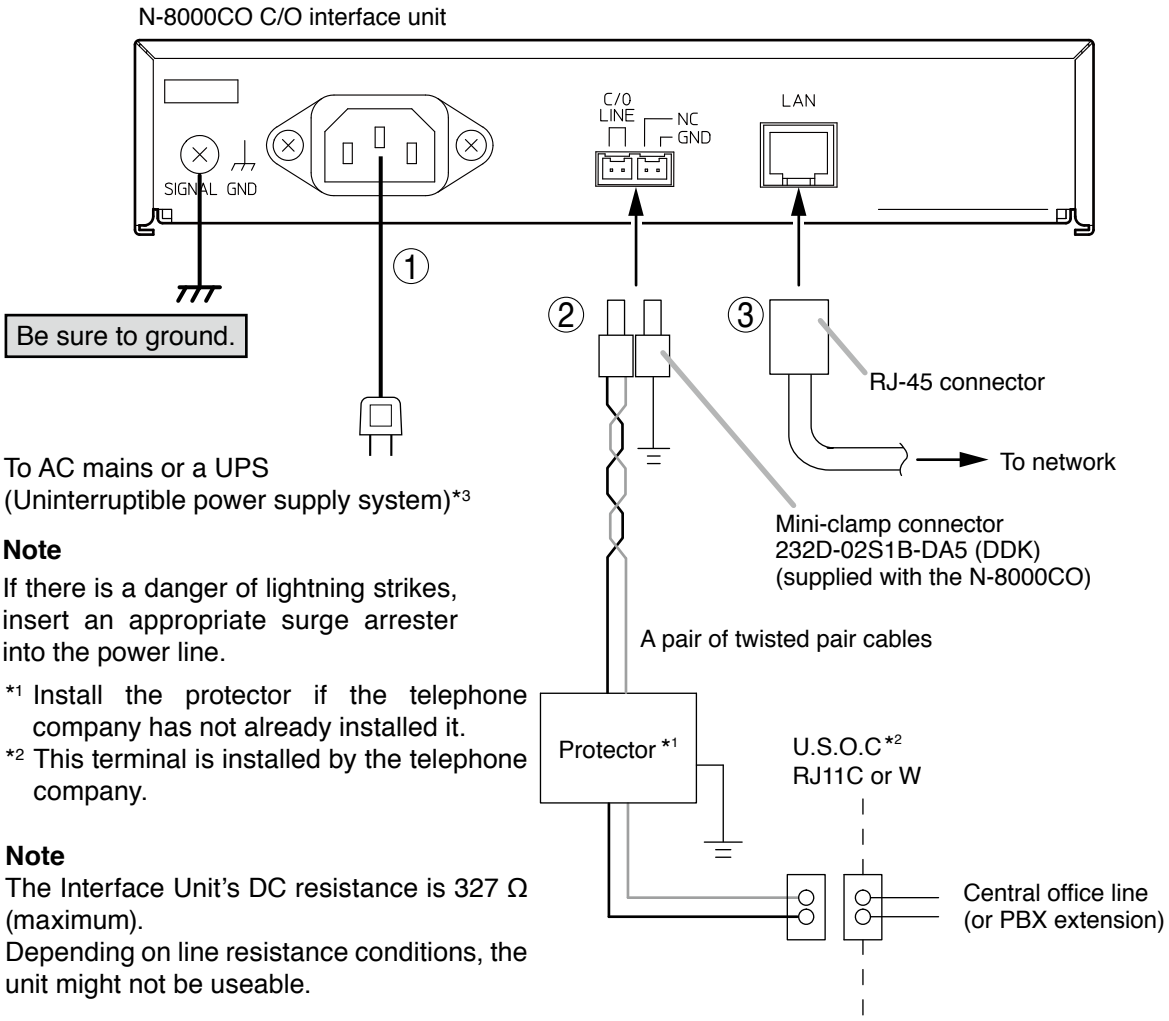
Contact output terminals have no polarity.
(Refer to p. 3-83, Terminal plug connection.)
[Specification of relay contact output]
Withstand voltage: 24 V DC
Control current: 2 mA – 500 mA

7. Network connection

Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Use a straight through cable of UTP category 5 or more for this connection.

*6 0 dB = 1 V

13.10. C/O Interface Unit Connection



Note

If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

*1 Install the protector if the telephone company has not already installed it.
*2 This terminal is installed by the telephone company.

Note

The Interface Unit's DC resistance is 327 Ω (maximum).
Depending on line resistance conditions, the unit might not be useable.

[General description of connection]
For cables, refer to p. 3-81.

1. Power supply connection

Connect the supplied power supply cord to AC Mains or a UPS (Uninterruptible power supply).

About power supply cord handling

The supplied power supply cord is designed for exclusive use with the N-8000CO.
Never use it with other equipment.

2. C/O line connection

Connect the C/O line to the PSTN (public switched telephone network) using the supplied mini-clamp connector.
(Refer to p. 3-83, Mini-clamp connector connection.)

⚠ CAUTION

To reduce the risk of fire, use only No.26 AWG or larger telecommunication line cord.

3. Network connection

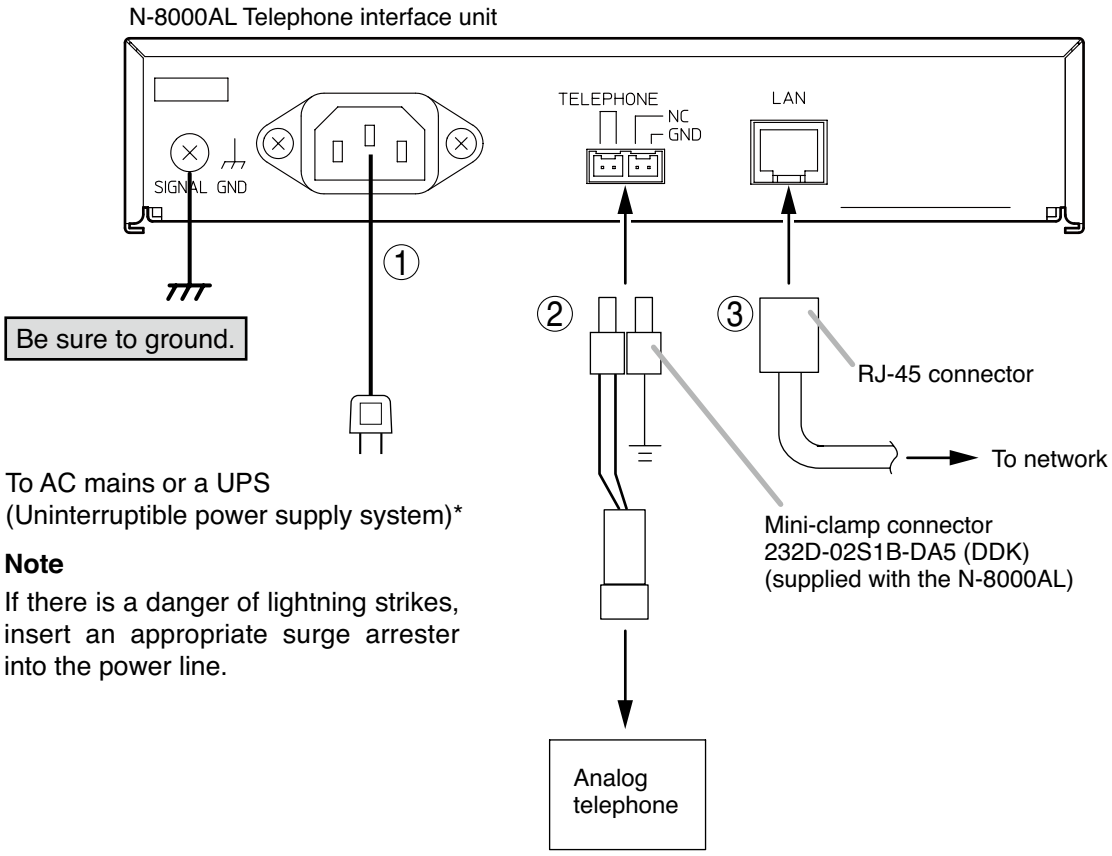
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Use a straight through cable of UTP category 5 or more for this connection.

*3 Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.

Reference

C/O interface unit: 6 W (rated) for CE version, 6 W (rated) for CU version
8-Port 10M/100M Switching Hub: 10W (Differs depending on products.)

13.11. Telephone Interface Unit Connection



Note

If there is a danger of lightning strikes, insert an appropriate surge arrester into the power line.

[General description of connection]

For cables, refer to p. 3-81.

1. Power supply connection

Connect the supplied power supply cord to AC Mains or a UPS (Uninterruptible power supply).

About power supply cord handling

The supplied power supply cord is designed for exclusive use with the N-8000AL.
Never use it with other equipment.

2. Telephone connection

Connect the unit to the telephones certified in the country where the unit is used.
(Refer to p. 3-83, Mini-clamp connector connection.)

3. Network connection

Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Use a straight through cable of UTP category 5 or more for this connection.

Notes

- The apparatus shall be connected to a main socket outlet with a protective earthing connection.
- Do not defeat the Class I product's earthed connections.
- The interconnected telecommunication terminal equipment (via "TELEPHONE"-connecter of N-8000AL) should be UL Listed and the connections shall be made in accordance with Article 800 of the NEC. (CU version)
- The interconnected telecommunication terminal equipment (via "TELEPHONE"-connecter of N-8000AL) should comply with IEC60950-1. (CE version)

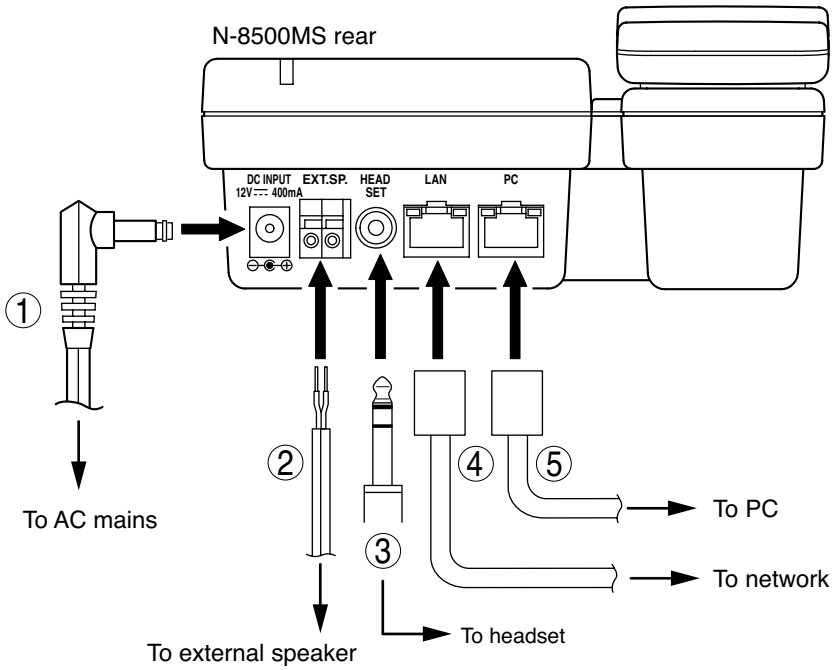
* Select an appropriate UPS taking into consideration the total power consumption of all system components and the required backup time. On-line uninterruptible power supply (UPS) is recommended.

Reference

Telephone interface unit: 7 W (rated) for CE version, 7 W (rated) for CU version
8-Port 10M/100M Switching Hub: 10W (Differs depending on products.)

13.12. IP Station Connection

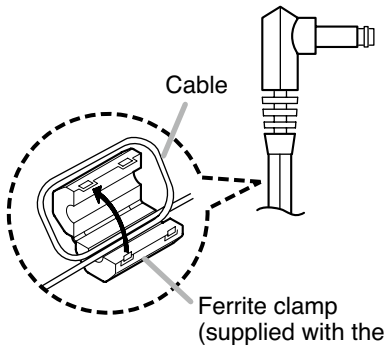
13.12.1. N-8500MS connections



1. AC adapter terminal connection

Connect the AC adapter*1.

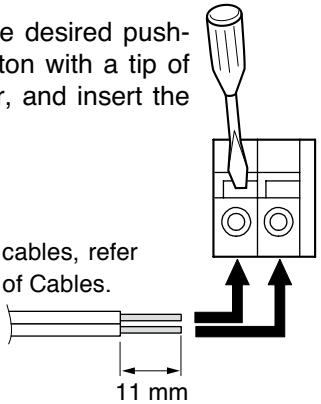
Install the supplied ferrite clamp on the AC adapter cable by winding the cable around the ferrite clamp once.



*1 Use the AC adapter AD-1210P/1215P (optional) or the equivalent.
As for the usable adapter, consult your TOA dealer.

2. External speaker terminal connection

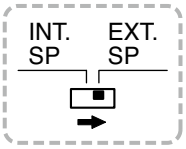
Press down the desired push-in terminal button with a tip of standard driver, and insert the cable securely.



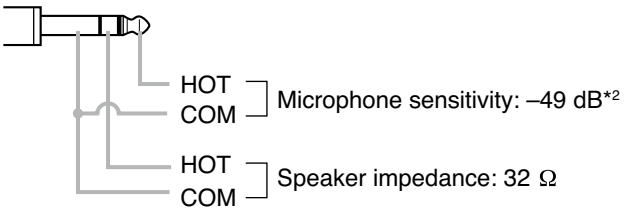
For the type of cables, refer to p. 3-81, Type of Cables.

Note

When using the external speaker, set the internal/external speaker switch on the bottom to the EXT. SP position.



3. Headset plug connection



4. Network connection terminal connection

Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.

Connecting the station to a PoE (Power over Ethernet) switching hub compliant with IEEE802.3af eliminates the need for an AC adapter. (For connection, refer to the instruction manual supplied with the switching hub.)

Use a straight through cable of UTP category 5 or more for this connection.

5. PC connection terminal connection

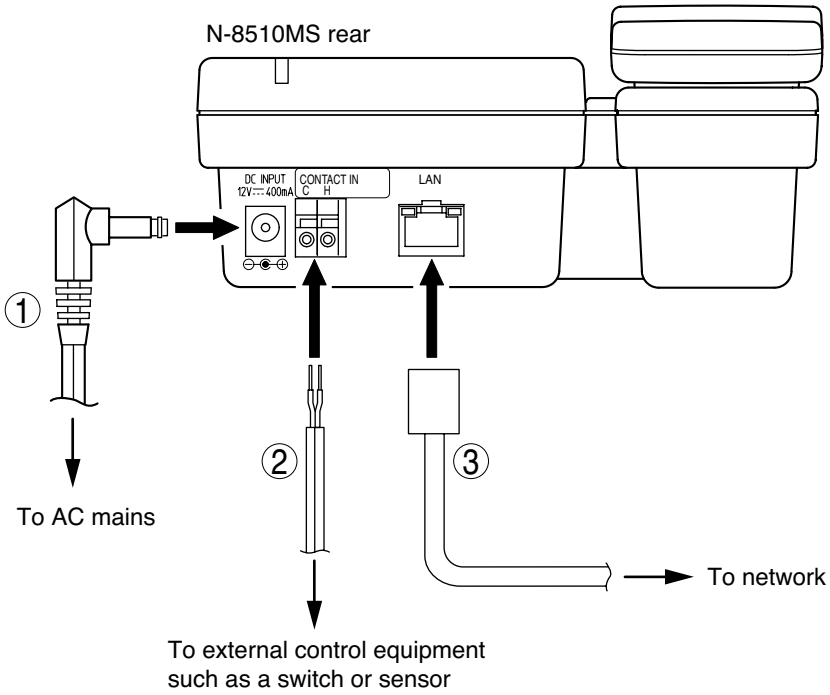
A PC can be cascaded with the station. If power is not supplied to the station, hub function will not work.

Use a straight through cable of UTP category 5 or more for this connection.

Note: Be sure to connect one PC only.

*2 0 dB = 1 V/pa (1 kHz)

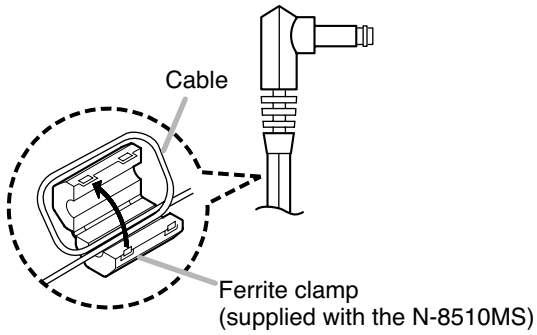
13.12.2. N-8510MS connection



1. AC adapter terminal connection

Connect the AC adapter*.

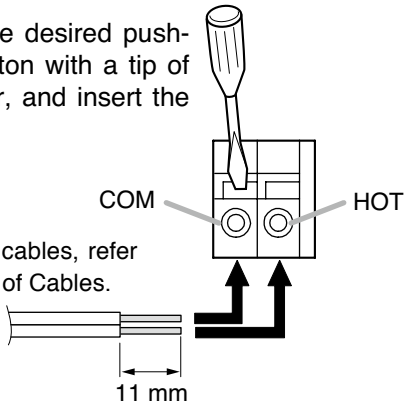
Install the supplied ferrite clamp on the AC adapter cable by winding the cable around the ferrite clamp once.



* Use the AC adapter AD-1210P/1215P (optional) or the equivalent.
  As for the usable adapter, consult your TOA dealer.

2. Message start terminal connection

Press down the desired push-in terminal button with a tip of standard driver, and insert the cable securely.



For the type of cables, refer to p. 3-81, Type of Cables.

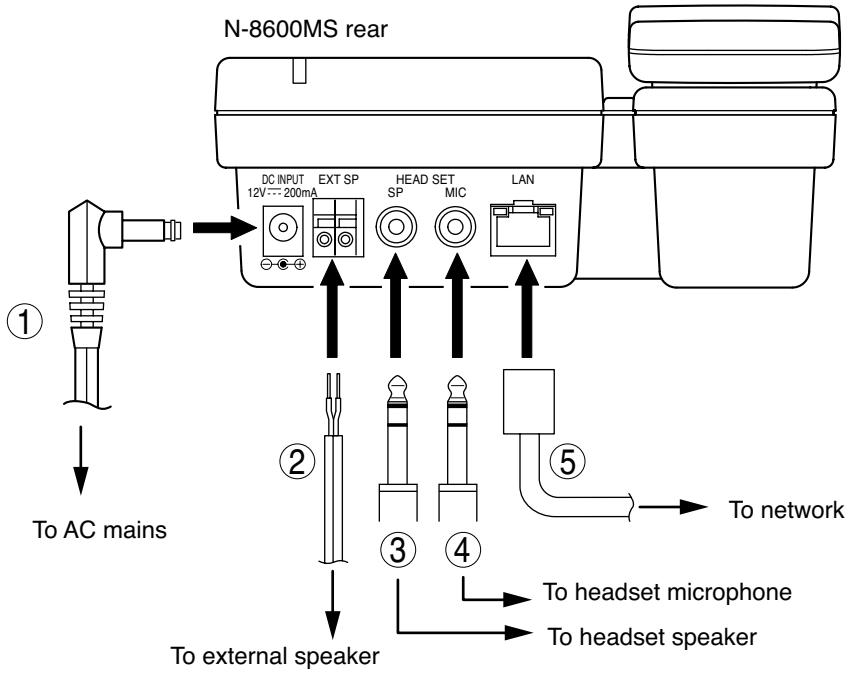
3. Network connection terminal connection

Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.

Connecting the station to a PoE (Power over Ethernet) switching hub compliant with IEEE802.3af eliminates the need for an AC adapter. (For connection, refer to the instruction manual supplied with the switching hub.)

Use a straight through cable of UTP category 5 or more for this connection.

13.12.3. N-8600MS connection



1. AC adapter terminal connection

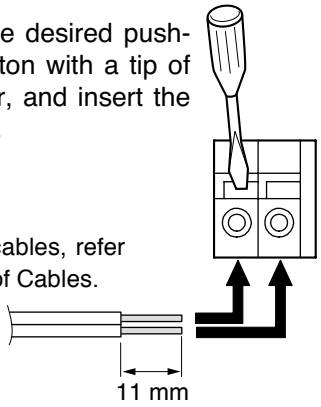
Connect the AC adapter*.

* Use the AC adapter AD-1210P/1215P (optional) or the equivalent.
  As for the usable adapter, consult your TOA dealer.

2. External speaker terminal connection

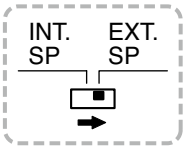
Press down the desired push-in terminal button with a tip of standard driver, and insert the cable securely.

For the type of cables, refer to p. 3-81, Type of Cables.



Note

When using the external speaker, set the internal/external speaker switch on the bottom to the EXT. SP position.



3. Headset speaker connection

ø3.5 mm mini jack.
Connect the headset speaker.

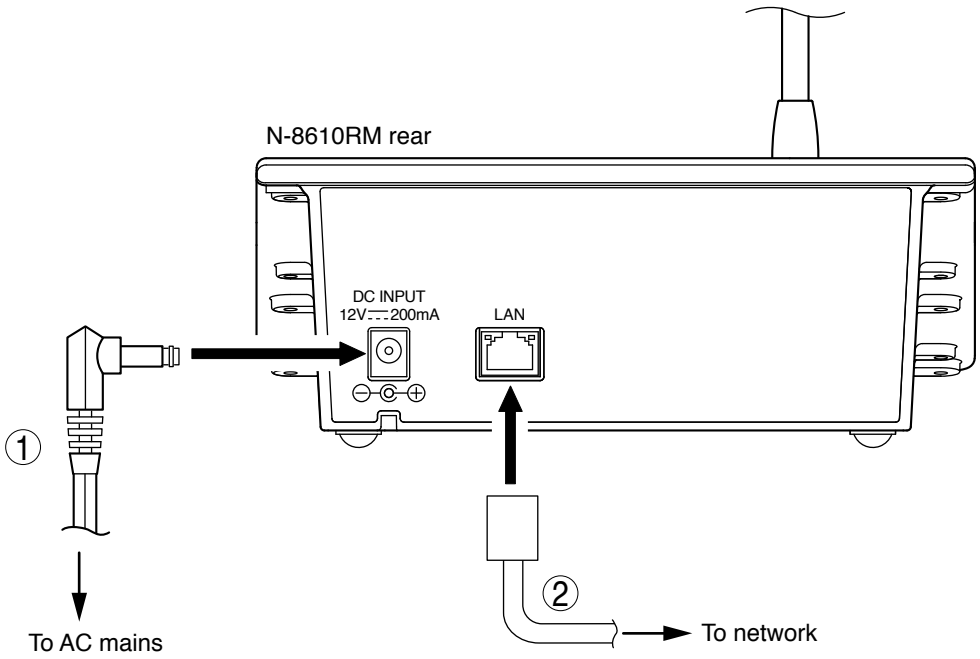
4. Headset microphone connection

ø3.5 mm mini jack.
Connect the headset microphone.

5. Network connection terminal connection

Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub compliant with IEEE802.3af eliminates the need for an AC adapter. (For connection, refer to the instruction manual supplied with the switching hub.)
Use a straight through cable of UTP category 5 or more for this connection.

13.12.4. N-8610RM connection



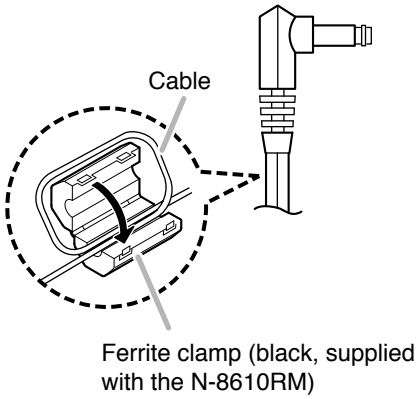
1. AC adapter terminal connection

Connect the AC adapter*.

* Use the AC adapter AD-1215P (optional) or the equivalent.
  As for the usable adapter, consult your TOA dealer.

Note

Install the supplied ferrite clamp (black) on the AC adapter cable by winding the cable around the ferrite clamp once.



2. Network connection terminal connection

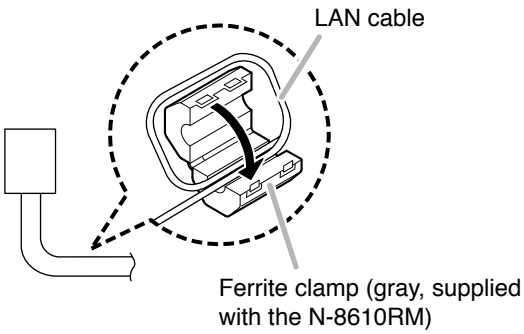
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.

Connecting the station to a PoE (Power over Ethernet) switching hub compliant with IEEE802.3af eliminates the need for an AC adapter. (For connection, refer to the instruction manual supplied with the switching hub.)

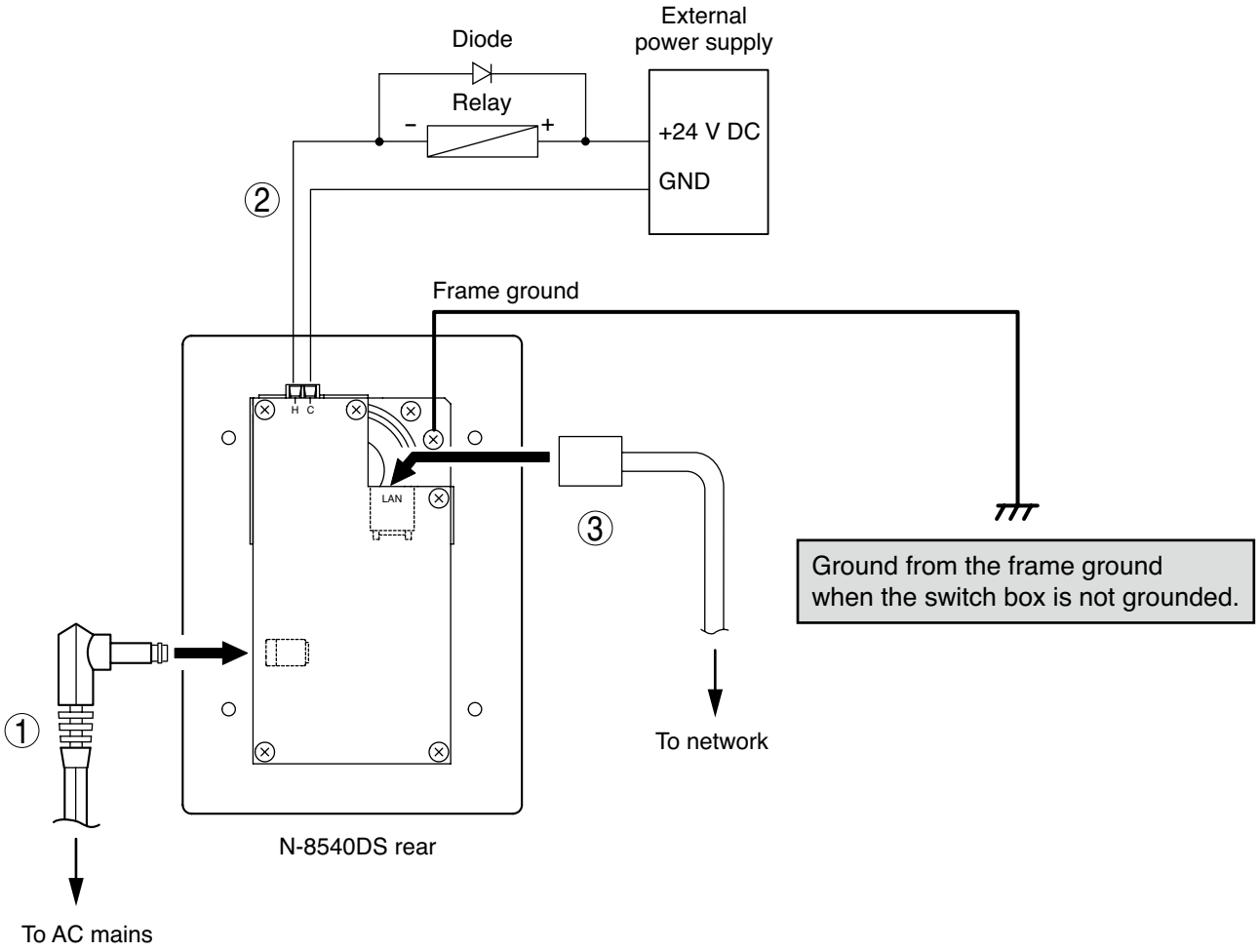
Use a straight through cable of UTP category 5 or more for this connection.

Note

Install the supplied ferrite clamp (gray) on the LAN cable by winding the cable around the ferrite clamp once.



13.12.5. N-8540DS connection



1. AC adapter terminal connection

Connect the AC adapter*.

* Use the AC adapter AD-1210P/1215P (optional) or the equivalent.
As for the usable adapter, consult your TOA dealer.

2. Contact output terminal connection

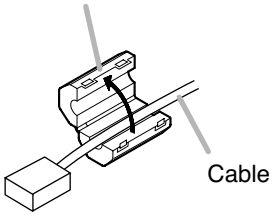
An external relay can be connected as illustrated above.
(Refer to p. 3-83, Terminal plug connection.)

[Specification of contact output]
Open collector output
Withstand voltage: Max. 30 V DC,
Control current: Max. 50 mA

3. Network connection terminal connection

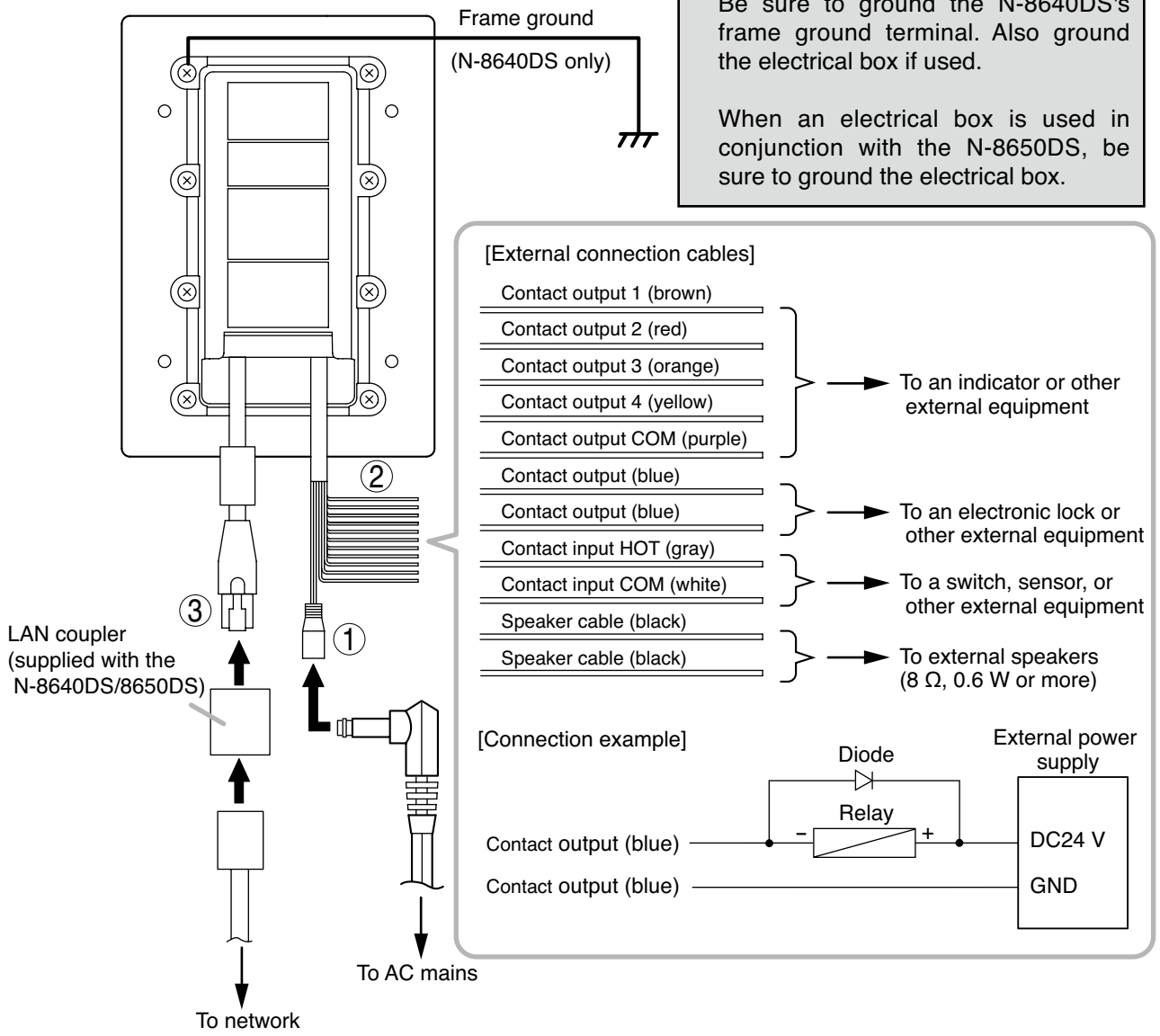
Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub compliant with IEEE802.3af eliminates the need for an AC adapter. (For connection, refer to the instruction manual supplied with the switching hub.)
Use a straight through cable of UTP category 5 or more for this connection.
Install the ferrite clamp (supplied with the N-8540DS) on the network cable.

Ferrite clamp
(supplied with the N-8540DS)



13.12.6. N-8640DS/8650DS connection

N-8640DS/8650DS rear
Note: This figure represents the N-8640DS.



Notes

Be sure to ground the N-8640DS's frame ground terminal. Also ground the electrical box if used.

When an electrical box is used in conjunction with the N-8650DS, be sure to ground the electrical box.

1. AC adapter terminal connection

Connect the AC adapter*.

* Use the AC adapter AD-1210P/1215P (optional) or the equivalent.
As for the usable adapter, consult your TOA dealer.

2. External connection cables

[Contact output specifications]
Open collector output
Withstand voltage: 30 V DC
Max. control current: 50 mA

[Contact output (blue x 2) specifications]
Relay contact output
Withstand voltage: 30 V DC
Max. control current: 500 mA

[Contact output (gray, white) specifications]
No-voltage closed contact input.
Open voltage: 5 V DC
Short-circuit current: 10 mA or less

3. Network connection terminal connection

Can be connected to a network of 10BASE-T/100BASE-TX in auto-sensing.
Connecting the station to a PoE (Power over Ethernet) switching hub compliant with IEEE802.3af eliminates the need for an AC adapter. (For connection, refer to the instruction manual supplied with the switching hub.)
Use a straight through cable of UTP category 5 or more for this connection.

13.13. Type of Cable

The types of cables are to be determined according to the following conditions.

- To use twisted pair wires (such as those used for electronic push-button telephone) for wiring between the Exchange and the stations, for wiring between the N-8400RS Substation interface unit and the N-8410MS Master station or the RS-450/460/470/480 Substations, and for connections to the Multi interface unit's audio input/output terminals and PBX interface terminals.
- Use a straight through cable of UTP category 5 or more with RJ-45 connector for wiring the equipment to IP network.
- The number of cables pairs laid should be determined considering the possibility of future expansion of the system.
- Outdoor wires should be used where wiring passes through inaccessible areas such as ceilings or under floors where the maintenance is not performed. Indoor wires may also be used, however, in case where there is no risk of deterioration due to exposure to heat, etc.
- Make sure that the 2-core shielded cable is used for wiring from the N-8000RS/8010RS Substation interface unit to the RS-150/160/170/180 Substation , RS-140/143/144 Switch panel, or RS-142 Switch board.

Note
Specifications related to each connections are as follows.

Mini-clamp connector (N-8000EX/8010EX line terminal)
(N-8000MI PBX interface terminal)
(N-8000CO C/O line connection terminal.)
(N-8000AL Telephone connection terminal.)
Conductor diameter: ø 0.4 – 0.65 mm (AWG22 – 26), Solid wire
Outside diameter: ø 1.05 mm or below
Clip terminal (E-7000TB)
Conductor diameter: ø 0.4 – 0.8 mm (AWG20 – 26), Solid wire
Outside diameter: ø 1.5 mm or below
Removable terminal plug (N-8000EX Paging output terminal.)
(N-8000RS/8010RS/8400RS Line terminal.)
(N-8000MI Control I/O and Audio I/O terminal.)
(N-8000DI Control I/O terminal.)
(N-8000AF Control I/O and Audio I/O and Time sync input terminal.)
Conductor diameter: ø 0.5 – 2 mm (AWG12 – 24), Solid wire/Stranded wire
Removable terminal plug (N-8031MS/8033MS line terminal)
Conductor diameter: ø 0.4 – 1.6 mm (AWG14 – 26), Solid wire/Stranded wire
External speaker terminal (N-8000MS/8500MS/8600MS),
Message start terminal connection (N-8510MS)
Conductor diameter: ø 0.4 – 1.3 mm (AWG16 – 26), Solid wire
ø 0.7 – 1.4 mm (AWG16 – 22), Stranded wire
External speaker terminal, Control output terminal (N-8020MS)
Conductor diameter: ø 0.65 mm (AWG22), Solid wire
ø 0.7 mm (AWG22), Stranded wire
External dial input terminal (N-8031MS/8033MS)
Conductor diameter: ø 0.8 – 1.3 mm (AWG16 – 20), Solid wire/Stranded wire
Station terminal (N-8050DS line terminal, contact output terminal, N-8540DS contact output terminal)
Conductor diameter: ø 0.4 – 1.3 mm (AWG16 – 26), Solid wire/Stranded wire

13.14. Relations Between Core Diameter of Cable and Maximum Cable Length

Refer to the following chart as guidelines when designing the distance between the Exchange and stations so that loop resistance value becomes 170 Ω or less.

Conductor diameter (mm)	Loop resistance (Ω/km)	Maximum cable length between the Exchange and station. (Assuming that the loop resistance is 170 Ω)
ø 0.4	295	570 m
ø 0.5	187	900 m
ø 0.65	113	1.5 km
ø 0.9	58	2.9 km

For the maximum (2-core shielded) cable length to be used for connection between the N-8000RS/8010RS Substation interface unit and the RS-150/160/170/180 Substation, RS-140/143/144 Switch panel, or RS-142 Switch board, refer to the following table.

Conductor diameter (mm)	Maximum cable length (km)
ø 0.5	0.5
ø 0.65	0.8
ø 0.9	1.3

For the maximum (two pairs of twisted pair) cable length to be used for connection between the N-8400RS Substation interface unit and the N-8410MS Master station or the RS-450/460/470/480 Substation, refer to the following table.

Conductor diameter (mm)	Maximum cable length (km)
ø 0.5	1.0
ø 0.65	1.5
ø 0.9	2.0

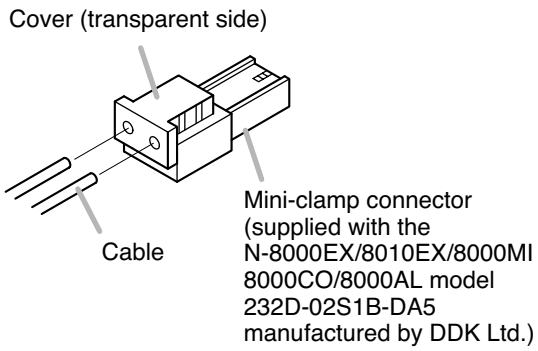
13.15. Connector Connection

13.15.1. Mini-clamp connector connection

Connect the mini-clamp connector supplied with the N-8000EX, N-8010EX, N-8000MI, N-8000CO, N-8000AL to a cable using a commercially available tool (pliers).

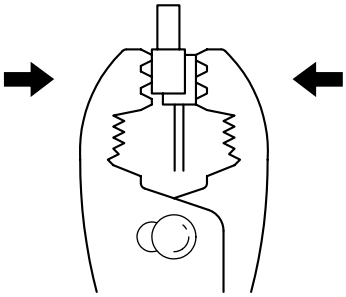
Step 1. Cut off two-cable ends in equal length, and insert them securely to a cover section (transparent side) of the mini-clamp connector.

Note
Insert the cable without stripping the cable jacket.
For cables, refer to p. 3-81, "Type of Cable."

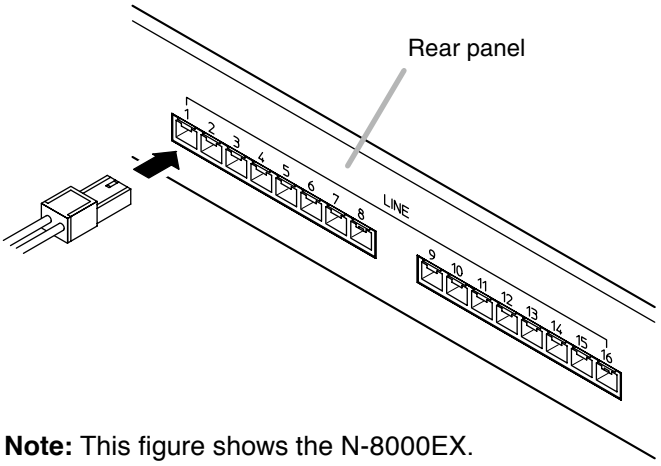


Step 2. With a pair of pliers, lightly pinch the mini-clamp cover and, after ensuring that the cable is securely inserted, firmly squeeze on the cover.

Note
Squeeze on the mini-clamp cover until it is correctly locked.



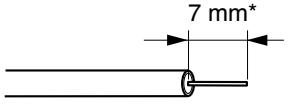
Step 3. Insert the wired connector (plug) into the exchange's connector (socket) until it locks into place.



Note: This figure shows the N-8000EX.

13.15.2. Terminal plug connection

Step 1. Strip a cable jacket of approx. 7 mm (approx. 5 mm for the N-8031MS/8033MS only) from the cable end.



* Approx. 5 mm for the N-8031MS/8033MS

For cables, refer to p. 3-81, Type of Cable.

Note
Do not solder on exposed inner cables when using a stranded wire.

Step 2. Loosen the terminal screws and insert the cables.

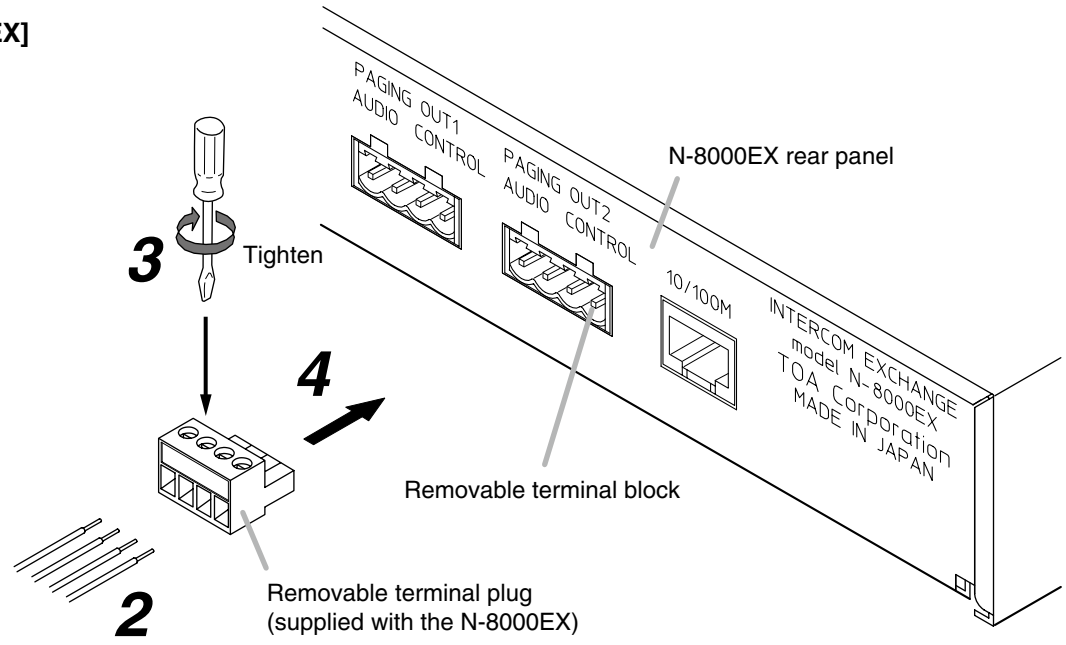
Step 3. Tighten the terminal screws securely.

Notes

- Tug lightly on the cable to be sure that it does not pull free. If the cable pulls free, loosen the terminal screw again and reconnect from **Step 2**.
- Use the screwdriver appropriate to the screws tightened into the terminal plug.

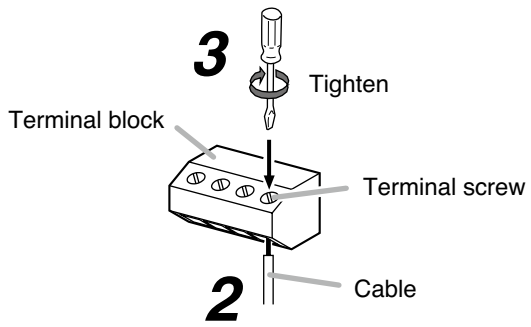
Step 4. (Removable terminal plug only)
Insert the wired terminal plug into the terminal block or the pin header.

[N-8000EX]



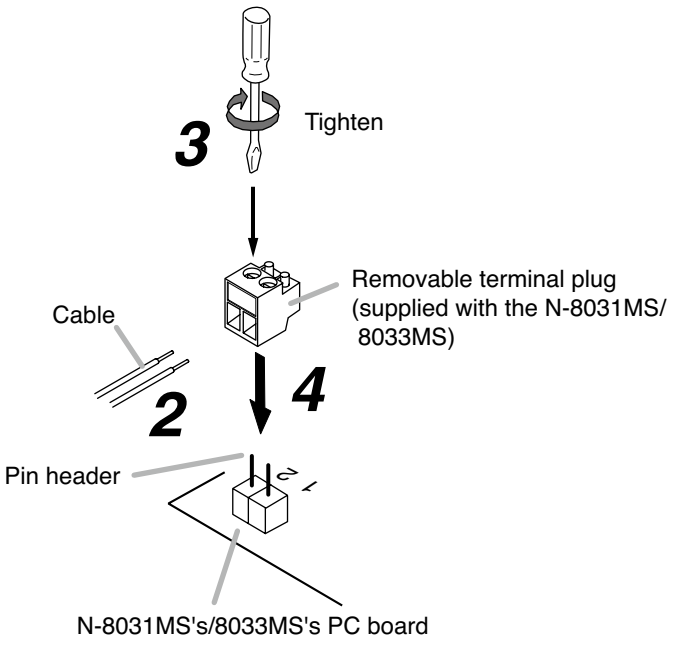
Note: The connection method for the N-8000MI, N-8000RS, N-8010RS, N-8400RS, N-8000DI and N-8000AF is the same as for the N-8000EX.

[N-8050DS]



Note
This terminal connection method also applies to the N-8540DS.

[N-8031MS/8033MS]



Chapter 4

SYSTEM DESIGN FLOW

This chapter describes system setting items and switching on power to the system.

1. SYSTEM DESIGN PRECAUTIONS

System and equipment settings must be performed before operating the N-8000 Series systems.
Three different methods are available for individual settings, and the details of these methods are explained in each of the following chapters.

- Settings using software (Chapter 5. System Settings Using Software)
- Settings using a web browser (Chapter 6. System Settings Using a Browser)
- Settings using the multi-function station (Chapter 7. System Settings Using the Multi-Function Station)

2. TURNING THE SYSTEM'S POWER SWITCH ON

To perform system settings, the power supply needs to be connected to the system.

2.1. Caution When Turning the Power Switch On

Check the following to be sure before turning the power switch on:
Cables and connectors are correctly wired and connected.
The functional earth of Exchanges and Various kinds of interface units is correctly grounded.

2.2. Turning the Power Switch On

Follow the procedures below to turn the power switch on.

Step 1. Turn the power switches on of the network equipment connected such as switching hubs, router, etc on.

Step 2. Turn all exchanges', Various kinds of interface units' and IP stations' power switches on.

3. SETTING PROCEDURES

1. Set a network. (Refer to p. 5-15, p. 6-5, p. 7-8)

Perform network settings (IP address, Default gateway, and Subnet mask) for all exchanges, Various kinds of interface units and IP stations connected to the local network.
The following three setting methods are applicable:

- Settings using software
- Settings using a web browser
- Settings using the multi-function station

For an overview of network settings, please read "Network Settings Using a PC" on the following page.

2. Perform system settings. (Refer to p. 5-19)

Use the supplied N-8000 Setting Software program to perform individual settings related to the system such as the Exchange, Various kinds of interface units, Station, Paging, etc.
Here, settings are performed using a PC.
For an overview of system settings, please read "System Setting Items and Default.
(Refer to p. 4-5)

3. Save the settings and upload to the units. (Refer to p. 5-126)

Save the setting contents and write them into the Exchange, Various kinds of interface units, and IP stations.

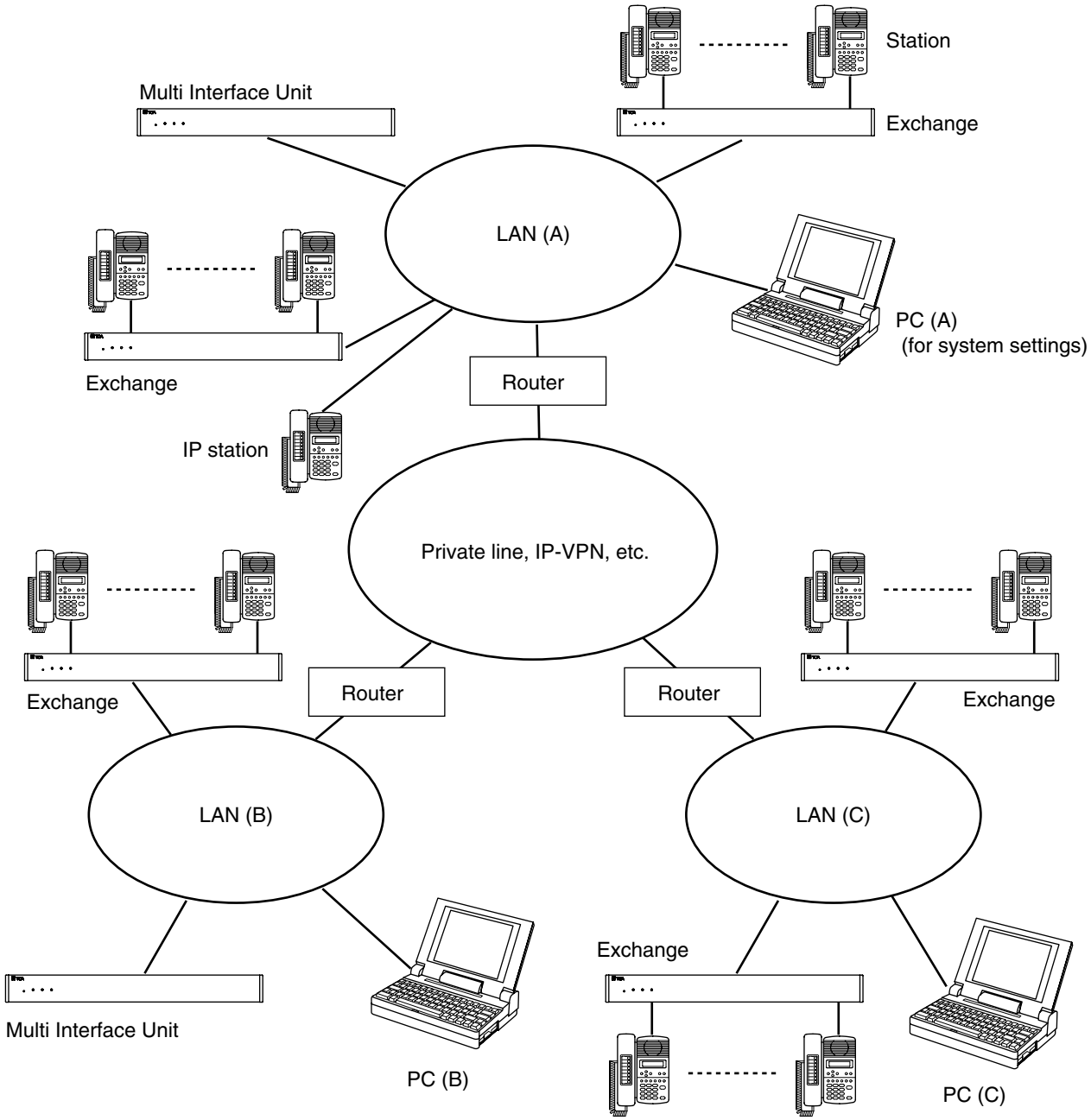
4. NETWORK SETTINGS USING A PERSONAL COMPUTER

Network settings involving the use of a PC can vary depending on the network configuration. No particular care need be taken within the LAN (i.e. the range within which broadcast transmission is permitted), however some planning regarding the enabling of settings is required for configurations extending beyond the perimeter of the LAN.

This section uses a system example in which three local area networks (LAN) are connected via the Internet in order to explain how to perform network settings for each exchange, Various kinds of interface units, and IP station using a PC.

This example assumes that broadcast communications are possible within each LAN, but not possible between different LANs. The PC (A) connected to LAN (A) is assumed to be used for system settings.

[System example]



[Setting procedures]

Step 1. Using a system setting PC*1, set a network*2 for Exchanges, Various kinds of interface units, and IP stations that permit broadcast communications with this PC.
*1 PC (A) in the illustration on the previous page
*2 LAN (A) in the illustration on the previous page
Use the supplied N-8000 Setting Software program's unit scan function to perform settings. (Refer to p. 5-15.)

Step 2. Using the PC in each LAN, set the networks*3 for Exchanges, Various kinds of interface units, and IP stations that cannot conduct broadcast communications with the system setting PC.
*3 LANs (B) and (C) in the illustration on the previous page.

- Use the N-8000 Setting Software program's unit scan function to perform settings.
  Note
  Use the N-8000 Setting Software only for the network settings of Exchanges, Various kinds of interface units, and IP stations. When performing individual settings related to the general system, use the PC (A).

- One of the following two methods can also be used to perform settings (Refer to p. 6-5.):
  (1) Perform settings via a network using the PC's Web browser.
  Note
  If the system contains multiple Exchanges, Various kinds of interface units, or IP stations, and their IP address numbers are identical (factory-preset setting), connect each exchange to a network and perform settings individually.
  (2) Disconnect the Exchange, Various kinds of interface units, or IP stations from the LAN to directly connect it to the PC using a crossover LAN cable, then perform settings by way of the Web browser.

- Another method can also be used to perform settings on the menu screen of the multifunctional master station without using a PC. To perform an exchange's network setting, connect the multifunctional master station to the exchange to be set. For the IP multifunctional master station, its network setting can be performed using its on-screen setting menu. (Refer to p. 7-8.)

Step 3. Set the system to allow communications from the system setting PC to all Exchanges, Various kinds of interface units, and IP stations on the network.
Using the N-8000 Setting Software's system setting function on the system setting PC, register the Exchanges, Various kinds of interface units, and IP stations of which network settings have been set in **Step 1** or **2**. (Refer to p. 5-19.)

These procedures permit communications between the system setting PC and all Exchanges, Various kinds of interface units, and IP stations within the system.

5. SYSTEM SETTING ITEMS AND DEFAULT

All system setting items except the auto-dialing programming can be set using the N-8000 Setting Software. Some setting items, however, can also be set on the browser or at stations. The browser can only make the connected Exchange-, Various kinds of interface units-, or IP station-related items, while stations can only make the connected Exchange- or their own stations-related items.
The following tables, classified according to the system setting items on the N-8000 Setting Software, show items, their default, and reference pages in this manual.

Note: In "Reference page" column, "SW" represents the software, "BR" represents the browser, and "ST" represents a station.

5.1. General System

Side TAB	Item	Default	Reference page
Equipment Registration	Contents	——	p. 5-20
	Equipment number	1 –	p. 5-20
	Equipment name *1	Each unit's model No. (Example: N-8000EX)	SW: p. 5-20 BR: p. 6-5
Station Table	Station number digits	2	p. 5-22
	Station number *2	Line 1: 10, Line 2: 11, ... , Line 16: 25	SW: p. 5-22 ST: p. 7-9
	Station name	——	p. 5-23
Network communications ON or OFF between exchanges		——	p. 5-24
Multicast communications ON or OFF between exchanges		——	p. 5-25
System Settings	Response Mode	Sequential	p. 5-26
	Clock Master	——	
	NTP client	——	
	Time Signal	——	
	DST (Summer time)	OFF	p. 5-27
	DST start time	1/1 0:00	
	DST end time	1/1 0:00	
	NTP server address	——	
	NTP server port	——	
	NTP sync time	2:45	
	Clock sync time	3:00	
	C/O control password	0000	
	Maintenance Password	——	
Gateway Settings	Enable/Disable the SX System	Disable	p. 5-28
	SX-200IP connection	——	
	ID (SX) : Slot	——	

• All of the above items can be set on the N-8000 Setting Software.
*1 Settings possible from a browser as well.
*2 Settings possible from a station as well only when it is the N-8000MS Multifunctional master station or N-8500MS/8600MS IP Multifunctional master station.

5.2. Exchange

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2, 3	192.168.1.1	SW: p. 5-30 BP: p. 6-5 ST: p. 7-8
	Subnet Mask *1, 2, 3	255.255.255.0	
	Default Gateway *1, 2, 3	0.0.0.0	
	Web server port number *1, 2	80	SW: p. 5-31 BR: p. 6-5
	TCP start port number	5000	p. 5-31
	UDP start port number	5006	
	Multicast port number	6000	
	NAPT compatible	Incompatible	
	Network ID	1	p. 5-32
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	
	WAN TCP start port number	5000	
	WAN UDP start port number	5006	
	Broadcast specification	High quality sound transmission mode	p. 5-33
	Communication capacity	2990 kbps	
Sampling frequency correction	Sampling frequency correction	Automatic	p. 5-34
	Transmitted party IP address	——	
	Transmitted party port number	——	
	Recipient party IP address	——	
	Reception multicast ON/OFF	——	
	Reception multicast address	——	
Function settings	Call forwarding function	OFF	p. 5-35
	Time-based call forwarding function	OFF	
	Time-based call forwarding start time	0:00	
	Time-based call forwarding end time	0:00	
	Group hunting function	OFF	
	Absence transfer function	OFF	
	Absence transfer call duration	10 seconds	
	Oneshot make time	1 second	
	Call time-out	No limit	p. 5-36
	Conversation time-out	No limit	
	Paging time-out	No limit	
	BGM input	——	
	Time-based audio trigger	OFF	
	Start time	0:00	
	End time	0:00	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.
*3 Settings possible from a station as well only when it is the N-8000MS Multifunctional master station.

Side TAB	Item	Default	Reference page
Function settings	Audio trigger time-out	ON	p. 5-36
	Time limit	10 seconds	
	Paging with call tone	ON	
	Delay time	0	
	Paging response mode	Zone number designation response mode	
	Paging priority mode	Paging priority	
	Calling station indication	During call and talk	p. 5-37
	Door station contact output	Door remote control	

• All of the above items can be set on the N-8000 Setting Software.

5.3. Multi Interface Unit

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2	192.168.1.1	SW: p. 5-38 BR: p. 6-5
	Subnet Mask *1, 2	255.255.255.0	
	Default Gateway *1, 2	0.0.0.0	
	Web server port number *1, 2	80	SW: p. 5-39 BR: p. 6-5
	TCP start port number	5000	p. 5-39
	UDP start port number	5006	
	Multicast port number	6000	
	NAPT compatible	Incompatible	
	Network ID	1	p. 5-40
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	
	WAN TCP start port number	5000	
	WAN UDP start port number	5006	
	Broadcast specification	High quality sound transmission mode	p. 5-41
	Communication capacity	2990 kbps	
Sampling frequency correction	Sampling frequency correction	Automatic	p. 5-42
	Transmitted party IP address	——	
	Transmitted party port number	——	
	Recipient party IP address	——	
	Reception multicast ON/OFF	——	
	Reception multicast address	——	
Function settings	Oneshot make time	1 second	p. 5-43
	Call time-out	No limit	
	Conversation time-out	No limit	
	Paging time-out	No limit	
	Aux input paging priority	OFF	p. 5-44
	Paging response mode	Zone number designation response mode	
	Paging priority mode	Paging priority	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.

Side TAB	Item	Default	Reference page
Audio I/O	Input mode	Unused	p. 5-45
	Output mode	Unused	p. 5-46
	Input sensitivity	Level 1	
	Access number	——	
	Paging zone	——	
	Output level	Level 4	
	Line attributer	PB	
	Line start	Wink start	
Contact inputs	Contact Input No.	1	p. 5-47
	Operation mode	Unused	
	Interlock contact / DS No.	——	p. 5-48
	Interlock contact / DS Contact No.	——	
	Interlock contact / Equipment No.	——	
	Interlock contact / Contact No.	——	
	Aux input paging / Zone No.	——	
	Aux input paging / Audio input No.	——	
	Remote dial control / Equipment No.	——	
	Remote dial control / Line No.	——	
	Remote dial control / Dial code	——	
Contact outputs	Contact output No.	1	p. 5-49
	Access No.	——	
	Access No. digits	2	
	Line status	Unused	
	Network status	Unused	

• All of the above items can be set on the N-8000 Setting Software.

5.4. Sub Stations

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2	192.168.1.1	SW: p. 5-50 BR: p. 6-5
	Subnet Mask *1, 2	255.255.255.0	
	Default Gateway *1, 2	0.0.0.0	
	Web server port number *1, 2	80	SW: p. 5-51 BR: p. 6-5
	TCP start port number	5000	p. 5-51
	UDP start port number	5006	
	Multicast port number	6000	
	NAPT compatible	Incompatible	
	Network ID	1	p. 5-52
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	
	WAN TCP start port number	5000	
	WAN UDP start port number	5006	
	Broadcast specification	High quality sound transmission mode	p. 5-53
	Communication capacity	2990 kbps	
Function settings	Call time-out	No limit	p. 5-54
	Conversation time-out	No limit	
	Paging time-out	No limit	
	Paging response mode	Zone selection	p. 5-55
	Calling station indication	During call and talk	
Sub-station-interface Selection	Call master Call 1	——	p. 5-56
	Call master Call 2	——	
	Call master Call 3	——	
	Call volume	3	
	Sub-station Selection Line No.	——	
	Sub-station Selection Sub-station No.	——	
	Sub-station Selection Sub-station name	——	
	Priority Level (Call 1)	1 (5 for RS-144 only)	p. 5-57
	Priority Level (Call 2)	1	
	Priority Level (Call 3)	1	
	Microphone sensitivity	2	
	Speaker output	3	
	Control output / MI/DI/AF equipment No.	——	
	Control output / Contact output No.	——	
	Called station's No.	——	
	Call Activation - push 3 times	OFF	
	with call tone	ON	
	Refusal of priority call operation	OFF	
	Access to emergency call operation	OFF	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.

5.5. IP Stations

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2, 3	192.168.1.1	SW: p. 5-58 BR: p. 6-5 ST: p. 7-8
	Subnet Mask *1, 2, 3	255.255.255.0	
	Default Gateway *1, 2, 3	0.0.0.0	
	Web server port number *1, 2	80	SW: p. 5-59 BR: p. 6-5
	TCP start port number	5000	p. 5-59
	UDP start port number	5006	
	Multicast port number	6000	
	NAPT compatible	Incompatible	
	Network ID	1	p. 5-60
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	
	WAN TCP start port number	5000	
	WAN UDP start port number	5006	
	Broadcast specification	High quality sound transmission mode	p. 5-61
	Communication capacity	2990 kbps	
Function settings 1	Call forwarding function	OFF	p. 5-62
	Time-based call forwarding function	OFF	
	Time-based call forwarding start time	0:00	
	Time-based call forwarding end time	0:00	
	Group hunting function	OFF	
	Absence transfer function	OFF	
	Absence transfer call duration	10 seconds	
	Oneshot make time	1 second	
	Call time-out	No limit	p. 5-63
	Conversation time-out	No limit	
	Paging time-out	No limit	
	BGM input	——	
	Paging with call tone	ON	
	Delay time	0	
	Paging response mode	Zone number designation response mode	
	Paging priority mode	Paging priority	
	Calling station indication	During call and talk	p. 5-64
	Door station contact output	Door remote control	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.
*3 Settings possible from a station as well only when it is the N-8500MS/8600MS IP Multifunctional master station.

Side TAB	Item	Default	Reference page
Function settings 2	Incoming call mode	Automatic connection mode	p. 5-65
	with call tone	ON	
	Microphone sensitivity	Level 2	
	Speaker output *	Level 3	SW: p. 5-65 ST: p. 2-5
	Station speaker sound volume	Level 3	p. 5-65
	Group call member	——	
	Call forwarding destination station *	——	SW: p. 5-65 ST: p. 2-20
	Time-based call forwarding destination station *	——	SW: p. 5-65 ST: p. 2-21
	Group hunting destination station *	——	SW: p. 5-65 ST: p. 2-18
	Absence transfer destination station *	——	SW: p. 5-65 ST: p. 2-19
	Priority Level	1	p. 5-66
	BGM reception ON/OFF *	OFF	SW: p. 5-66 ST: p. 2-69
	BGM input *	——	
	Door remote MI/DI/AF equipment No.	——	p. 5-66
	Door remote Contact output No.	——	
	Control output MI/DI equipment No.	——	
	Control output Contact output No.	——	
	Called station's No.	——	
	Record conversation	OFF	
	Record conversation AF No.	——	
	Speaker selection	Internal	
	Activate Access Code	OFF	
	Access Code	——	
	Access to audio trigger	OFF	p. 5-67
	Mode	Call master	
	Equipment No.	——	
	Contact No.	——	
	Trigger	Level	
	Duration (Level)	5	
	Level	5	
	Duration (Audio)	5	
	Sensitivity	5	
	External contact input	——	
	Door station mode	OFF	
	Call Activation - push 3 times	OFF	
	Access to priority call	OFF	
	Refusal of priority call setting	OFF	
	Access to emergency call operation	OFF	
	Access to paging call operation	ON	

• All of the above items can be set on the N-8000 Setting Software.
* Settings possible from a station as well only when it is the IP master station.

Side TAB	Item	Default	Reference page
Function settings 2	Access to emergency all paging call operation	OFF	p. 5-67
	Access to audio trigger setting operation	OFF	
	External equipment control	OFF	
Speed dialing	Onetouch dial *1	——	SW: p. 5-68 ST: p. 2-12
	Master calling	——	p. 5-68
	Auto Dial *2	——	ST: p. 2-11
Scan monitor	Scan monitor sequencing time	3 seconds	p. 5-69
	Monitor Alert	None	
	Scan monitor group	——	
Message Paging	Operate message paging	OFF	p. 5-70
	Time-based message paging ON/OFF	OFF	
	Time-based message paging Start time	——	
	Time-based message paging End time	——	
	Activation method	Dial operation only	
	Paging zone number	All	
	Repeat	Repeated during activation	
	Operation terminal to mute	OFF	
	Access to internal contact output	OFF	p. 5-71
	Message paging direction Send	ON	
	Message paging direction Receive	OFF	
	Sync control mode	Busy	
	Contact output MI/DI/AF equipment No.	——	
	Contact output Contact output No.	——	
	Sync control mode	Make during activation	
Remote Mic Settings	Talk key (PTT/LOCK selectable)	PTT	p. 5-72
	Talk key: Timeout (only when LOCK is selected)	None	
	Chime: Start	None	
	Chime: End	None	
	Chime: Volume	–6 (dB)	
	Chime: Delay Time	0 (second)	
	Setting Priority	SX-2000	
	Number of RM-210	0	
	Function key	——	
Pattern	Zone	——	p. 5-77
	Control Input/Output	——	
	One-touch Dial	——	

• All of the above items except "Auto Dial" can be set on the N-8000 Setting Software.
*1 Settings possible from the IP master station as well.
*2 Settings possible only from the N-8500MS/8600MS IP Multifunctional master station.

5.6. Stations

Side TAB	Item	Default	Reference page
Function settings	Incoming call mode	Automatic connection mode	p. 5-80
	with call tone	ON	
	Microphone sensitivity	Level 2	
	Speaker output *	Level 3	SW: p. 5-80 ST: p. 2-5
	Station speaker sound volume	Level 3	p. 5-80
	Group call member	——	
	Call forwarding destination station *	——	SW: p. 5-80 ST: p. 2-20
	Time-based call forwarding destination station *	——	SW: p. 5-80 ST: p. 2-21
	Group hunting destination station *	——	SW: p. 5-80 ST: p. 2-18
	Absence transfer destination station *	——	SW: p. 5-80 ST: p. 2-19
	Priority Level	1	p. 5-80
	BGM reception ON/OFF *	OFF	SW: p. 5-80 ST: p. 2-69
	BGM input *	——	
	Door remote MI/DI/AF equipment No.	——	p. 5-80
	Door remote Contact output No.	——	
	Control output equipment No.	——	p. 5-81
	Control output Contact output No.	——	
	Called station's No.	——	
	Record conversation	OFF	
	Record conversation AF No.	——	
	Activate Access Code	OFF	
	Access Code	——	
	Access to audio trigger	OFF	
	Mode	Call master	
	Equipment No.	——	
	Contact No.	——	
	Trigger	Level	p. 5-82
	Duration (Level)	5	
	Level	5	
	Duration (Audio)	5	
	Sensitivity	5	

• All of the above items can be set on the N-8000 Setting Software.
* Settings possible from a station as well only when it is the IP master station.

Side TAB	Item	Default	Reference page
Function settings	Door station mode	OFF	p. 5-82
	Call Activation - push 3 times	OFF	
	Access to priority call	OFF	
	Refusal of priority call setting	OFF	
	Access to emergency call operation	OFF	
	Access to paging call operation	ON	
	Access to emergency all paging call operation	OFF	
	Access to audio trigger setting operation	OFF	
	External equipment control	OFF	
Speed dialing	Onetouch dial *1	——	SW: p. 5-83 ST: p. 2-12
	Master calling	——	p. 5-83
	Auto Dial *2	——	ST: p. 2-11
Scan monitor	Scan monitor sequencing time	3 seconds	p. 5-84
	Monitor Alert	None	
	Scan monitor group	——	

• All of the above items except "Auto Dial" can be set on the N-8000 Setting Software.
*1 Settings possible from the Master station as well.
*2 Settings possible only from the N-8000MS Multifunctional master station.

5.7. C/O Interface

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2	192.168.1.1	SW: p. 5-58 BR: p. 6-5
	Subnet Mask *1, 2	255.255.255.0	
	Default Gateway *1, 2	0.0.0.0	
	Web server port number *1, 2	80	SW: p. 5-86 BR: p. 6-5
	TCP start port number	5000	p. 5-86
	UDP start port number	5006	
	Multicast port number	6000	
	NAPT compatible	Incompatible	
	Network ID	1	p. 5-87
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	
	WAN TCP start port number	5000	
	WAN UDP start port number	5006	
	Broadcast specification	High quality sound transmission mode	p. 5-88
	Communication capacity	2990 kbps	
Function Settings 1	Control output / MI/DI equipment No.	——	p. 5-89
	Control output / Contact output No.	——	
	Record conversation	OFF	
	Record conversation AF No.	——	
	Access to paging call operation	OFF	
	Access to scan monitor operation	OFF	
	External equipment control	OFF	
Function Settings 2	C/O Name	——	p. 5-90
	Timeout	5 minutes	
	Scan monitor timeout	5 minutes	
	Paging time-out	No limit	
	Call/Transfer Access No.	——	
	Dial of transfer to	——	
	Access to direct in dial	OFF	
	Access to direct in line	OFF	
	Direct in line Leader	——	
	Direct in line Member	——	
	Paging with call tone	ON	p. 5-91
	Delay time	0	
	C/O control password enable	ON	
Scan Monitor	Scan monitor sequencing time	3 seconds	p. 5-92
	Monitor Alert	None	
	Scan monitor group	——	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.

5.8. Telephone Interface

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2	192.168.1.1	SW: p. 5-93 BR: p. 6-5
	Subnet Mask *1, 2	255.255.255.0	
	Default Gateway *1, 2	0.0.0.0	
	Web server port number *1, 2	80	SW: p. 5-94 BR: p. 6-5
	TCP start port number	5000	p. 5-94
	UDP start port number	5006	
	Multicast port number	6000	
	NAPT compatible	Incompatible	
	Network ID	1	p. 5-95
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	
	WAN TCP start port number	5000	
	WAN UDP start port number	5006	
	Broadcast specification	High quality sound transmission mode	p. 5-96
	Communication capacity	2990 kbps	
Function Settings 1	Call forwarding function	OFF	p. 5-97
	Time-based call forwarding function	OFF	
	Time-based call forwarding start time	0:00	
	Time-based call forwarding end time	0:00	
	Group hunting function	OFF	
	Absence transfer function	OFF	
	Absence transfer call duration	10 seconds	
	Oneshot make time	1 second	
	Call time-out	No limit	p. 5-98
	Conversation time-out	No limit	
	Paging time-out	No limit	
	Paging with call tone	ON	
	Delay time	0	
	Paging response mode	Zone number designation response mode	
	Calling station indication	During call and talk	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.

Side TAB	Item	Default	Reference page
Function settings 2	Microphone sensitivity	Level 2	p. 5-99
	Speaker output	Level 3	
	Station speaker sound volume	Level 3	
	Group call member	——	
	Call forwarding destination station *	——	SW: p. 5-99 ST: p. 2-140
	Time-based call forwarding destination station *	——	SW: p. 5-99 ST: p. 2-141
	Group hunting destination station *	——	SW: p. 5-99 ST: p. 2-138
	Absence transfer destination station *	——	SW: p. 5-99 ST: p. 2-139
	Door remote MI/DI/AF equipment No.	——	p. 5-100
	Door remote contact output No.	——	
	Control output / MI/DI/AF equipment No.	——	
	Control output / Contact output No.	——	
	Called station's No.	——	
	Record conversation	OFF	
	Record conversation AF No.	——	
	Access to priority call	OFF	
	Access to paging call operation	ON	
	Access to emergency all paging call operation	OFF	
	External equipment control	OFF	
Scan Monitor	Scan monitor sequencing time	3 seconds	p. 5-101
	Monitor Alert	None	
	Scan monitor group	——	

• All of the above items can be set on the N-8000 Setting Software.
* Settings possible from a browser as well.

5.9. Audio Interface

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2	192.168.1.1	SW: p. 5-102 BR: p. 6-5
	Subnet Mask *1, 2	255.255.255.0	
	Default Gateway *1, 2	0.0.0.0	
	Web server port number *1, 2	80	SW: p. 5-103 BR: p. 6-5
	TCP start port number	5000	p. 5-103
	UDP start port number	5006	
	Multicast port number	6000	
	NAPT compatible	Incompatible	
	Network ID	1	p. 5-104
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	
	WAN TCP start port number	5000	
	WAN UDP start port number	5006	
	Broadcast specification	High quality sound transmission mode	p. 5-105
	Communication capacity	2990 kbps	
Function settings	Oneshot make time	1 second	p. 5-106
	Operation mode	Unused	
	Aux input paging / Paging No.	——	
	Aux input paging / Paging time-out	OFF	
	Aux input paging / Time limit	0	
	Paging Delay Time	0	
	Aux input paging priority	OFF	
	Input Level	Line	p. 5-107
	Clock adjust / Adjust enable	OFF	
	Clock adjust / Start time	00:00:00	
	Clock adjust / End time	00:10:00	
	Time signal / Schedule settings	——	
Schedule Settings	Signal activation time	10	
	External timer Enable	OFF	
	Source	1	
	Paging No.	——	
	External control Equipment No.	——	p. 5-108
	External control Contact No.	——	
	External control Activation time	10	
	Name	——	p. 5-109
	Time	00:00:00	
	Day	OFF	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.

Side TAB	Item	Default	Reference page
Schedule Settings	Paging No.	——	p. 5-109
	Source	1	
	Access to external control	OFF	
Contact Output	Contact Output No.	1	p. 5-110
	Access No.	——	
	Access No. digits	2	
	Line status	Unused	
	Network status	Unused	

• All of the above items can be set on the N-8000 Setting Software.

5.10. Direct Select

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2	192.168.1.1	SW: p. 5-111 BR: p. 6-5
	Subnet Mask *1, 2	255.255.255.0	
	Default Gateway *1, 2	0.0.0.0	
	Web server port number *1, 2	80	SW: p. 5-112 BR: p. 6-5
	TCP start port number	5000	p. 5-112
	NAPT compatible	Incompatible	
	Network ID	1	
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	p. 5-113
	WAN TCP start port number	5000	
Function settings	Oneshot make time	1 second	p. 5-114
Contact inputs	Contact Input No.	1	p. 5-115
	Operation mode	Unused	
	Interlock contact / DS No.	——	p. 5-116
	Interlock contact / DS Contact No.	——	
	Interlock contact / Equipment No.	——	
	Interlock contact / Contact No.	——	
	Remote dial control / Equipment No.	——	
	Remote dial control / Line No.	——	
	Remote dial control / Dial code	——	
	Direct Select / Master Station No.	——	
	Direct Select / Select Station No.	——	
Contact outputs	Contact output No.	1	p. 5-117
	Access No.	——	
	Access No. digits	2	
	Device / Relay	ON	
	Device / LED	ON	
	Line status	Unused	
	Network status	Unused	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.

5.11. Gateway

Side TAB	Item	Default	Reference page
Network settings	IP address *1, 2	192.168.1.1	p. 5-118
	Subnet Mask *1, 2	255.255.255.0	
	Default Gateway *1, 2	0.0.0.0	
	Web server port number *1, 2	80	p. 5-119
	TCP start port number	5000	
	UDP start port number	5006	
	NAPT compatible	Incompatible	
	Network ID	1	p. 5-120
	WAN IP address	192.168.1.1	
	WAN Web server port number	80	
	WAN TCP start port number	5000	
	WAN UDP start port number	5006	

• All of the above items can be set on the N-8000 Setting Software.
*1 Be sure to set this since settings and conversations are performed via a network.
*2 Settings possible from a browser as well.

5.12. Paging

Side TAB	Item	Default	Reference page
Paging	Paging No. digit	1	p. 5-121
	Paging port	6000 (to 6039)	
	Paging Zone Name	——	
	Select stations and external PA paging outputs	——	p. 5-122

• All of the above items can be set on the N-8000 Setting Software.

5.13. Group

Side TAB	Item	Default	Reference page
Group	Group Blocking Group	——	p. 5-123
	Group Blocking To	——	p. 5-124
	Remote Response Group	——	p. 5-125

• All of the above items can be set on the N-8000 Setting Software.

Chapter 5

SYSTEM SETTINGS BY SOFTWARE

This chapter describes how to install and use the N-8000 system settings software.

1. N-8000 SETTING SOFTWARE GENERAL DESCRIPTION

1.1. General Description

The supplied N-8000 Setting Software program is for performing system settings and features following two functions.

1.1.1. Equipment scan and network setting functions

Detect the Exchange, various kinds of interface units, and IP station connected to the local network, and then perform equipment network settings. Use this software when performing initial setting.

Note
The equipment scan function can only be used within the effective broadcast range. Other equipment that is not within this range must be set using a different network setting (Refer to p. 4-3).

1.1.2. System setting function

Performs individual settings related to system.

Note
This software does not display system operation logs. Use either a browser or the maintenance software. (Refer to p. 6-32.)

1.2. PC Network Settings

Perform PC network settings in advance according to your network administrator's instructions. Be sure to verify these, since incorrect settings could adversely affect other equipment connected to the same network.

Note
Perform the PC's network setting to allow the PC to communicate with Exchanges, various kinds of interface units, and IP stations.
N-8000 system settings cannot be performed unless the PC's network setting is completed.
However, even the PC of which network setting is not completed may perform the network setting for the Exchange, various kinds of interface units, and IP station.

1.3. Notes on Setting Update

To avoid equipment failures, never restart the Exchange, various kinds of interface units, and IP station or switch off the power while in the process of updating* settings.
* The Status indicator light will remain lit while updating is in progress.

2. INSTALLING SOFTWARE

2.1. System Requirements

This program has been designed based on the following system requirements.

- OS: Windows XP Professional SP2 or later, Windows Vista Business, Windows 7 Professional, Windows 8.1 Pro*, Windows 10 Home*, Windows 10 Pro*
- CPU: Pentium Ⅳ, 2 GHz or greater
- Memory: 1 GB or greater
- Required component: Microsoft .NET Framework 3.5 SP1, and Microsoft SQL Server 2005 Express Edition (For the installation method, refer to p. 5-4.)

* Installation procedures and required components for Windows 8.1 or Windows 10 are different from those for other OS.
For details, see p. 5-7 "Operating the N-8000 Setting Software Program on Windows 8.1 or Windows 10."

2.2. Activating the Setup Guide

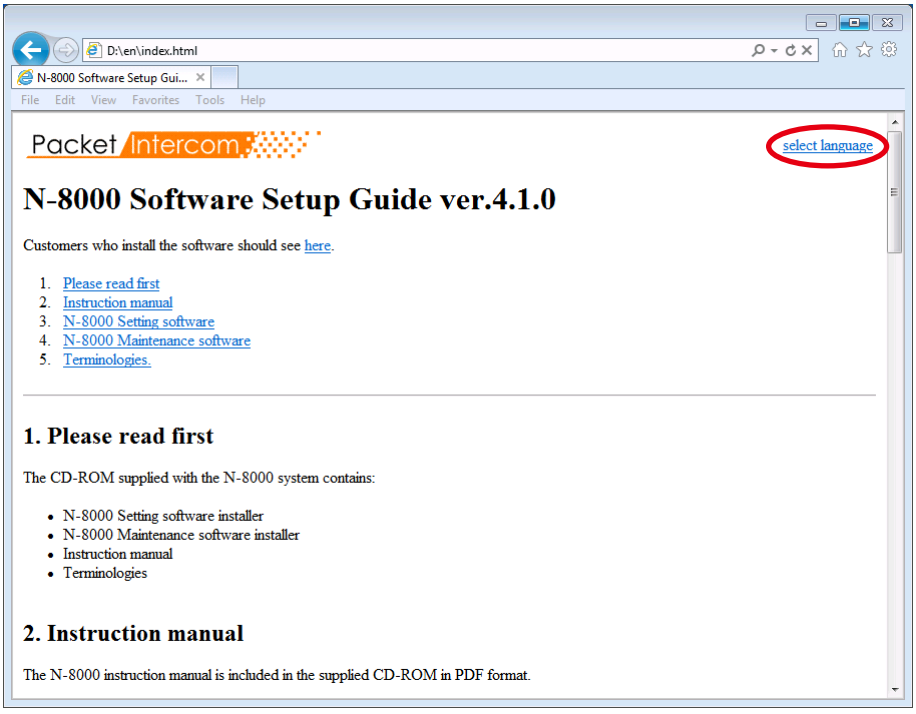
Placing the supplied CD-ROM into the CD drive runs the setup guide automatically.

Note
If your PC's CD drive is not compatible with the AutoRun function, the setup guide is not automatically started even when the CD is inserted.
In this case, directly execute the file shown below.

<Drive where CD is placed> \index.html
For example, when placing the CD in the "d" drive, → d:\index.html

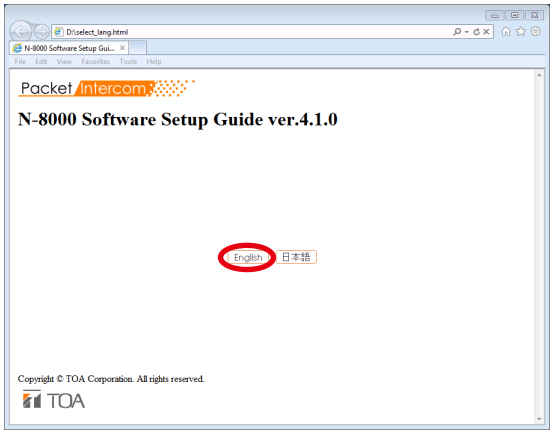
The following screen will be displayed.

Tip
Click "select language," and the language selection screen is displayed. Select the language to be displayed on the screen.



The screen above is an example of the N-8000 Software Setup Guide Ver. 4.1.0.

If your Web browser is not JavaScript-enabled, the screen at right will be displayed.
Press the English button to display English screens.



2.3. Required Component Installation (Except when the OS is Windows 8.1 or Windows 10)

To activate the N-8000 Setting Software program, the following components are required.

- Microsoft .NET Framework 3.5 SP1 or later*
- Microsoft SQL Server 2005 Express Edition SP3 or later

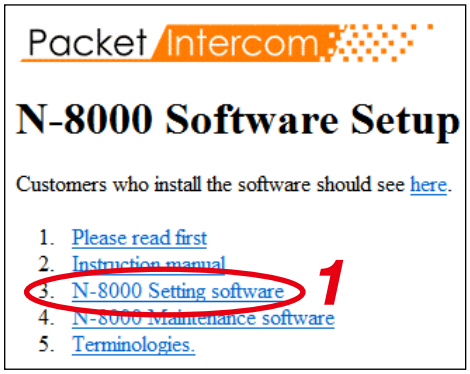
* This component need not be installed when the OS is Windows 7.

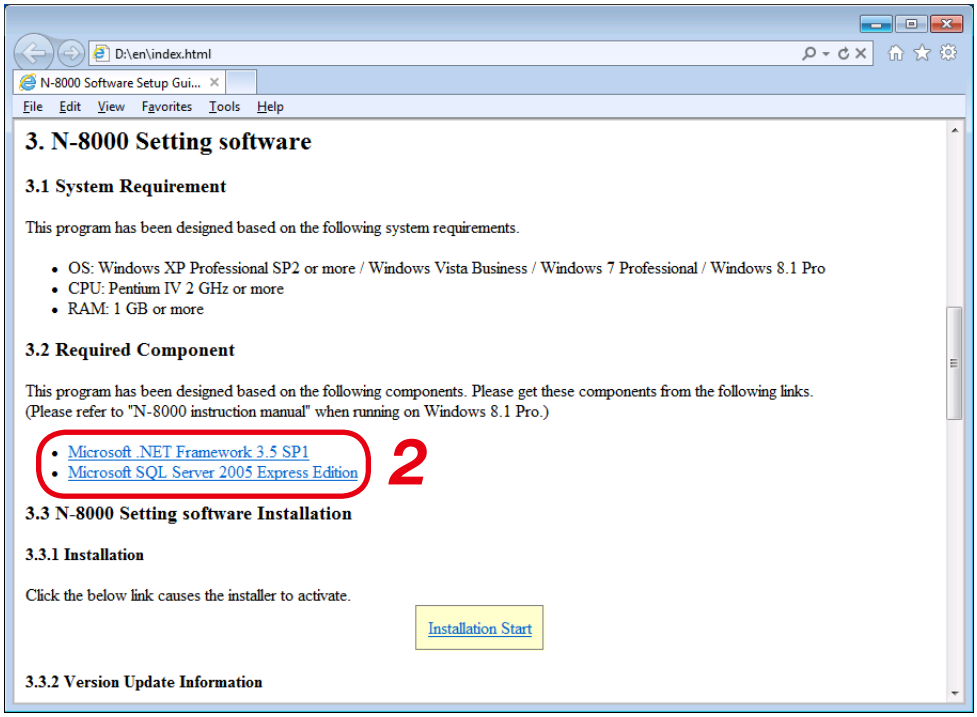
Install these components on the PC in advance using the procedure below.
Note that the PC should be connected to the Internet to download the component installer.

Step 1. Click "3. N-8000 Setting software" on the Setup Guide screen on p. 5-3.

Step 2. Click the desired component in the "3.2. Required Component."
As this allows you to access the download site, download the component installer.

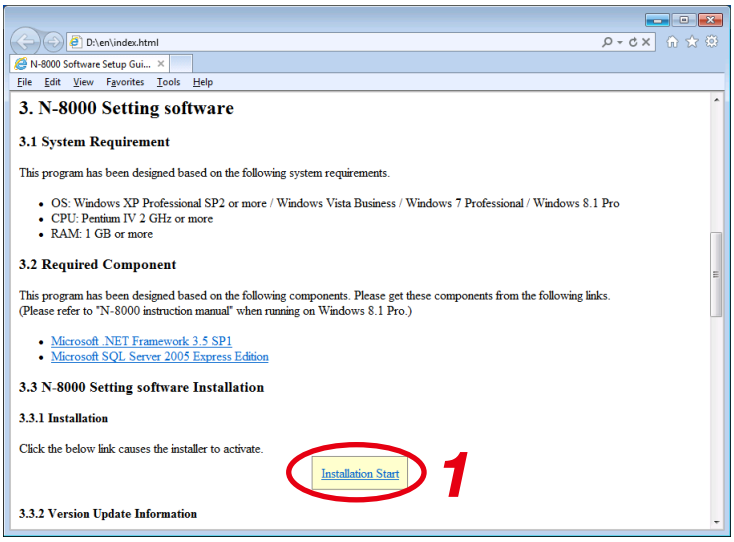
Step 3. Run the installer downloaded in **Step 2** to install the desired component.





2.4. N-8000 Setting Software Installation

Step 1. Click "Installation Start" in the "N-8000 Setting software Installation" section on the N-8000 Setting Software Setup Guide screen to start software program installation.

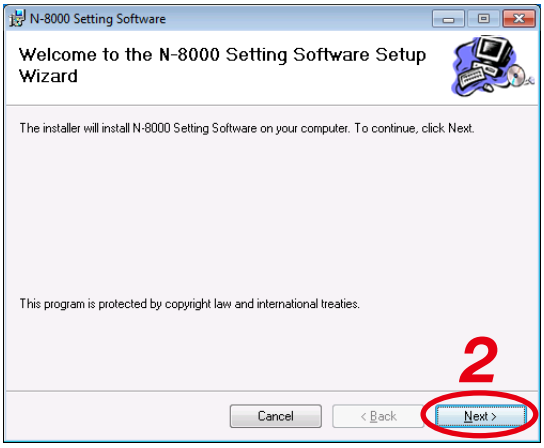


The installer will start up.

Note
If the installer does not start, directly execute the file shown below.

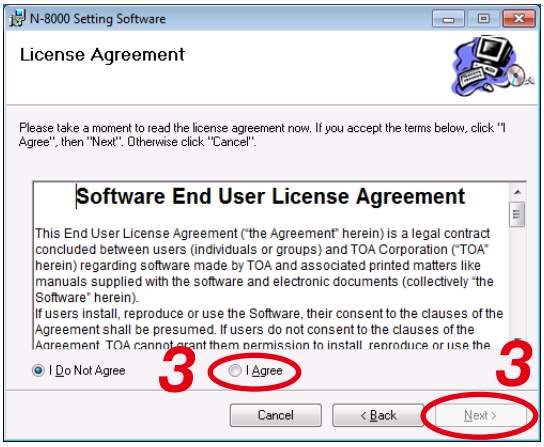
<Drive where CD is placed> \en\N-8000\setup.exe

For example, when placing the CD in the "D" drive,
→ D:\en\N-8000\setup.exe



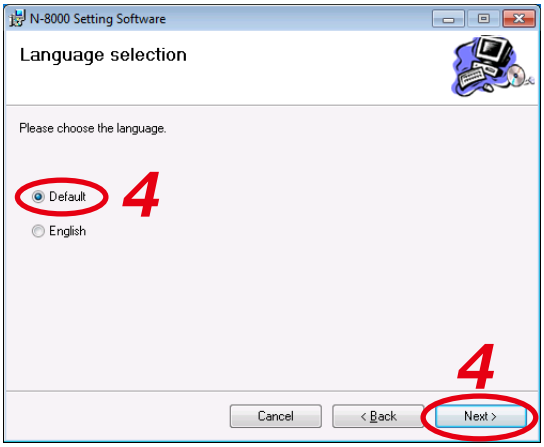
Step 2. Press [Next] button.

The screen "License Agreement" will be displayed.



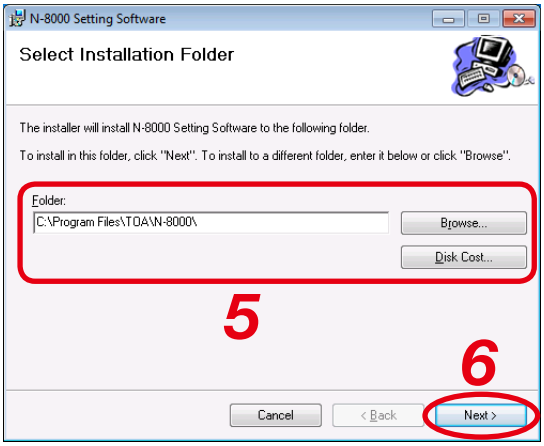
Step 3. Carefully read the contents of the License Agreement, and select “I Agree.” Then, press [Next] button.
The screen "Language selection" will be displayed.

Note
Selecting “I Do Not Agree,” followed by [Cancel] button will exit the software without installing it.



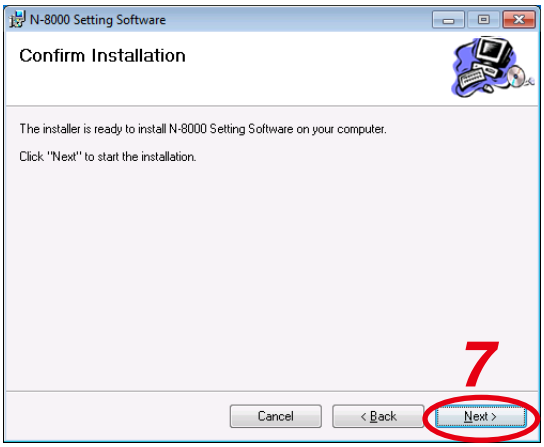
Step 4. Select the language, then press [Next] button.

The screen "Select Installation Folder" will be displayed.

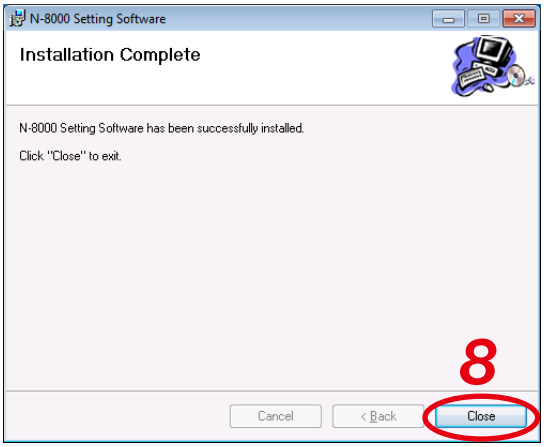


Step 5. If you need to change the folder to install the program, select a desired folder.
To install the software into a different folder other than indicated on the screen, press [Browse...] button or [Disk Cost...] button to select a desired folder.

Step 6. Press [Next] button.
The screen ready for program installation is displayed.



Step 7. Press [Next] button to install the software program into the selected folder.
The screen "Installation Complete" is displayed when the installation is correctly completed.



Step 8. Press [Close] button.

2.5. Operating the N-8000 Setting Software Program on Windows 8.1 or Windows 10

To activate the N-8000 Setting Software program on Windows 8.1 or Windows 10, the following procedures are required.

Activation of Microsoft .NET Framework 3.5 (Refer to the next item.)

↓

Installation of Microsoft SQL Server Express (See the next page.)

↓

Installation of the N-8000 Setting Software program (See p. 5-10.)

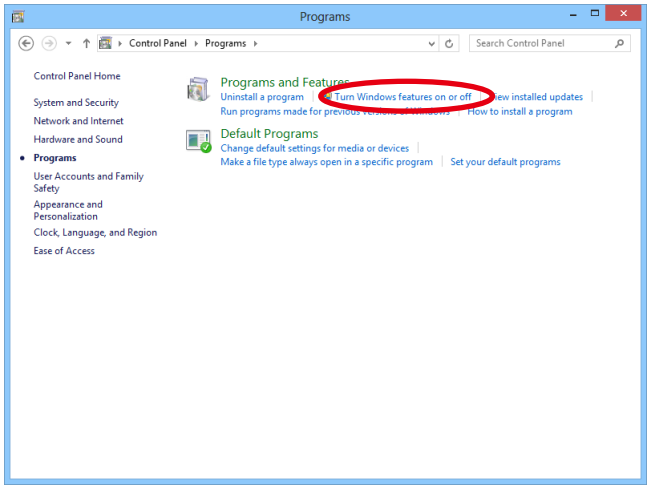
↓

Giving the user the permission to change the "N8000Config.mdf" and "N8000Config_log.ldf" files (See p. 5-11.)

Note: To perform above procedures, you need to connect a PC to the Internet.

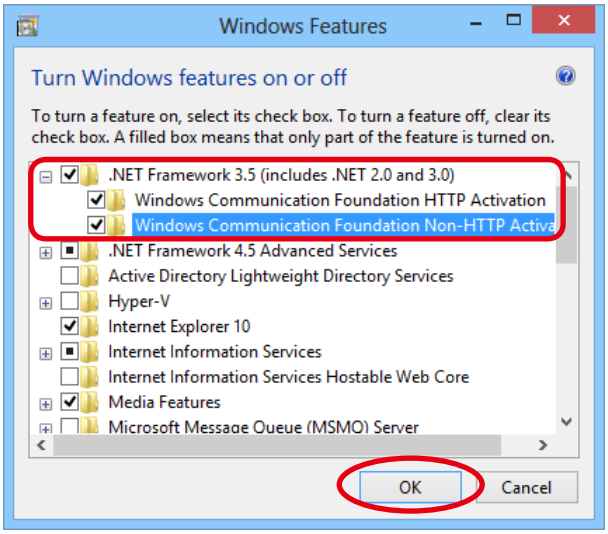
2.5.1. Activation of Microsoft .NET Framework 3.5

Step 1. Open the Control Panel on your PC, then click [Programs → Programs and Features → Turn Windows features on or off].



The screen "Windows Features" will be displayed.

Step 2. Mark the checkboxes for all the components contained in ".NET Framework 3.5 (includes .NET 2.0 and 3.0)," then press [OK] button.



2.5.2. Installation of Microsoft SQL Server Express

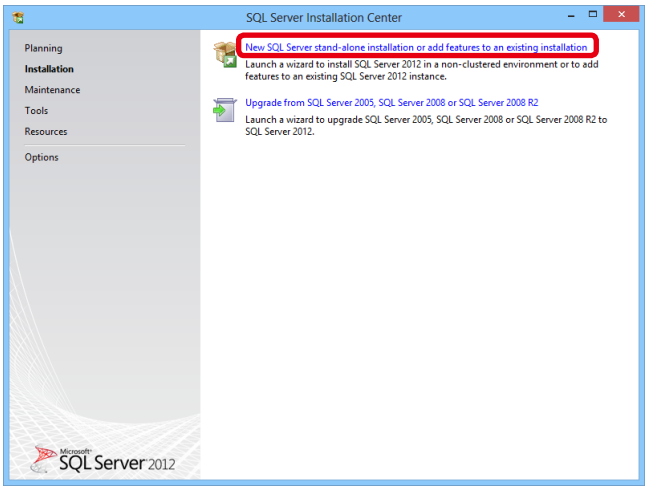
Step 1. Download "Microsoft SQL Server Express."

When Microsoft Windows 8.1 is installed: Download Microsoft SQL Server 2012 Express.
When Microsoft Windows 10 is installed: Download Microsoft SQL Server 2014 SP2 Express.

Access the Microsoft Download Center for download.

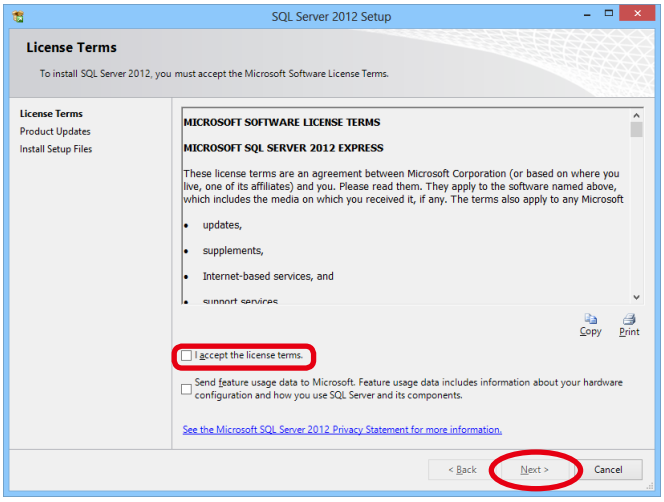
Step 2. Run the downloaded installer, then click "New SQL Server stand-alone installation or add features to an existing installation."

Note
Shown at right is the screen when you install Microsoft SQL Server 2012 Express.
You can install Microsoft SQL Server 2014 SP2 Express in the same procedures.



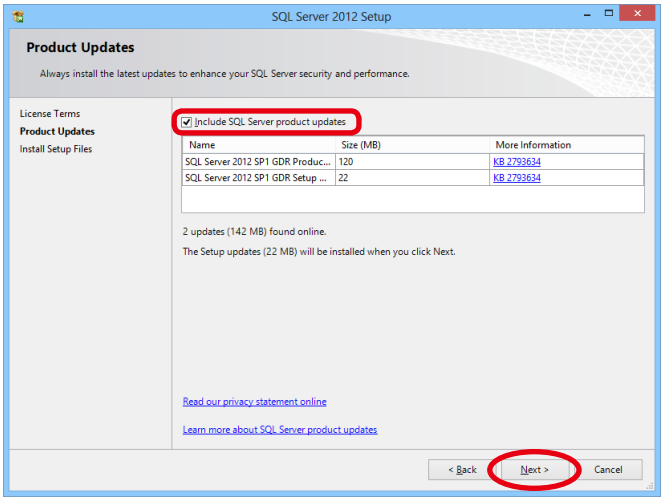
The screen "License Terms" will be displayed.

Step 3. Read the License Terms, then press [Next] button after marking the checkbox for "I accept the license terms."

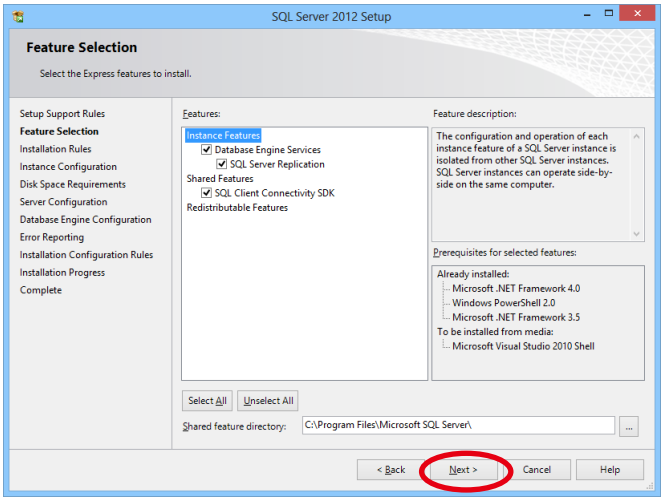


The screen "Product Updates" will be displayed.

Step 4. If there is any update program of the SQL Server product, mark the checkbox for "Include SQL Server product updates," then press [Next] button.

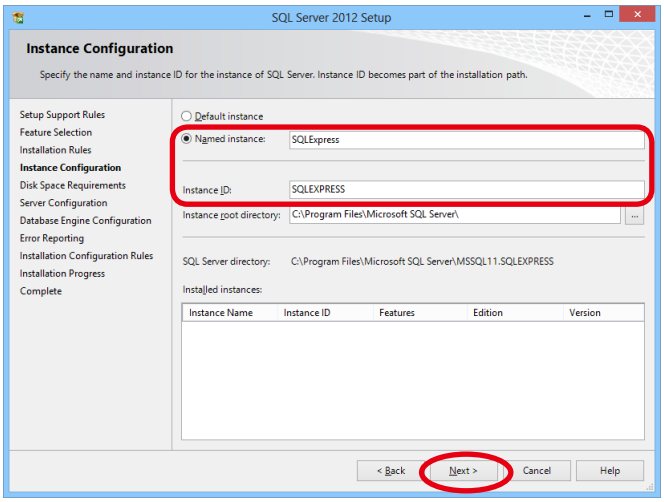


The screen "Feature Selection" will be displayed.



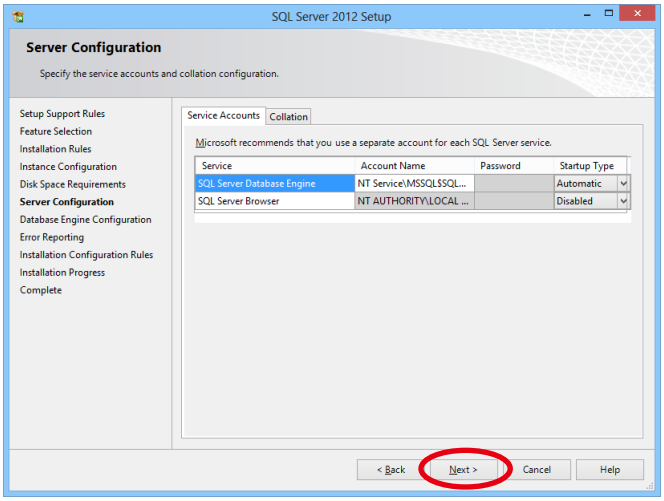
Step 5. Press [Next] button.

The screen "Instance Configuration" will be displayed.



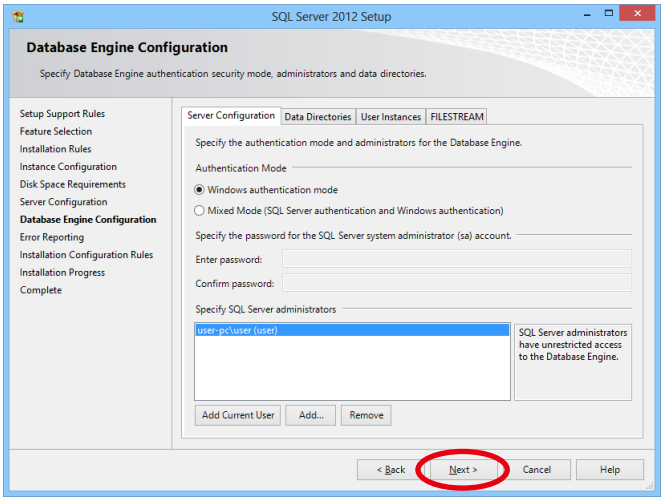
Step 6. Check that "SQLExpress" is preset in Named instance field and "SQLEXPRESS" in Instance ID field, then press [Next] button.

The screen "Server Configuration" will be displayed.



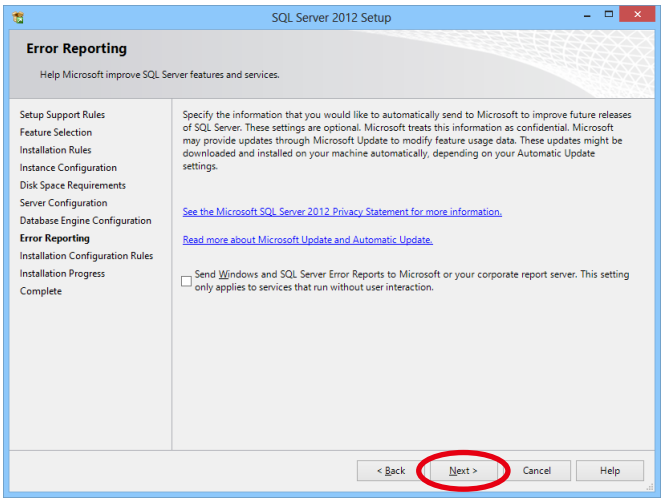
Step 7. Press [Next] button.

The screen "Database Engine Configuration" will be displayed.



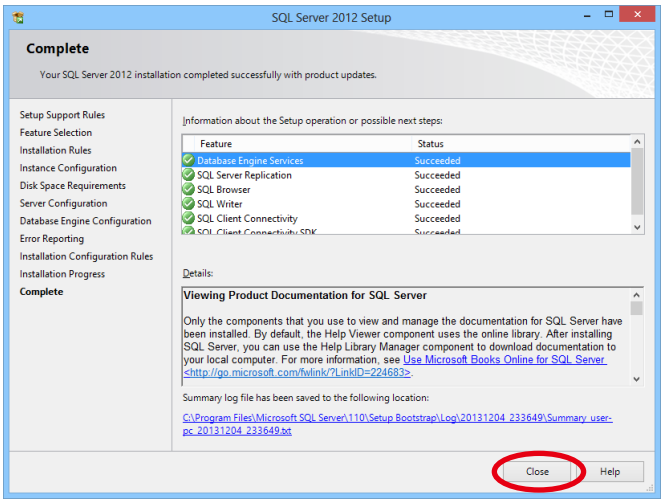
Step 8. Press [Next] button.

The screen "Error Reporting" will be displayed.



Step 9. Press [Next] button.
Installation begins.

The Installation Complete screen is displayed when the installation is successfully completed.



Step 10. Press [Close] button.

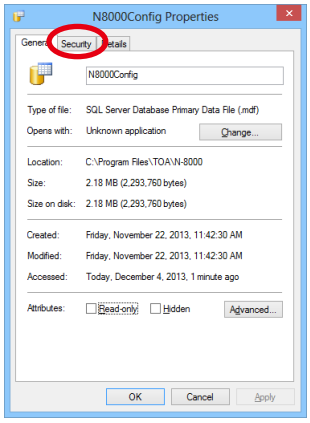
2.5.3. N-8000 Setting Software installation

Install the N-8000 Setting Software program referring to p. 5-5 "N-8000 Setting Software Installation."

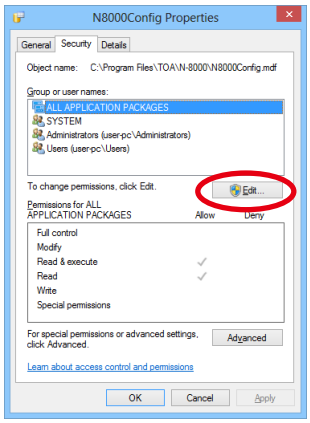
2.5.4. Giving the user the permission to change the "N8000Config.mdf" and "N8000Config_log.ldf" files

Step 1. Open the folder to which you installed the N-8000 Setting Software program, then right-click the "N8000Config.mdf" file to select its properties. The screen "N8000Config Properties" will be displayed.

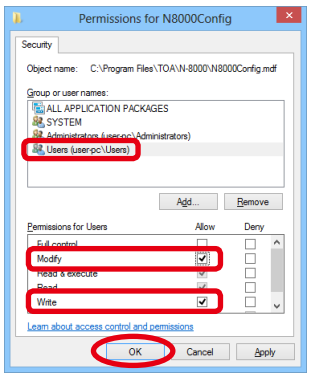
Step 2. Select "Security" tab.



Step 3. Press [Edit...] button.



Step 4. Select "Users" from "Group or user names," mark the Allow checkboxes for "Modify" and "Write," then press the [OK] button.



Step 5. Similarly perform the above steps for the "N8000Config_log.ldf" file.

2.6. N-8000 Setting Software Uninstallation

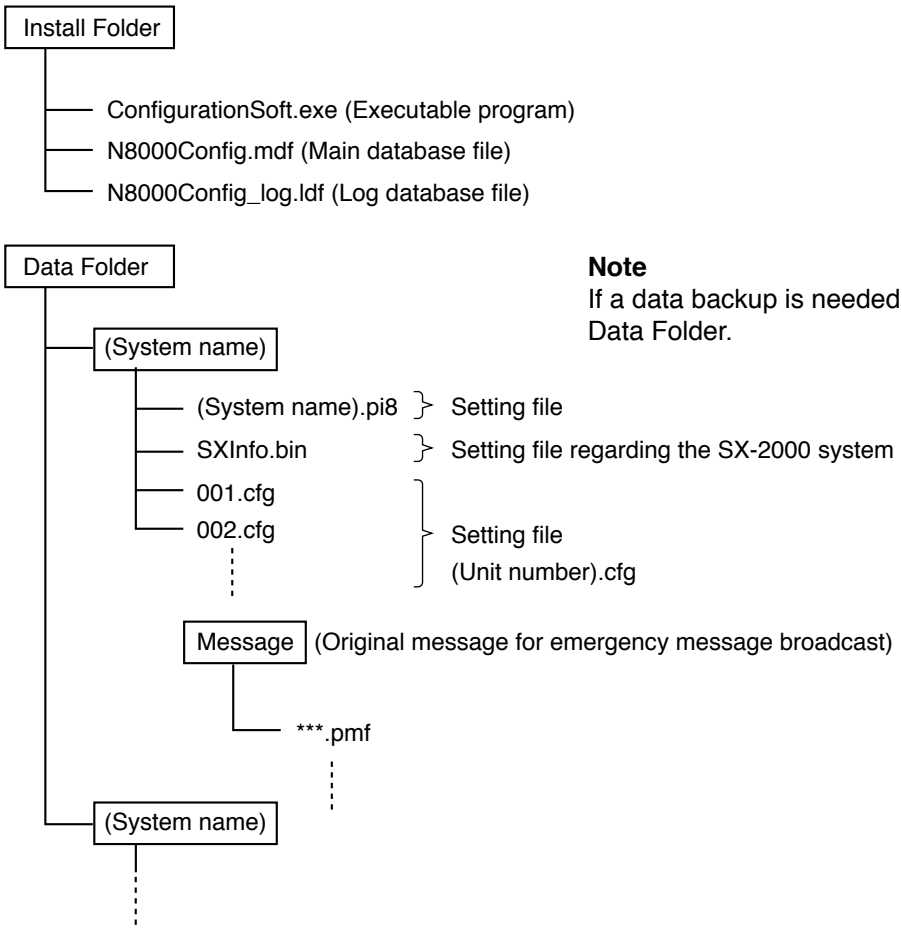
Select [Control Panel] → [Programs and Features] to delete the N-8000 Setting Software program.

2.7. Folder Configuration

The N-8000 Setting Software program is installed in the default location C:\Program Files\TOA\N-8000.
The system setting file is created in the location (1) for Windows XP or (2) for Windows Vista, Windows 7, Windows 8.1, and Windows 10 as follows:

(1) C:\Document and Settings\All Users\Application Data\TOA\N-8000
(2) C:\ProgramData\TOA\N-8000

The configuration of the folders is as follows. (Note that the system setting file is created after the setting has been performed using the software.)
Do not change the folder configuration (file location) or the folder and file names.



Note
If a data backup is needed, make a backup copy of Data Folder.

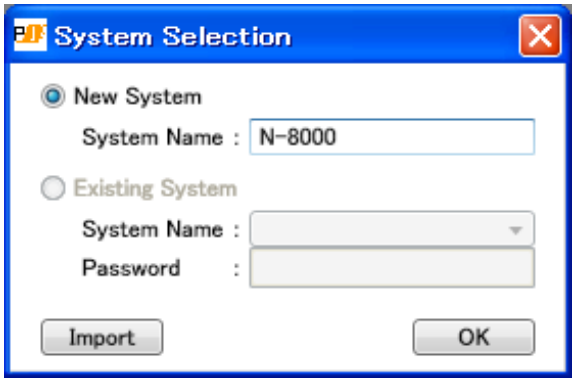
2.8. Version Update Information

Download our TOA Products Data, web site (http://www.toa-products.com/international/) to get the up-to-date version for N-8000 Setting Software, firmware, and Instruction manuals.

- N-8000 Setting Software version number can be confirmed using the Help menu.
- The current firmware version can be confirmed on the system management screen displayed when the browser establishes the connection to the Exchange, various kinds of Interface unit, or IP station.
- The instruction manual version number can be confirmed by checking the preparation date (month and year) shown at the lower right corner of the last page.
  Example: Prepared in December 2017: 201712

3. ACTIVATING N-8000 SETTING SOFTWARE PROGRAM

Step 1. Double-click the shortcut icon created on the desk-top screen when installing, or double-click the ConfigurationSoft.exe created in the installed folder directly.
[System Selection] screen is displayed.



(1) New System
Creates a new system.
Enter the system name to be created.
The password "guest" is set by default.

(2) Existing System
Selects one from the existing systems.
Enter a password after selecting the system name.

(3) Import button
Reads system information from the pi8-formatted file and saves it to the database.
Use this button when reading system information created by another PC.

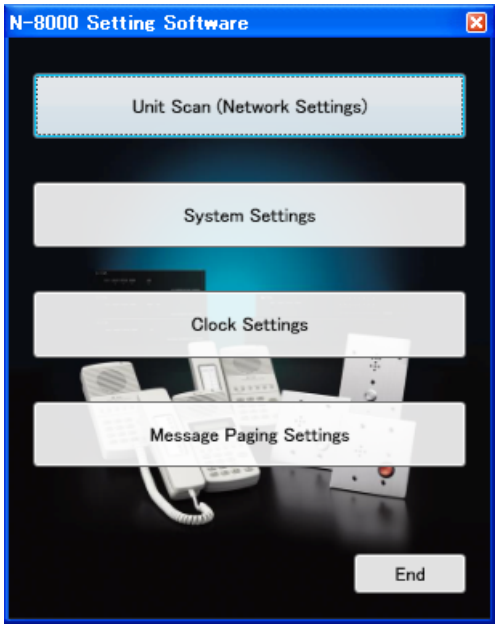
Note
If the system to be imported and that already having been registered are the same in name, the new system cannot be imported.
In this case, delete the existing system setting data folder with the same name, and then perform data import.
For details of the data folder, refer to p. 5-12

Step 2. Select "System name", enter password, then press [OK].

Note
System name and password are case-sensitive.
To perform new system settings, select "New System," then enter the system name and press the "OK" button.

System name and password are factory-preset to "N-8000" and "guest" respectively.
For changing System name or Password, refer to , .

After system name and password have been entered correctly, N-8000 Setting Software program initial screen is displayed.



Step 3. Click [Unit Scan (Network Settings)] when detecting equipment.

Step 4. Click [System Settings] when setting system.

Step 5. Click [Clock Settings] when setting system clock.

Step 6. Click [Message Paging Settings] when creating and registering the message for the IP Master station and IP Remote microphone station.

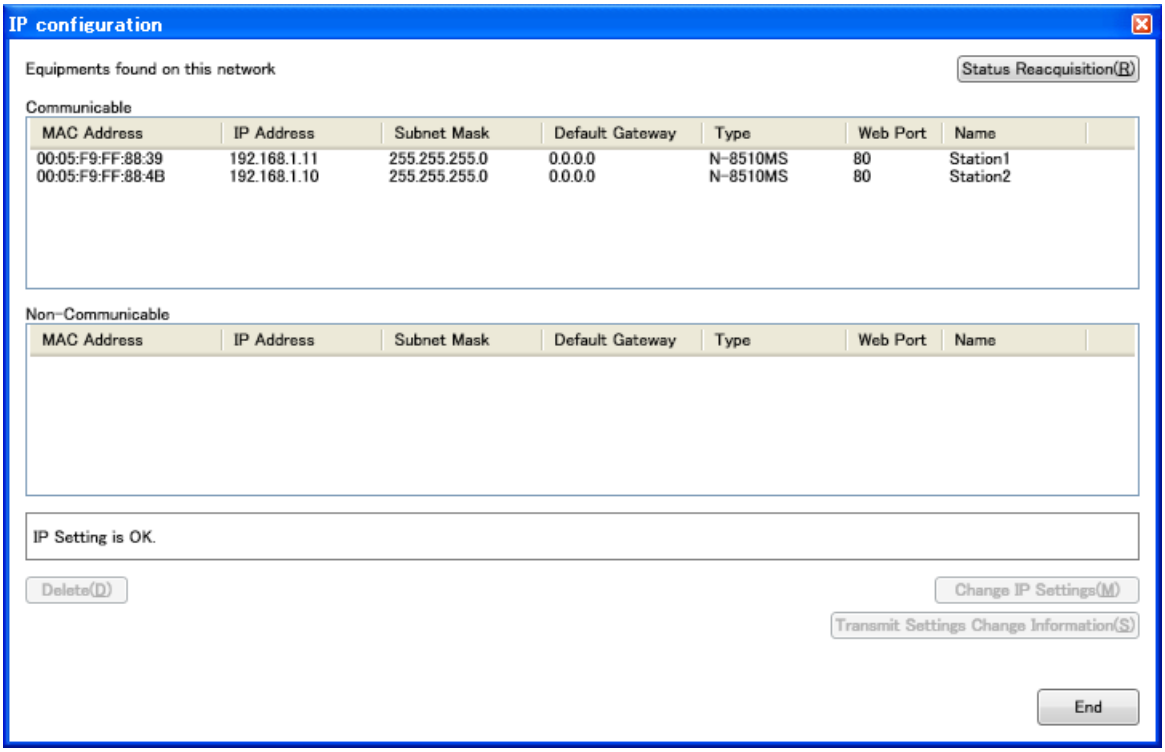
Step 7. Click [End] when terminating this software program.

4. UNIT SCAN (NETWORK SETTINGS)

These functions enable the detection and network setting of Exchanges, various kinds of interface units, and IP stations connected to the local area network.
The equipment detection function can only be used within the effective broadcast range (refer to p. 8-9).
Other equipment must be set using a different network setting (refer to p. 4-3).

4.1. Screen Description

Click [Unit Scan (Network Settings)] on the initial screen.
The Equipment Detection screen starts up, initiating automatic equipment detection.
The following shows an example of the screen displayed after equipment has been scanned, including a list of scanned Exchanges, various kinds of interface units, and IP stations.



(1) Communicable Equipment
Displays all devices that can perform communications normally.

(2) Non-Communicable Equipment
Displays all devices that cannot correctly communicate network settings.

(3) Status Reacquisition button
Re-enables equipment detection.

(4) Delete button
Deletes selected device from the list.

(5) Change IP Settings button
Changes IP settings of selected device.

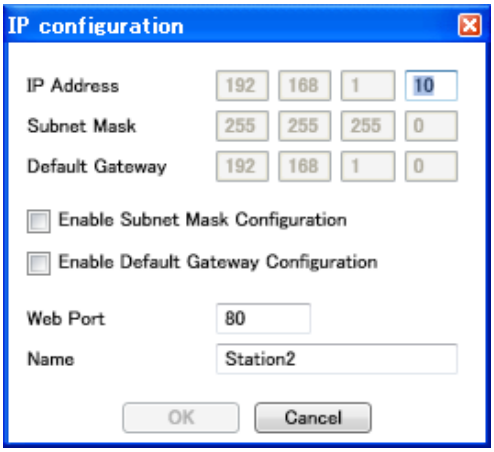
(6) Transmit Setting Change Information button
Transmits changed settings to device.

(7) End button
Terminates equipment detection.

4.2. Changing Equipment Settings

4.2.1. Single Unit Selection and Activation

Select the device to be changed on the Equipment IP Setting screen, then click "Change IP Settings" button. The following screen shows an example in which a single device is activated after it has been selected on the Equipment IP Setting screen.



(1) IP Address
Set the device's IP address.

(2) Subnet Mask
Set the device's subnet mask.
Click on the "Validate subnet mask edit" checkbox to change settings.

(3) Default Gateway
Set the device's default gateway.
Click on the "Validate default gateway edit" checkbox to change settings.

(4) Enable Subnet Mask Configuration
Selects whether to enable or disable subnet mask changes.

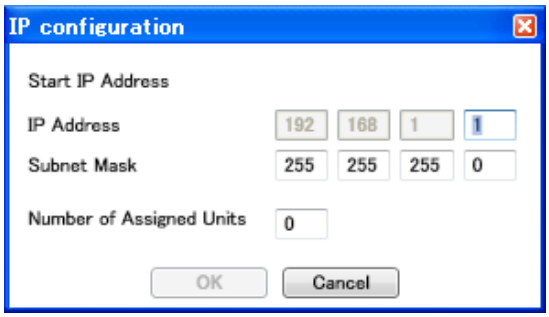
(5) Enable Default Gateway Configuration
Selects whether to enable or disable default gateway changes.

(6) Web Port
Set the web server port number.

(7) Name
Set the name of the device.

4.2.2. Multiple Unit Selection and Activation

Select the device to be changed on the Equipment IP Setting screen, then click "Change IP Settings" button. The following screen shows an example in which a single device is activated after it has been selected on the Equipment IP Setting screen.



(1) IP Address
Set the starting value of the IP address to be assigned to the selected devices.

(2) Subnet Mask
Set the subnet mask to be assigned to the selected devices.

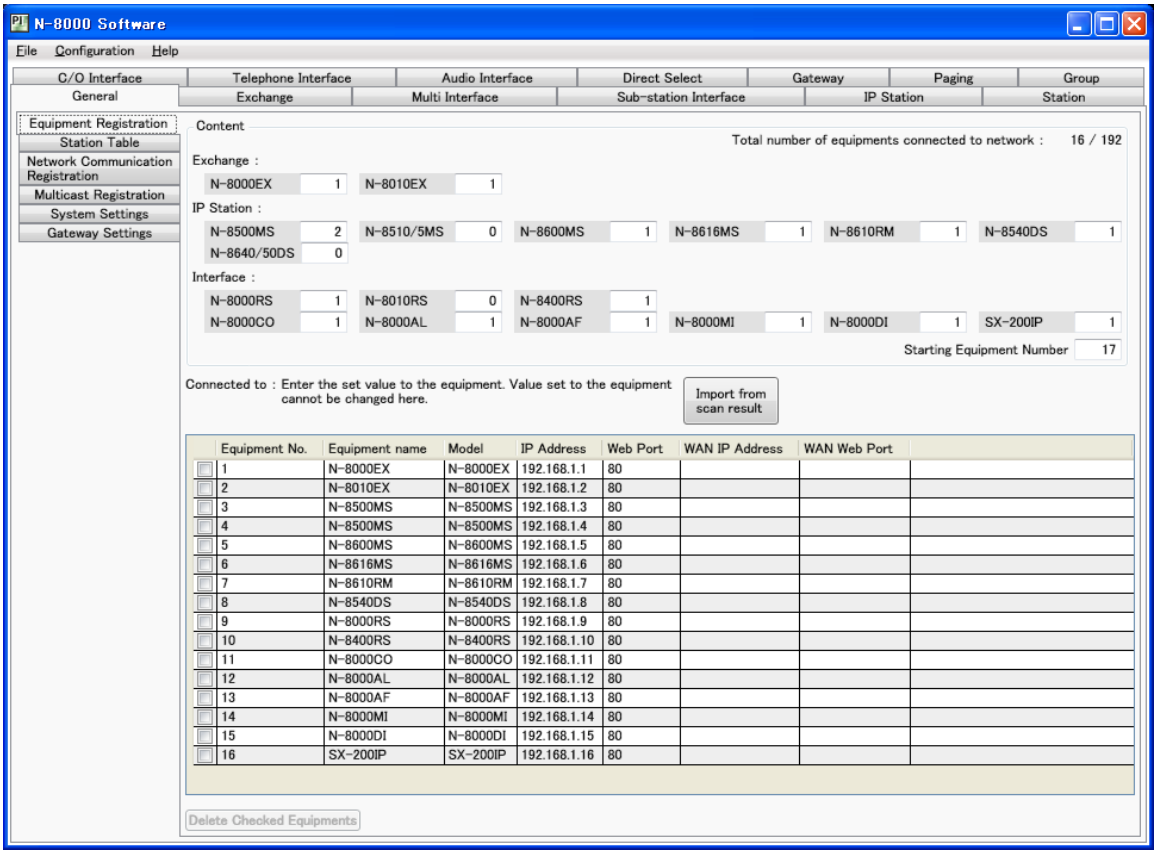
(3) Number of Assigned Units
Set the number of devices for which the same IP address is to be assigned from the starting IP address number. The IP addresses for the designated number of devices is assigned in sequential order from the IP address set in "(1) IP Address."

5. SYSTEM SETTING FUNCTION

Performs individual system settings. Use the Unit Scan/Network Setting function, a browser, an N-8000MS Multifunctional station, or an N-8500MS/8600MS IP Multifunctional station to set the IP address correctly, then use this System Setting function to update the exchange's, various kinds of interface units, or IP station's setting data.

5.1. Screen Description

Click [System Settings] on the initial screen.



Note
The screen above represents the state when settings for 15 pieces of equipment have been completed.

(1) General tab
Performs settings related to the overall system configuration. Available tabs include: [Equipment Registration], [Station Table], [Network Communication Registration], [Multicast Registration], [System Settings] and [Gateway Settings].

(2) Exchange tab
Performs settings related to the exchange. Available tabs include: [Network Settings], [Sampling Frequency Correction] and [Function Settings].

(3) Multi Interface tab
Perform settings related to the multi interface unit. Available tabs include: [Network Settings], [Sampling Frequency Correction], [Function Settings], [Audio I/O], [Contact Input] and [Contact Output].

(4) Sub-station Interface tab
Perform settings related to the Sub-station interface unit. Available tabs include: [Network Settings], [Function Settings] and [Sub-Station Settings].

(5) IP Station tab
Perform settings related to the IP station. Available tabs include: [Network Settings], [Function Settings 1], [Function Settings 2], [Speed Dialing], [Scan Monitor] and [Message Paging].

(6) Station tab
Perform settings related to the station connected to the exchange and the analog master station connected to the Substation interface unit. Available tabs include: [Function Settings], [Speed Dialing] and [Scan Monitor].

(7) C/O Interface tab
Perform settings related to the C/O interface unit. Available tabs include: [Network Settings], [Function Settings 1], [Function Settings 2] and [Scan Monitor].

(8) Telephone Interface tab
Perform settings related to the Telephone interface unit. Available tabs include: [Network Settings], [Function Settings 1], [Function Settings 2] and [Scan Monitor].

(9) Audio Interface tab
Perform settings related to the Audio interface unit. Available tabs include: [Network Settings] and [Function Settings].

(10) Direct Select tab
Perform settings related to the Direct select unit. Available tabs include: [Network Settings], [Function Settings], [Contact Input] and [Contact Output].

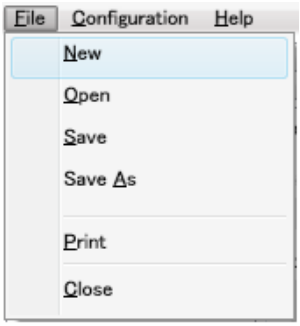
(11) Gateway tab
Perform settings related to the IP module. Available tab includes: [Network Settings].

(12) Paging tab
Used to set paging zones.

(13) Group tab
Perform settings for Group Blocking and Remote Response group functions. Available tabs include: [Group Blocking Group], [Group Blocking To] and [Remote Response Group].

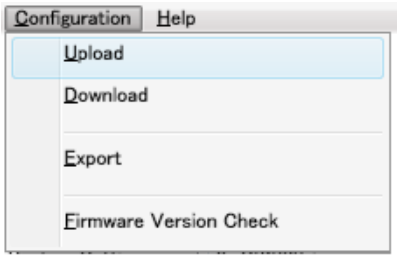
5.2. Menu

5.2.1. File



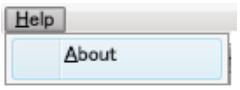
New : Creates the setting file for a new system.
Open : Opens the stored setting file.
Save : Saves the setting file currently being edited.
Save As : Saves the setting file being edited as a file for the different system by renaming it.
Print: Prints the set data of the system.
Close : Terminates this software program.

5.2.2. Configuration



Upload : Writes settings data to equipment.
Download : Downloads equipment settings data to a PC.
Export : Outputs the setting files. (*.pi8/*.cfg)
Firmware Version Check : Verifies the device's firmware version. If a device is detected to be using a firmware version earlier than 2.00, the firmware can be updated to version 2.00.

5.2.3. Help



About : Displays the version number of this software program.

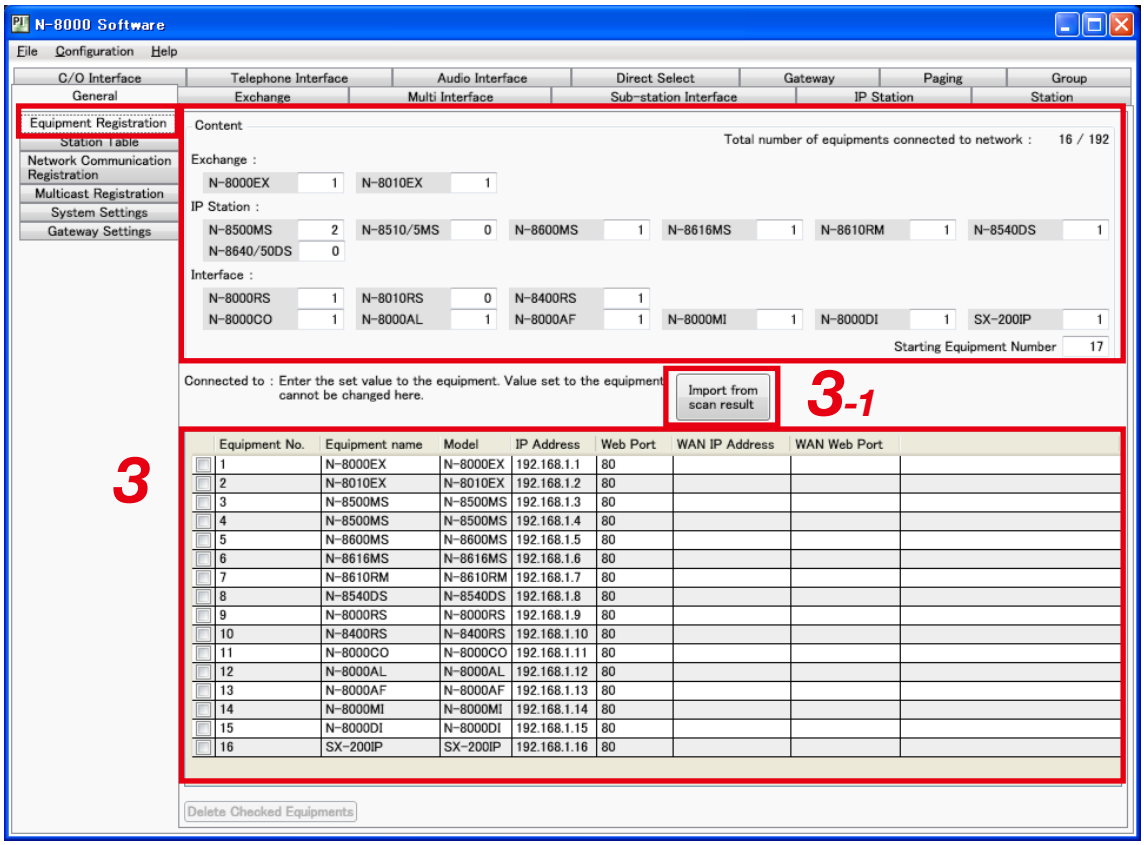
5.3. Overall System Configuration Settings

Click "General" tab.

5.3.1. Equipment registration

Determines the configuration of the equipment connected to the network within the system and register it. Program data can be entered manually, or it can be imported using data scan for the Equipment using the Unit Scan/Network Setting function.

Step 1. Click "Equipment Registration" tab to display the setting screen.



Note
The screen above represents the state when settings for 16 pieces of equipment have been completed.

[Screen description]

(1) Starting Equipment Number
Enter the first unit number to be set. Unit numbers of 1 – 192 are automatically assigned in sequential order starting with the number entered here. However, duplicated numbers cannot be assigned.

(2) Equipment No.
Used to enter the equipment number of the exchange. Set a number (1 – 192) that does not duplicate other unit numbers.

(3) Equipment name
Allows a name up to eight alphanumeric characters to be entered for the equipment.

(4) Model (Can't be edited.)
Model numbers of equipment are displayed.

(5) IP Address
Allows an IP address for the equipment to be entered.

(6) Web Port
Allows the Web server's port number to be entered.

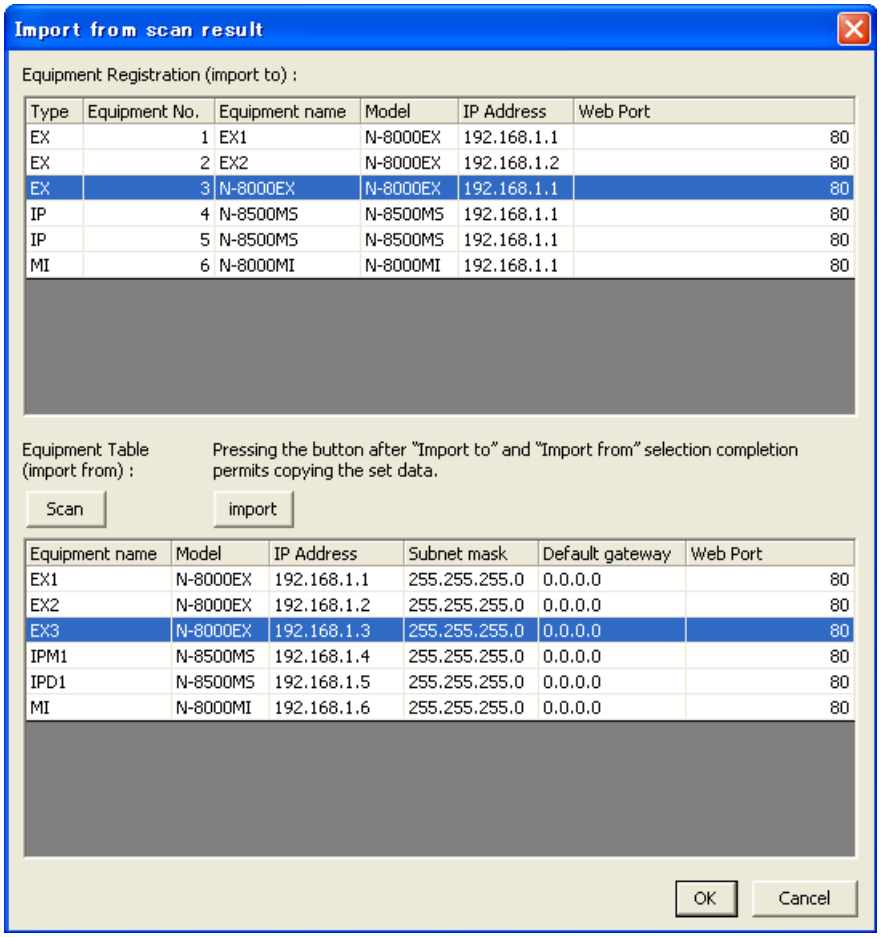
(7) WAN IP address
Allows the IP address for the equipment as viewed from the wide-area network (WAN) to be entered. This space may be left blank if NAPT is not used.

(8) WAN Web port
Allows the Web server's port number for the equipment as viewed from the wide-area network (WAN) to be entered. This space may be left blank if NAPT is not used.

Step 2. Set the system configuration.
Enter the number of the equipment connected to the network .
The total number is displayed in the "Total number of equipment connected to Network" space, and a list of equipment (exchanges, various kinds of interface units, and IP stations) is displayed.

Step 3. Set the Equipment name, Model, IP Address, and Web Port.
These items can be set directly by clicking and editing the data in each cell, or by importing equipment data detected using the Unit Scan/Network Setting function. Follow the below procedures when importing data from the result of Unit Scan.

3-1. Press [Import from scan result] to display the following dialog.



3-2. Select an import destination from [Equipment Registration], and select an import source from [Equipment Table], then press the [import] button. This will cause the settings data for the detected equipment to be copied to the equipment selected as the import destination.

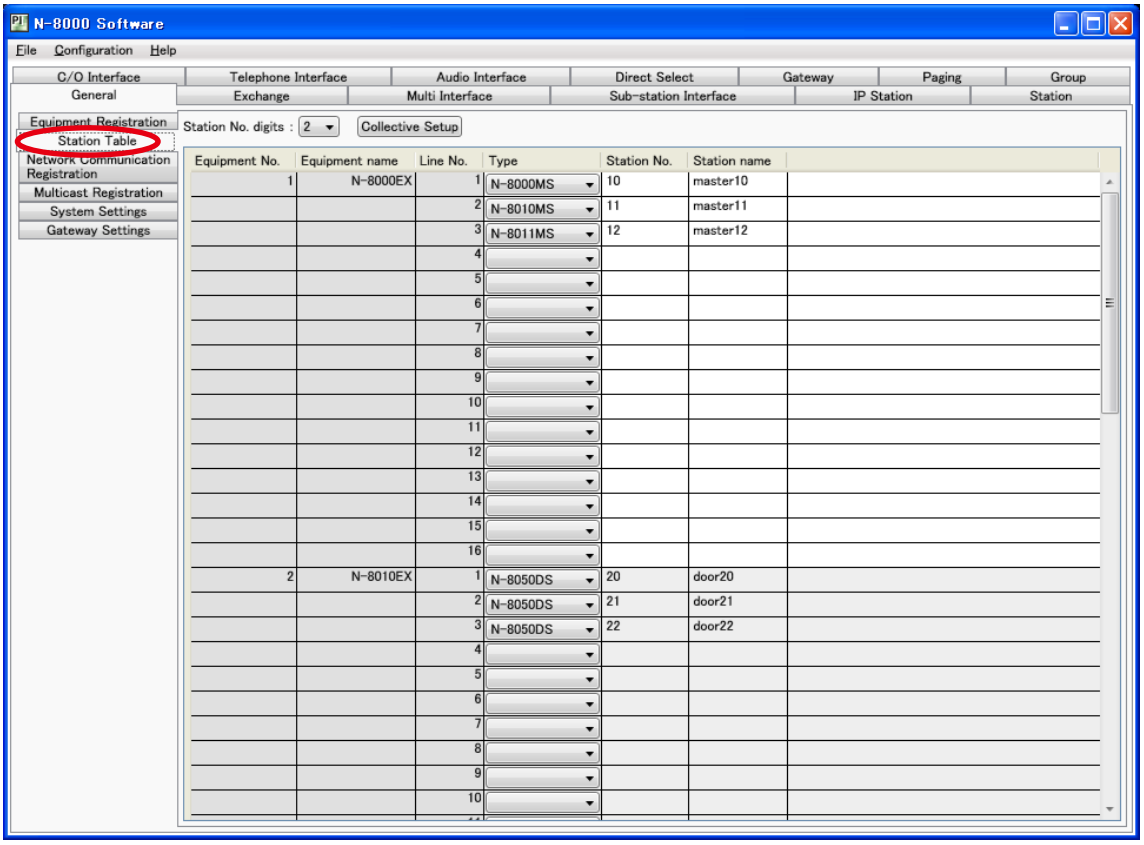
Note
Be sure to match the model number of import source with that of import destination for selection.

3-3. Click [OK] to close the dialog and return the display to the previous edit screen.

Step 4. Change the WAN IP address and the WAN Web port as required by clicking and editing the contents of each cell directly.

5.3.2. Station number and type settings

Step 1. Click "Station Table" tab to display the setting screen.



Step 2. Select the number of digits in the station number.

Step 3. Set each item as follows:

(1) Equipment No. (Can't be edited.)
Refers to the equipment number of the exchange to which stations are connected.

(2) Equipment name (Can't be edited.)
Refers to the name of the Exchange to which stations are connected.

(3) Line No. (Can't be edited.)
Refers to the number of the line to which stations are connected.

(4) Type
Allows the type of station to be selected. Setting contents change depending on the type of station selected.

(5) Station No.
Refers to the station number used when making a call. Set the number with the same digit length (2 – 6 digits) as that in the Station Number Digit setting.
When an identification number is used in the multi-interface unit or C/O line interface unit, station numbers beginning with the same identification number (including the 2-digit identification number) cannot be used.

Example: When the access number is "10," "110" and "1100" can be used but "10," "100," "101," or "1000" cannot be used for station numbers.

Note
If you set the station number starting with "0" (such as 01 or 0001), enter the station number exactly as registered without omitting "0" in the item requiring the station number entry (e.g. Master station calls from the door station and Substation).
Example: If the station number is "0001," enter "0001." ("1" or "01" is invalid entry.)

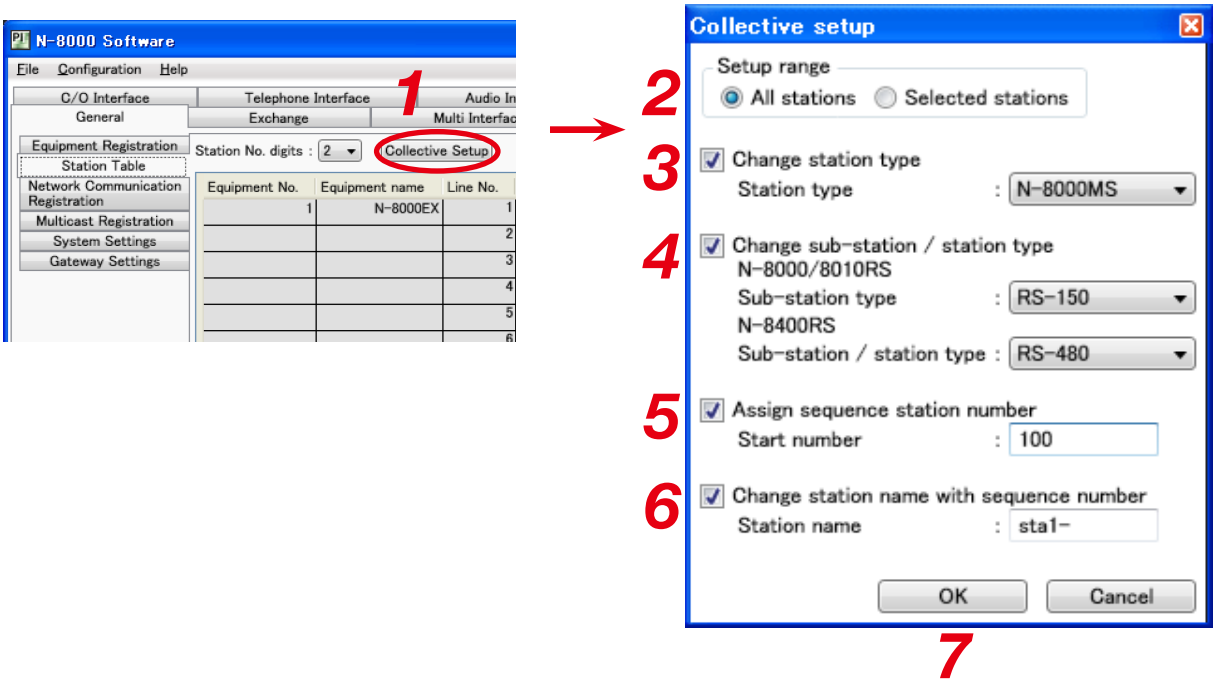
(6) Station name

Set the name of each station using up to eight alphanumeric characters. Station names can be displayed on multifunctional stations.

[Collective setup]

Pressing the Collective setup button permits station types, station numbers, and station names for all or selected stations to be set all at once.

Step 1. Press the Collective Setup button.
The Collective setup window appears.



Step 2. Select either "All stations" or "Selected stations" for the Setup range.
When "Selected stations" is selected, designate the setup range on the Station Table screen.
To do so, drug the mouse over the station list, or click stations one by one while holding down the Shift key of the PC.

Step 3. To change the type of station connected to the exchange, tick the "Change station type" box and select desired type from the pull-down menu.

Note: Types of IP stations cannot be set collectively.

Step 4. To change the type of station connected to the Substation interface unit, tick the "Change sub-station/ station type" box and select desired type from the pull-down menu.

Step 5. To assign sequence station number, tick the corresponding box and enter the start number.

Example: When "100" is entered for a start number, the station numbers to be automatically set are "100," "101," "102," and so on.

If a set station number comes to the maximum number in the set number digits, no further station number is assigned.

Step 6. To set the station name with sequence number, tick the corresponding box and enter a new name.
Up to eight alphanumeric characters including the sequence number can be used.

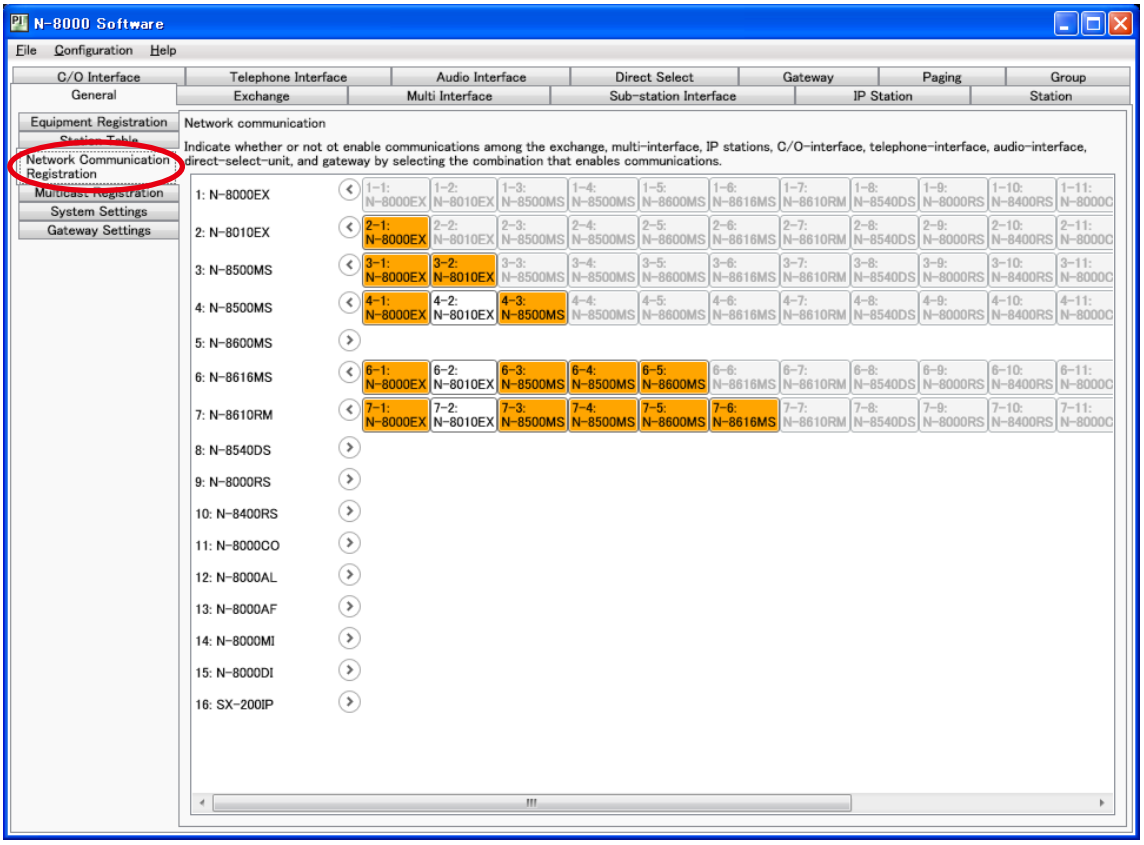
Example: When a station name "sta1-" is entered, the station names to be automatically set are "sta1-1," "sta1-2," "sta1-3," and so on.

Step 7. Press the [OK] button.

5.3.3. Network communications registration

Enables or disables unicast network communications among equipment connected to the network.

Step 1. Click "Network Communication Registration" tab to display the following setting screen.

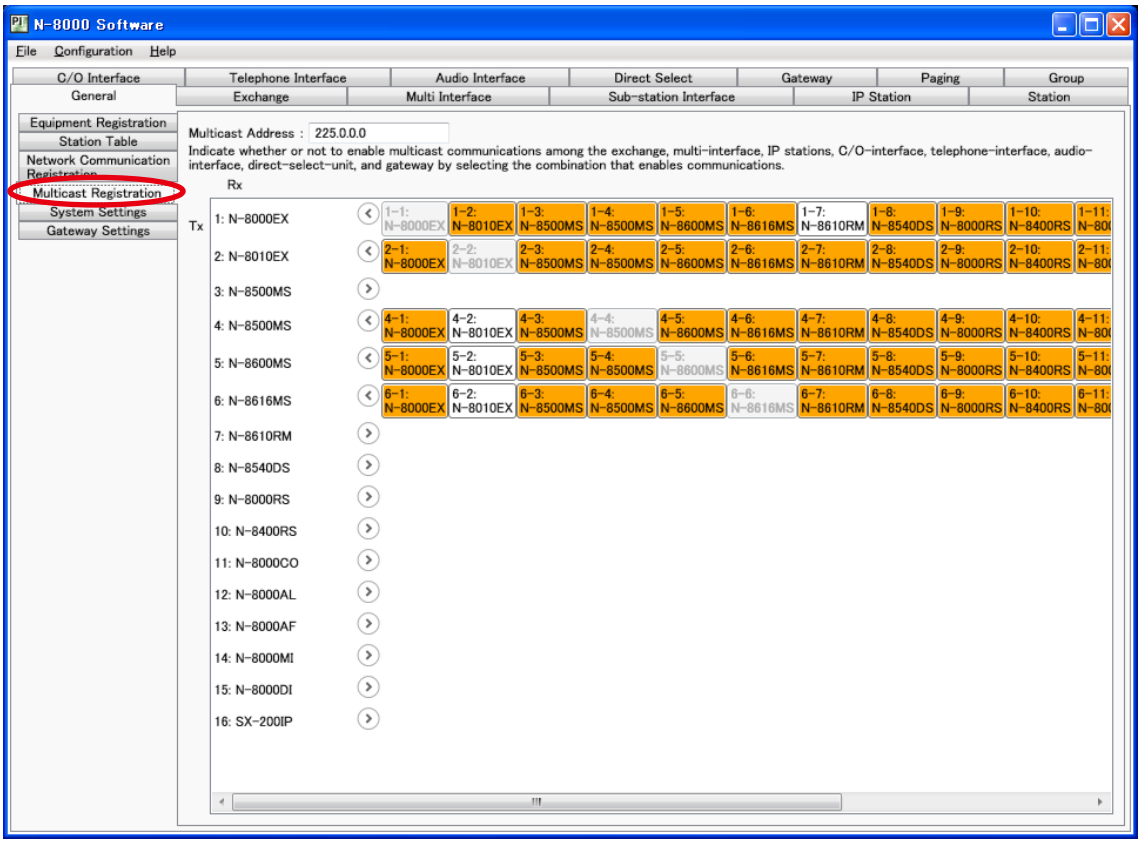


Step 2. Select device combinations capable of network communications.
Selection can be made by clicking the combinations that allow communications.

5.3.4. Multicast communications registration

Enables or disables Multicast communications among equipment connected to the network. When multicast communications are an available option, performing this registration conserves network bandwidth by allowing multicast paging.

Step 1. Click "Multicast Registration" tab to display the following setting screen.



Step 2. Enter the multicast address to be used for the system.

Note

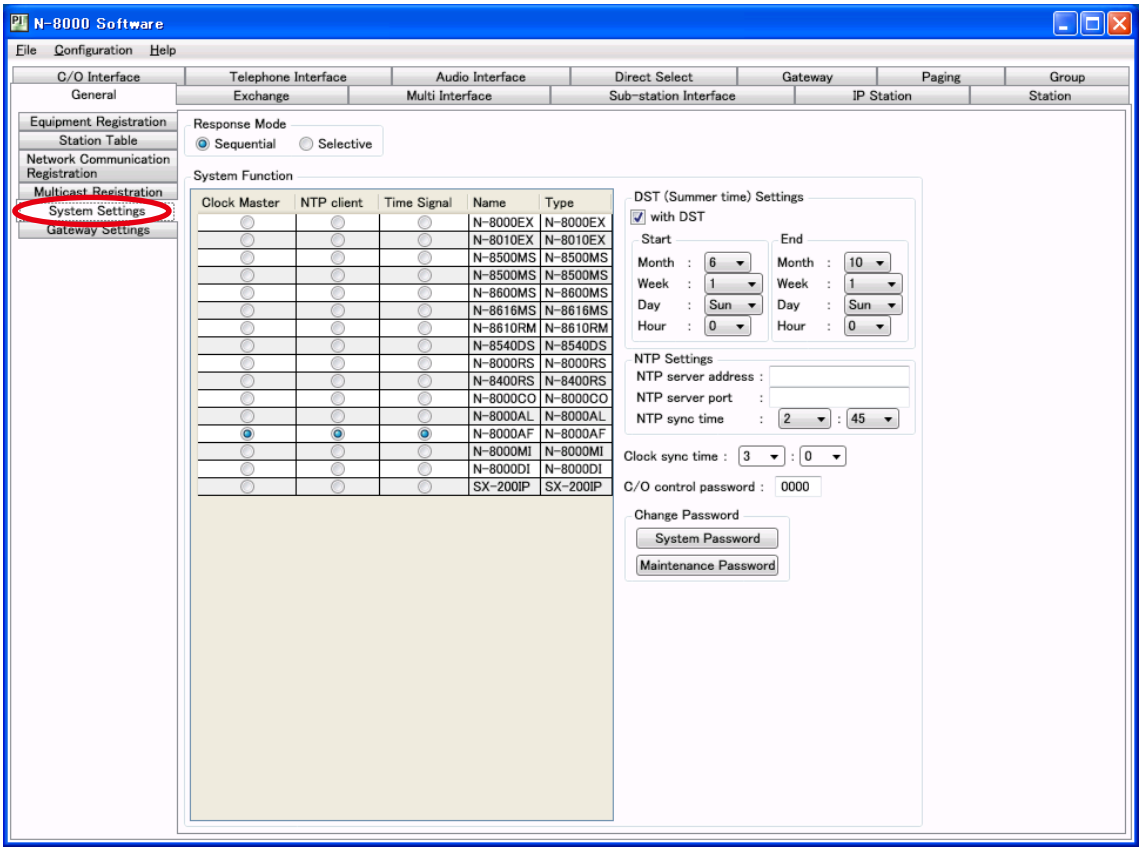
Avoid setting multicast addresses that have "0" or "128" in the second octet and "1" in the fourth octet (example: 225.0.0.1 or 225.128.0.1). The IP station cannot correctly receive audio if so set.

Step 3. Mark the checkbox associated with the combinations that enable multicast communications.

5.3.5. System settings registration

Perform settings common to the entire system.

Step 1. Click "System Settings" tab to display the following setting screen.



(1) Response Mode

Set the Response Mode.

Sequential: Responds to individual calls in order of receipt.

Selective: The master station selects a station and responds to that station.

Note

Selective response mode is invalid in firmware versions earlier than 2.00.

(2) Clock Master Setting

Select the device that functions as the master clock to which all system equipment clocks are referenced. Only one device per system can be designated as the master clock. If time synchronization has been enabled in the N-8000AF Audio interface unit, only that N-8000AF unit can be set as the master clock. Also, the N-8000RS, N-8010RS and N-8400RS Substation interface units cannot be set as the master clocks.

(3) NTP client Setting

Select the device to connect to the NTP server.

Only a clock master-designated N-8000AF can be set as the NTP client within the system.

Note

This function updates only minutes and seconds of the clock of the N-8000AF. Before using this function, be sure to set the clock master N-8000AF to the correct time. (Refer to p. 5-128, 6-42.)

(4) Time Signal Setting

Set the N-8000AF Audio interface unit that uses a time signal.

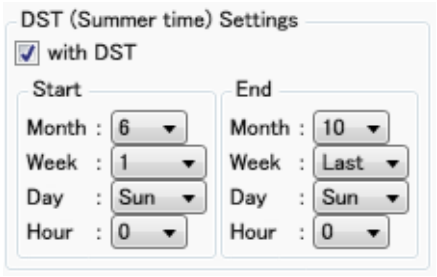
(5) DST (Summer time) Settings

Set daylight saving time.

with DST: Set whether or not to enable daylight saving time.

Start/End: Set the date and time to start and end daylight saving time. Designate it in the format [hour] of [day] of [nth week] of [month]. The last day of the week in the month can also be designated.

(Setting example)



When set as above, the DST will start and end as shown on the calendar at right.

June

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

Start of DST

October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

End of DST

(6) NTP Settings

NTP server address: Enter the IP address of the NTP server.
NTP server port: Enter the port number of the NTP server.
NTP sync time: Set time to communicate with the NTP server.
Note: NTP Ver. 3 is used to synchronize the system clock.

(7) Clock sync time

When the master clock has been designated, set the time at which system clocks are synchronized.
Notes

- It is recommended to set the Clock sync time later than the NTP sync time.
- Setting the Clock sync time and the NTP sync time to the same time may cause some system equipment not to be adjusted to the correct time even after NTP synchronization.

(8) C/O control password

Set the C/O control password.

(9) System Password button

Set the System password.

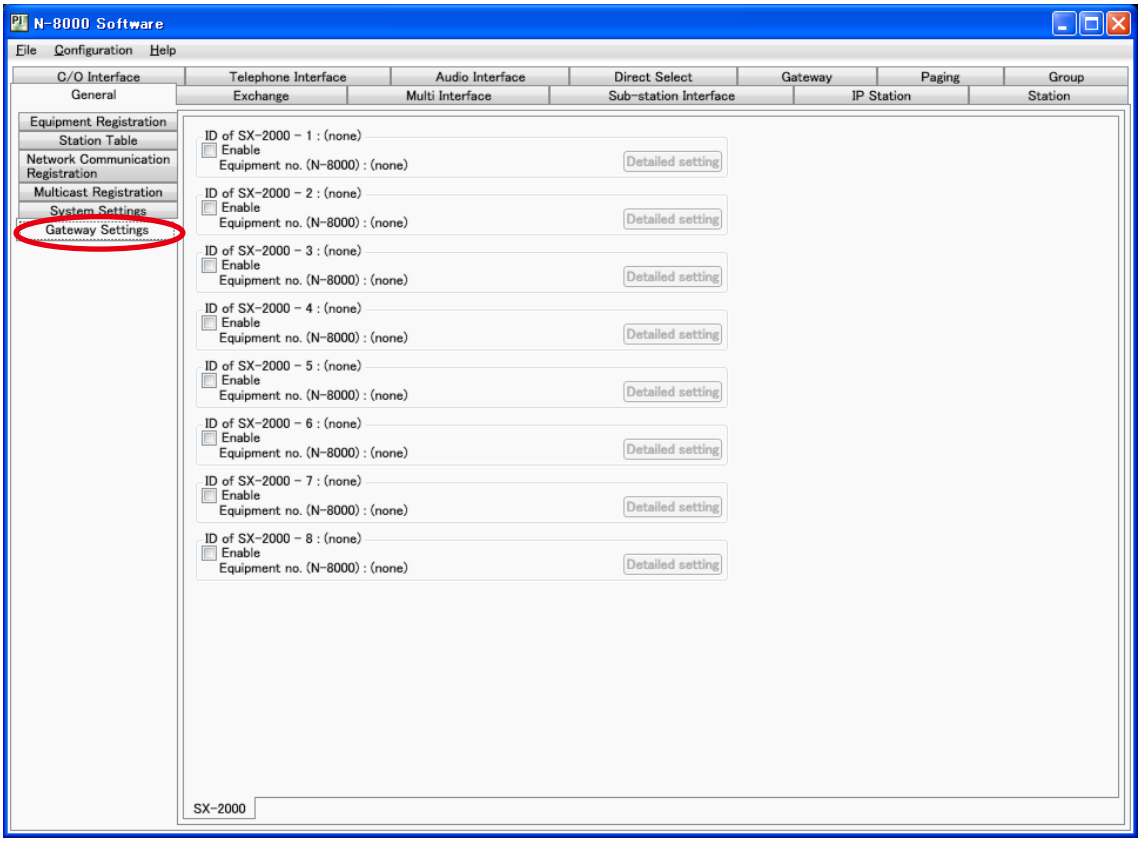
(10) Maintenance Password button

Set the Maintenance password.

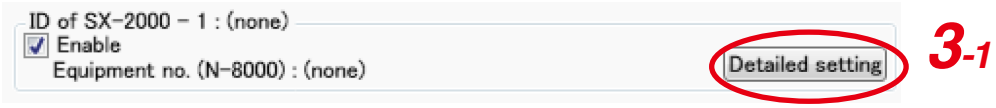
5.3.6. Gateway Settings

Perform settings necessary for making broadcasts to the SX-2000 system.
Prepare the SX-2000 Setting file in advance.

Step 1. Click the “Gateway Settings” tab.
The setting screen below is displayed.



Step 2. Select the SX-2000 System to be connected.
Mark the [Enable] checkbox for the SX-2000 System to be connected.



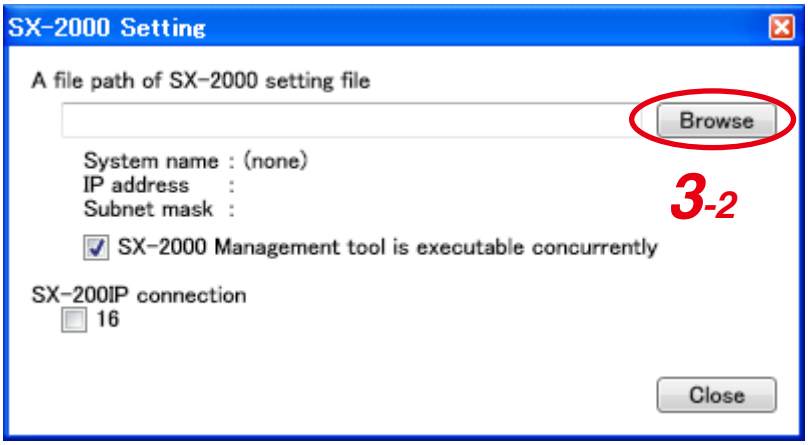
The [Detailed setting] button becomes active.
Up to 8 systems can be connected.

Note: A number (1 through 8) above the checkbox is the ID of SX-2000 system.

Step 3. Read the SX-2000 System settings.

3-1. Click the [Detailed setting] button.
The SX-2000 Setting dialog is displayed.

3-2. Click the [Browse] button to select the SX-2000 Setting file.



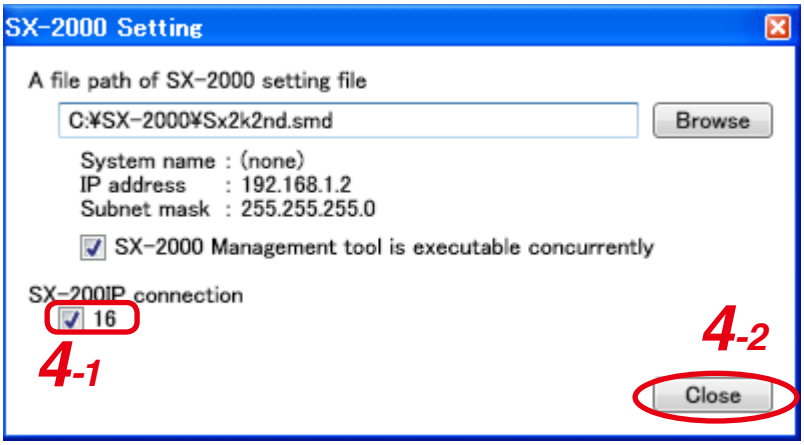
SX-2000 System name, IP address, and other related items are displayed.

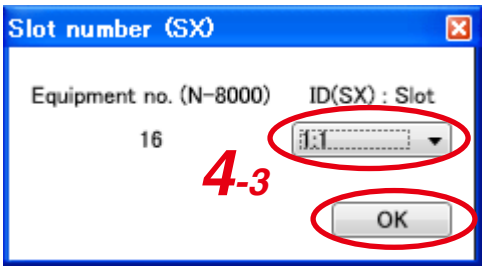
Step 4. Select the SX-200IP to be connected.

4-1. Mark the checkbox of the SX-200IP connection.
Up to 8 SX-200IP units can be connected per SX-2000 System.

4-2. Click the [Close] button.
The Slot number (SX) dialog is displayed.

4-3. Select the Slot from the pull-down menu, then click the [OK] button.



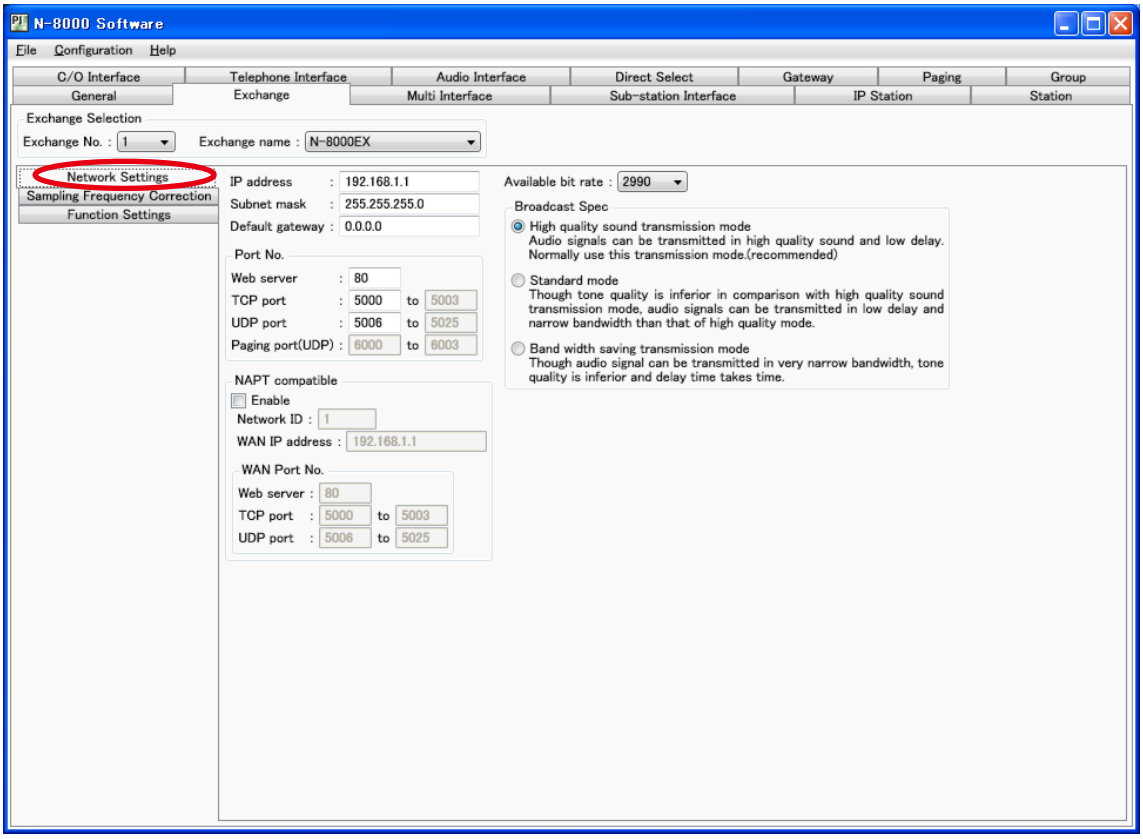


5.4. Exchange Settings

Click "Exchange" tab to select the exchange to be set.
Choose the name or number of the exchange from the list.

5.4.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the Exchange's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0	5006
Frequency compensation	UDP	Port start number + 1 to 3	5007 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

Note
Because UDP port number 15000 is used internally by the system, the numbers from 14981 to 15000 are not available.

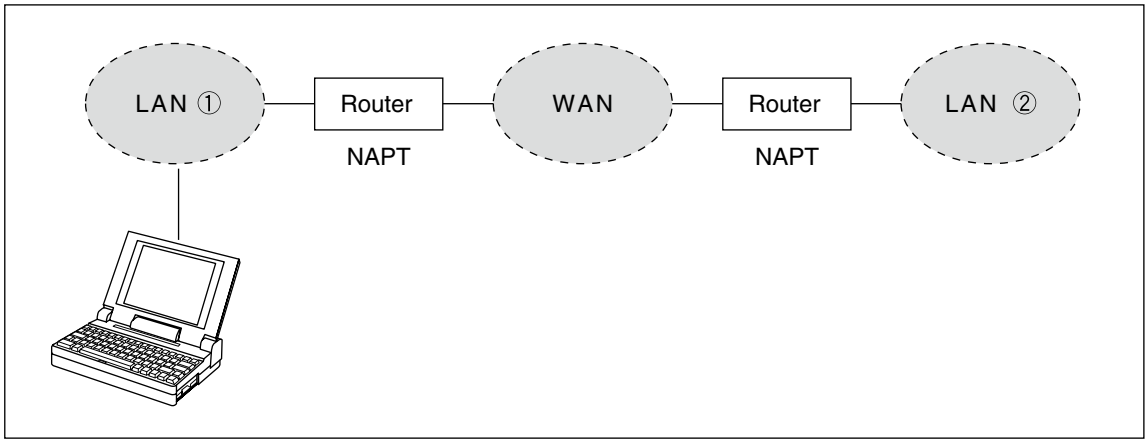
[Paging port (UDP)]
Displays the UDP port number to be used when making paging using the multicast communications.
To perform settings, refer to p. 5-121, Paging Zone Settings.

(5) NAPT compatible

When connecting a PC to the exchange using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the exchange using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the Exchange's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used. (valid range from 1 to 65516) The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0	5006
Frequency compensation	UDP	Port start number + 1 to 3	5007 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

(9) Available bit rate

Set the capacity (or a usable upper limit value) of the network line to which the Exchange is connected. Setting this communication capacity prevents sound quality deterioration and longer time delays caused by excess conversation and/or paging communications traffic.

(10) Broadcast Spec

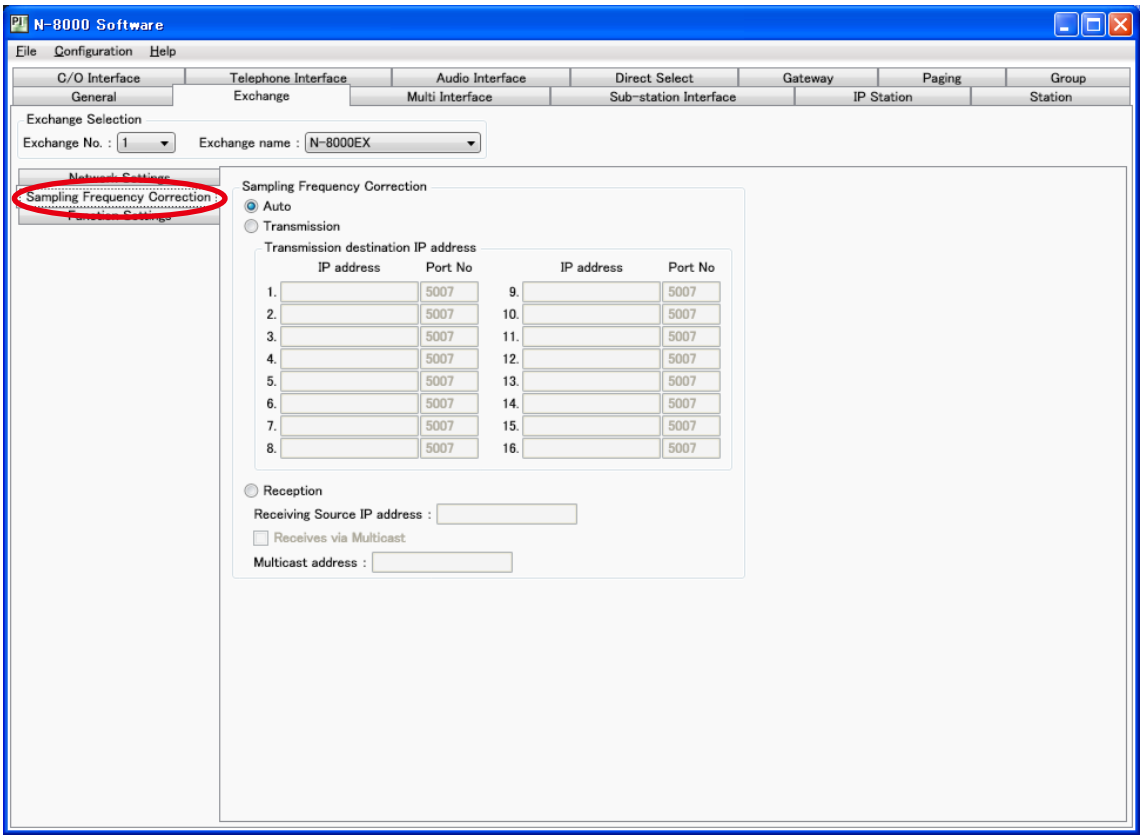
Select the voice transmission mode that is appropriate for the usable frequency band.

- High quality sound transmission mode
  Transmits voices at high sound quality with short time delay. Use this mode as the normal default mode.
- Standard mode
  Transmits voice audio with a short time delay. In this mode, the sound quality is reduced, but the delay time is identical to that in high quality mode, allowing a narrower frequency band to be used. Use this mode when exchanges are connected via an ISDN line (128 kbps).
- Band width saving transmission mode
  Voice transmission uses a very narrow frequency band, but with lesser quality sound and longer time delay. Use this mode when exchanges are connected via an Analog line (56 kbps).

	Sampling frequency	Delay time	Frequency band to be used
High quality sound transmission mode	16 kHz	0.08 second	130 kbps
Standard mode	8 kHz	0.08 second	98 kbps
Band width saving transmission mode	8 kHz	0.32 second	49.5 kbps

5.4.2. Sampling frequency correction settings

Step 1. Click "Sampling Frequency Correction" tab to display the following setting screen.



Step 2. Set individual items.

(1) Sampling Frequency Correction

Select this tab when setting the transfer of sampling frequency correction data between different networks. (Correction data is automatically transmitted and received within the range that can receive broadcast packets.)

Note: See p. 8-9 regarding sampling frequency correction.

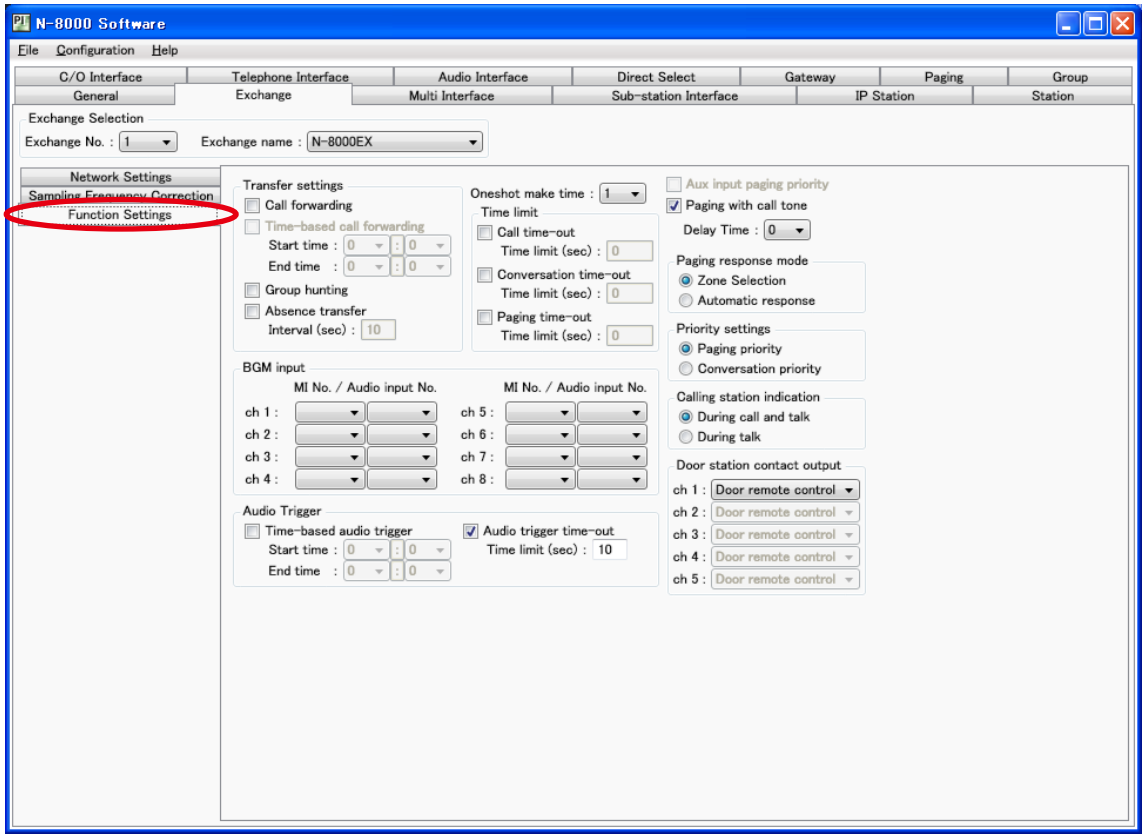
Auto: Corrects frequency correction data only over the local area network without transferring it to other networks.

Transmission: Transmits frequency data to other networks. The transmission destination column becomes available for input of transmission destination IP addresses and their port numbers. Up to sixteen destinations can be set. When correcting the sampling frequency using multicast communications, enter the transmission destination's IP address.

Reception: Receives frequency data from other networks. The receiving source address column becomes available for input of addresses.
When transferring frequency data using multicast communications, checkmark "Receives via Multicast" and enter the multicast address to be used.

5.4.3. Function settings

Step 1. Click "Function Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) Transfer settings

Set the transfer function ON or OFF for the station connected to the exchange.

Call forwarding:	Calls to stations are automatically transferred to another designated station without sounding a call tone only when Call forwarding function is enabled.
Time-based call forwarding:	Calls to stations are automatically transferred to another designated station without sounding a call tone only when the preset time is reached. This function can be set only when the call forwarding function is enabled. Preset time can be set only when the time-based call forwarding function is enabled.
Group hunting:	Calls to a busy station are automatically transferred to another designated station, if group hunting function is set to the called station.
Absence transfer:	When no response is made to a call to the station for a set period of time, the call is automatically transferred to another designated station. Preset time duration can be set only when the absence transfer mode is enabled.

(2) Oneshot make time (second)

Sets the duration that the external control output terminals are shorted momentarily.
The setting range is from 1 to 9 (in 1-second units).

(3) Time limit

Set the time-out value for calling, conversation or paging functions in ten-second units between 10 and 990 seconds.

Call time-out: Set whether to limit the duration of a call to the station. If setting a time-out, enter the time limit after which calls to the station are automatically terminated. If not setting a time-out, calls will continue until they are cancelled or the called station responds.

Conversation time-out: Set whether to limit the duration of conversations with the station. If setting a time-out, enter the time limit after which conversations to the station are automatically terminated. If not setting a time-out, conversations will continue until executing the termination operation.

Paging time-out: Set whether to limit the duration of paging call with the station. If setting a time-out, enter the time limit after which paging calls to the station are automatically terminated.
If not setting a time-out, paging calls will continue until executing the termination operation.

(4) BGM input

Set BGM to be heard at the stations connected to the selected exchange.
Select the unit's number and audio input number of the multi interface unit to which the BGM sound sources are connected.

(5) Audio Trigger

Set the timer interlock and restricted time interval for the N-8050DS unit's audio trigger. This setting is possible only when the N-8000EX exchange is used.

Time-based audio trigger: Selecting "Time Interlock ON" allows the time range that enables the audio trigger to be set.

Audio trigger time-out: Set the operation time limit for the audio trigger monitor.

(6) Paging with call tone

Sounds a pre-announcement tone when paging is initiated.

(7) Delay Time

Set the delay time before paging is initiated.

(8) Paging response mode

Select either "Zone Selection" or "Automatic response" modes when responding to the paging.

Zone Selection: Responds to a paging call by designating the number of the paging zone. Respond to the paging party who made the paging to the designated zone last is called. Use this mode if paging announcements are heard from multiple zones.

Automatic response: Use only the paging response key to make a response. The responding station is connected to the station that made a paging call over the paging zone through which the responding station last received a call.

(9) Priority settings

Sets whether paging calls or conversations should take precedence when these occur simultaneously.
This function is fixed to "Conversation priority" for the N-8010EX.

Paging priority: When a call is received while receiving a paging call, the called station becomes busy and the paging call is gone through. Station keys cannot be used while receiving a paging call. (Paging response cannot be performed at a paging receiving station, either.)

Conversation priority: A paging call is not received when paged during a conversation or dialing operation. Station keys can be dialed even while receiving a paging call.

(10) Calling station indication

Select either "During call and talk" or "During talk" mode when performing the calling station indication function.

The table below shows the timing that the Multi interface unit's, Direct select unit's, or Audio interface unit's contact output is closed.

Calling station indication / Station operation	During call and talk	During talk
Calling	Closed	Open
Being called	Open	Open
Call waiting	Closed	Open
Talking	Closed	Closed
Being paged	Open	Open
Receiving scan monitor	Closed	Closed

(11) Door station contact output

Set the contact output operation mode of the door station connected to this exchange.

Select one from "Door remote control," "During call," "During talk," and "During call and talk."

The table below shows the timing that the door station's contact output is closed.

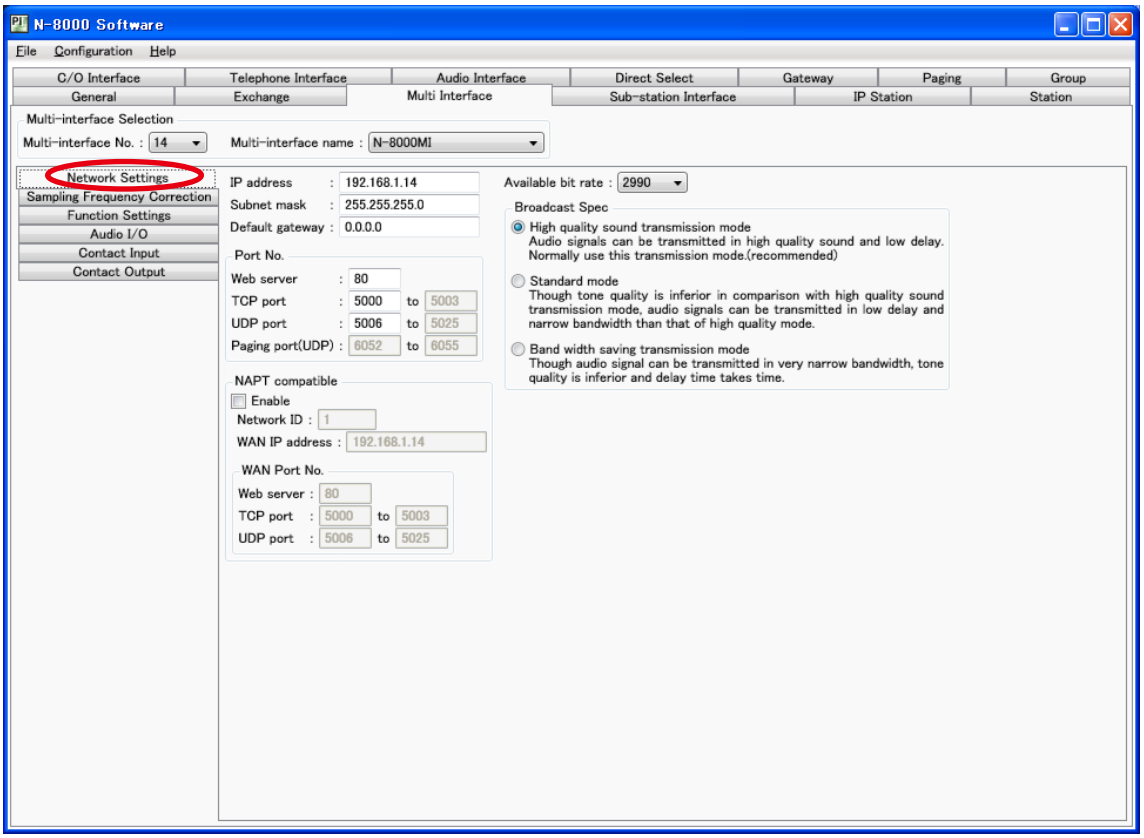
Door station contact output / Door station operation	Door remote control	During call	During talk	During call and talk
Calling	Open	Closed	Open	Closed
Being called	Open	Open	Closed	Open
Call waiting	Open	Closed	Open	Closed
Talking	Open	Open	Closed	Closed
Being paged	Open	Open	Open	Open
Receiving scan monitor	Open	Open	Closed	Closed
Door remote	Closed	——	——	——

5.5. Multi Interface Unit Settings

Click "Multi Interface" tab to select the multi interface unit to be set.
Choose the name or number of the multi interface unit from the list.

5.5.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the multi interface unit's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0	5006
Frequency compensation	UDP	Port start number + 1 to 3	5007 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

Note
Because UDP port number 15000 is used internally by the system, the numbers from 14981 to 15000 are not available.

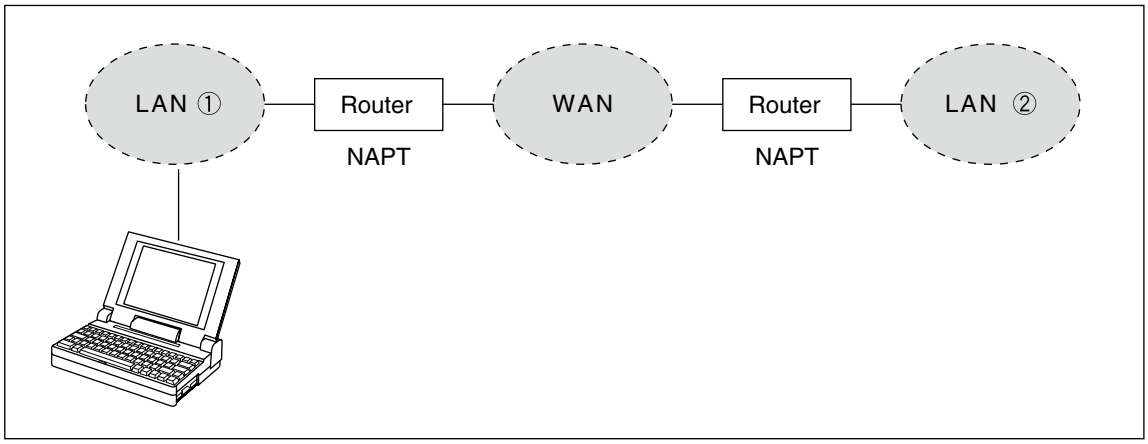
[Paging port (UDP)]
Displays the UDP port number to be used when making paging using the multicast communications.
To perform settings, refer to p. 5-121, Paging Zone Settings.

(5) NAPT compatible

When connecting a PC to the Multi interface unit using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the multi interface unit using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the Multi interface unit's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0	5006
Frequency compensation	UDP	Port start number + 1 to 3	5007 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

(9) Available bit rate

Set the capacity (or a usable upper limit value) of the network line to which the Multi interface unit is connected. Setting this communication capacity prevents sound quality deterioration and longer time delays caused by excess conversation and/or paging communications traffic.

(10) Broadcast Spec

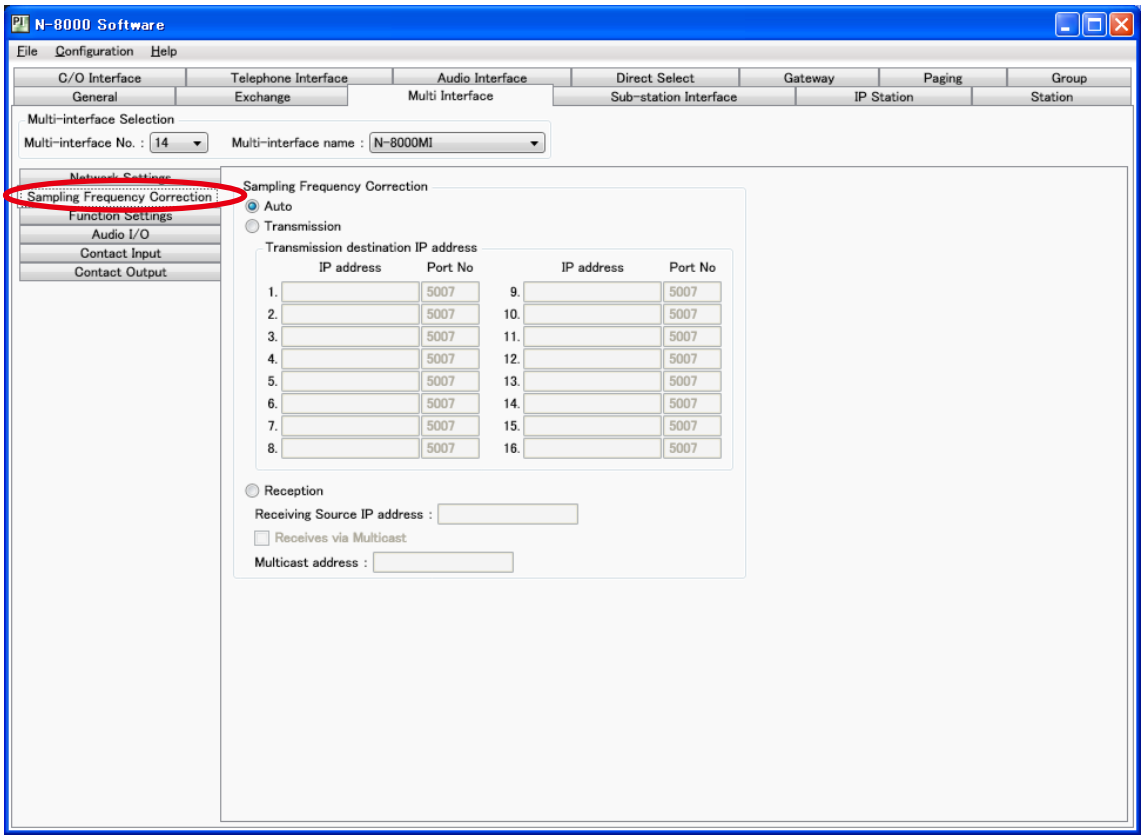
Select the voice transmission mode that is appropriate for the usable frequency band.

- High quality sound transmission mode
  Transmits voices at high sound quality with short time delay. Use this mode as the normal default mode. Also use this mode when BGM sound sources are connected.
- Standard mode
  Transmits voice audio with a short time delay. In this mode, the sound quality is reduced, but the delay time is identical to that in high quality mode, allowing a narrower frequency band to be used. Use this mode when multi interface units are connected via an ISDN line (128 kbps).
- Band width saving transmission mode
  Voice transmission uses a very narrow frequency band, but with lesser quality sound and longer time delay. Use this mode when multi interface units are connected via an Analog line (56 kbps).

	Sampling frequency	Delay time	Frequency band to be used
High quality sound transmission mode	16 kHz	0.08 second	130 kbps
Standard mode	8 kHz	0.08 second	98 kbps
Band width saving transmission mode	8 kHz	0.32 second	49.5 kbps

5.5.2. Sampling frequency correction settings

Step 1. Click "Sampling Frequency Correction" tab to display the following setting screen.



Step 2. Set individual items.

(1) Sampling Frequency Correction

Select this tab when setting the transfer of sampling frequency correction data between different networks. (Correction data is automatically transmitted and received within the range that can receive broadcast packets.)

Note: See p. 8-9 regarding sampling frequency correction.

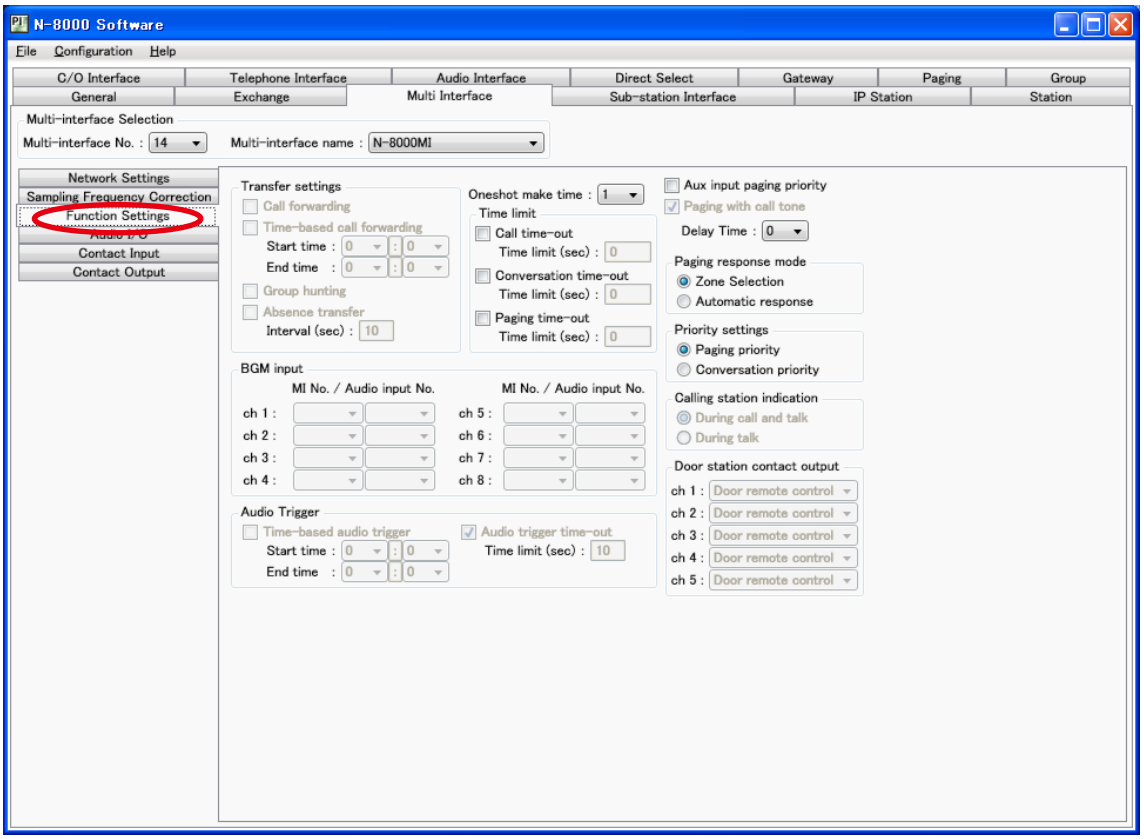
Auto: Corrects frequency correction data only over the local area network without transferring it to other networks.

Transmission: Transmits frequency data to other networks. The transmission destination column becomes available for input of transmission destination IP addresses and their port numbers. Up to sixteen destinations can be set. When correcting the sampling frequency using multicast communications, enter the transmission destination's IP address.

Reception: Receives frequency data from other networks. The receiving source address column becomes available for input of addresses.
When transferring frequency data using multicast communications, checkmark "Receives via Multicast" and enter the multicast address to be used.

5.5.3. Function settings

Step 1. Click "Function Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) Oneshot make time (second)
Sets the duration that the external control output terminals are shorted momentarily.
The setting range is from 1 to 9 (in 1-second units).

(2) Time Limit
Set the time-out value for calling, conversation or paging functions in ten-second units between 10 and 990 seconds.

Call time-out: Set whether to limit the duration of a call to the station. If setting a timeout, enter the time limit after which calls to the station are automatically terminated. If not setting a timeout, calls will continue until they are cancelled or the called station responds.

Conversation time-out: Set whether to limit the duration of conversations with the station. If setting a timeout, enter the time limit after which conversations to the station are automatically terminated. If not setting a timeout, conversations will continue until executing the termination operation.

Paging time-out: Set whether to limit the duration of paging call with the station. If setting a timeout, enter the time limit after which paging calls to the station are automatically terminated.
If not setting a timeout, paging calls will continue until executing the termination operation.

(3) Aux input paging

Allows external input broadcasts to take precedence over all-zone paging and individual zone paging.

(4) Delay Time

Set the delay time before paging is initiated.

(5) Paging response mode

Select either "Zone Selection" or "Automatic response" modes when responding to the paging.

Zone Selection:	Responds to a paging call by designating the number of the paging zone. Respond to the paging party who made the paging to the designated zone last is called. Use this mode if paging announcements are heard from multiple zones.
Automatic response:	Use only the paging response key to make a response. The responding station is connected to the station that made a paging call over the paging zone through which the responding station last received a call.

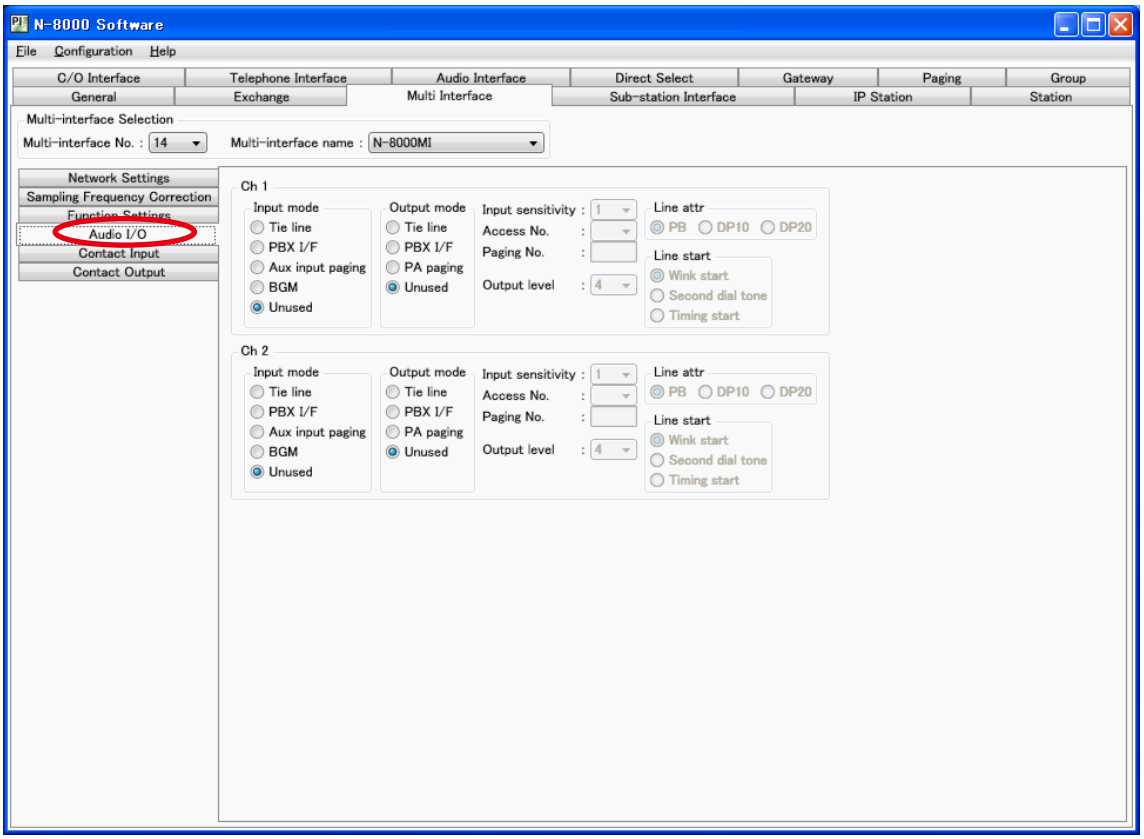
(6) Priority settings

Sets whether paging calls or conversations should take precedence when these occur simultaneously.

Paging priority:	When a call is received while receiving a paging call, the called station becomes busy and the paging call is gone through. Station keys cannot be used while receiving a paging call.
Conversation priority:	A paging call is not received when paged during a conversation or dialing operation. Station keys can be dialed even while receiving a paging call.

5.5.4. Audio I/O settings

Step 1. Click "Audio I/O" tab.
The corresponding setting screen is displayed.



Step 2. Perform settings for each item of Audio I/O Ch 1 and Ch 2.
Set how to use the Multi-interface unit's Audio input and output terminals. The following setting items are provided in Audio I/O Ch1 and Ch2.

(1) Input mode

Set the operation mode to be used.
If "Tie-line" or "PBX I/F" is selected, the output mode is also automatically set to the same contents.

Tie-line:	Select this item when connecting the Multi interface unit to the exchange of different series intercom system (EXES-2000 or EXES-6000 series system).
PBX I/F:	Select this item when connecting the Multi interface to the PBX analog E&M interface.
Aux input paging:	Select this item when connecting the Multi interface unit to playback components or Remote microphone to make paging calls. Paging calls can be made to the preprogrammed paging zones when the control input is activated.
BGM:	Select this item when broadcasting BGM to the stations in standby mode by connecting playback components.
Unused:	The audio input is not used.

(2) Output mode

Setting "Input mode" to "Aux input paging," "BGM" or "Unused" permits "PA paging" to be selected.

Tie-line: Select this item when connecting the Multi interface unit to the exchange of different series intercom system (EXES-2000 or EXES-6000 series system).

PBX I/F: Select this item when connecting the Multi interface unit to the PBX analog E&M interface.

PA paging: Select this item when connecting the amplifier, etc. for PA paging.

Unused: The audio output is not used.

(3) Input sensitivity

Setting "Input mode" to "Tie-line" or "PBX I/F" permits the input sensitivity to be set.
Set the sensitivity level in 4 increments of 1 – 4. "1" (default) is the minimum and "4" is maximum. (5 dB per step)

(4) Access No.

Setting "Input mode" to "Tie-line" or "PBX I/F" permits the access number to be set. Set the access number between 0 and 99 (single or double digit), which is used when the Multi interface unit is connected to different series intercom system or when making calls to a PBX.

Note

When a single digit number is set for the access number, avoid using numbers that match the first 1 digit of station numbers.
When a double digit number is set for the access number, avoid using numbers that match the first 2 digits of station numbers.

(5) Paging No.

Setting "Input mode" to "Aux input paging" permits the paging zone to be set.
Enter the paging zone number.

(6) Output level

Setting "Input mode" to "Tie-line" or "PBX I/F" permits the output level to be set.
Set the sensitivity level in 4 increments of 1 – 4. "1" is the minimum and "4" (default) is maximum. (5 dB per step)

(7) Line attr (Line attribute)

Choose a line attribute from "PB," "DP10," and "DP20."

(8) Line start

Setting "Input mode" to "PBX I/F" permits the line start method to be set. Choose the line start method from "Wink start," "Second dial tone," and "Timing start" signaling methods, which are defined as follows.

Wink start signaling method

After sending a start signal, a calling device sends a selective signal when it detects the acknowledgment signal (140 to 290 ms contact-closure pulse) from the called device.

Second dial tone signaling method

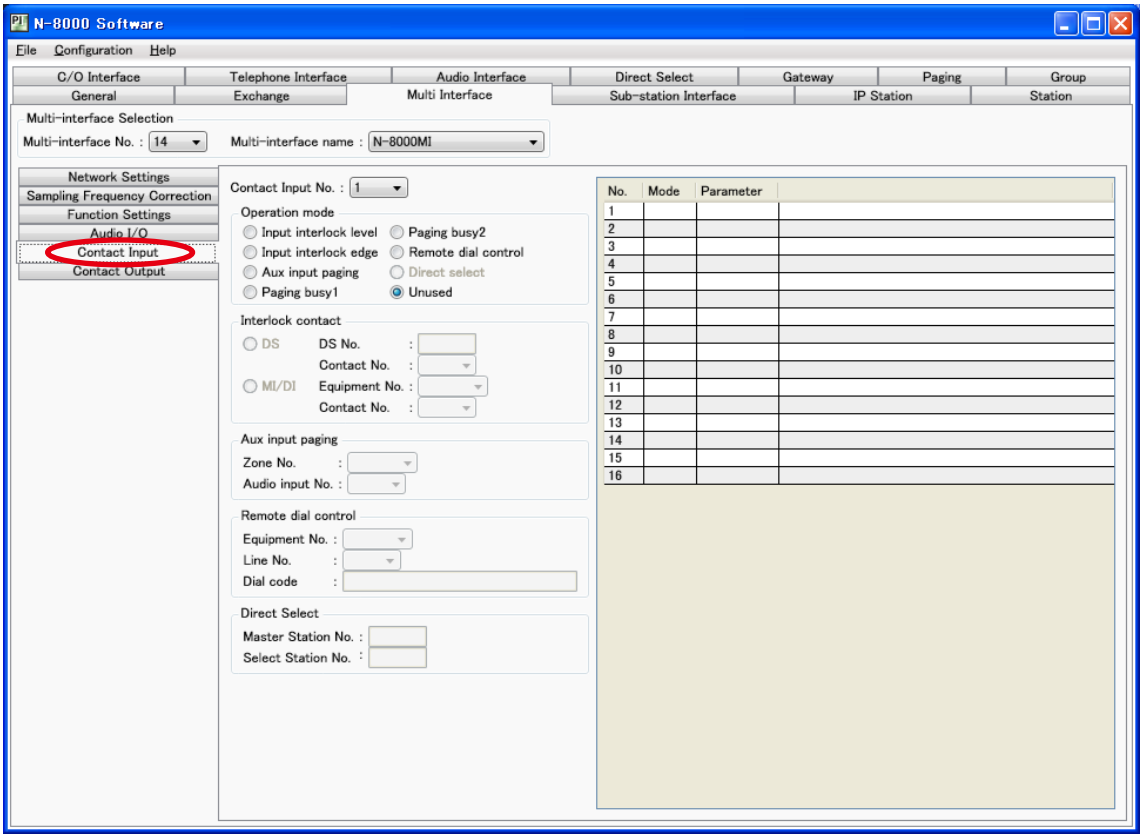
After sending a start signal, a calling device sends a selective signal when it detects the dial tone from the called device.

Timing start signaling method

After sending a start signal, a calling device sends a selective signal after 3 seconds have passed.

5.5.5. Contact input setting

Step 1. Click "Contact Input" tab. The setting screen is displayed.



Step 2. Set each item of "Contact input."

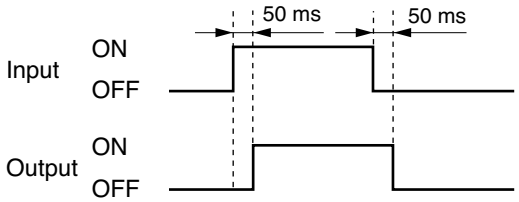
(1) Contact input No. (Can't be edited.)
The Multi interface unit's contact input terminal number.

(2) Operation mode
Select the contact input's operation mode. The setting contents differ depending on the mode selected here.

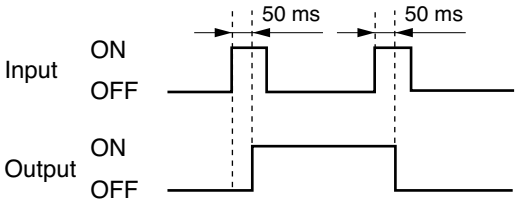
Input interlock level: Select this item when closing the contact output terminal in synchronization with the contact input terminal as shown below. (The input is defined when its level remains constant for 50 ms after change.)

Input interlock edge: Select this item when closing the contact output terminal in synchronization with the contact input terminal as shown below. (The input is defined when its level remains constant for 50 ms after change.)

[Input interlock level]



[Input interlock edge]



Aux input paging: Select this item when activating playback components or other devices connected to the Multi interface unit's audio input terminal from the control input.

Paging busy 1: Select this item when sending externally-connected paging equipment's busy status data to the Audio output 1.

Paging busy 2: Select this item when sending externally-connected paging equipment's busy status data to the Audio output 2.

Remote dial control: When the Multi interface unit's contact input terminal is closed, a station is made to automatically perform dial operation. A set of up to 20 dial codes (including dial numbers and key operations) can be assigned to each contact input terminal.

Unused: The contact input is not used.

(3) Interlock contact

Set the contact numbers to be output when "Input interlock level" or "Input interlock edge" is selected in the operation mode setting. To designate the door station's contact output terminal, select "DS" and enter the door station number. When the door station is N-8640DS or N-8650DS, enter the contact output number in the "Contact No." box as well. To designate the contact output terminal of the Multi interface unit or Direct select unit, select "MI/DI," and enter the equipment number and contact output terminal number of the unit.

(4) Aux input paging

Set the paging zone number and the audio input terminal number of paging source when "Aux input paging" is selected in the Operation mode setting.

(5) Remote dial control

Set the equipment number of exchange and line number to which the remote-controlled station is connected. Referring to the table below, enter the dial codes that correspond to the dial operation the station is made to perform.

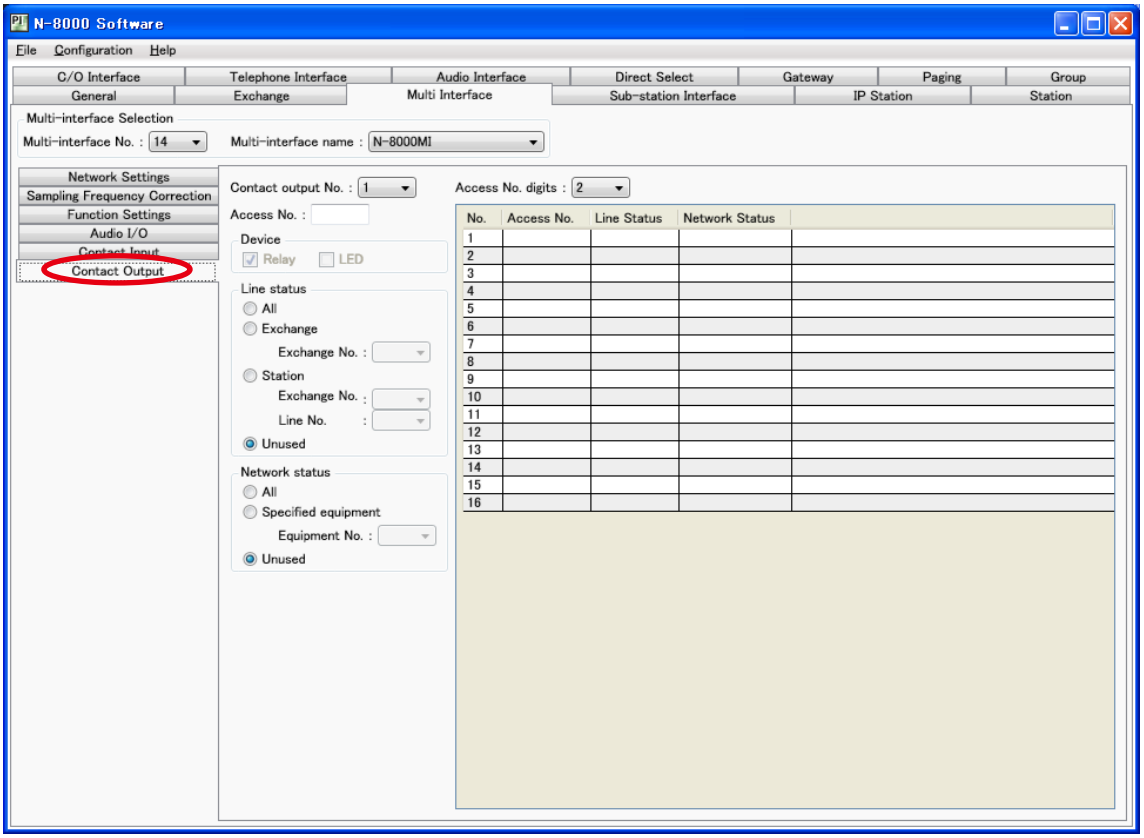
• The table below shows assignable keys or operations vs. dial codes to be registered.
• A set of up to 32 dial codes can be registered.

Assignable key or operation	Dial code
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	0
✻/▼	*
#/▲	#
C	C

Assignable key or operation	Dial code
Press PTT key (PTT key is on.)	PN
Release PTT key (PTT key is off.)	PF
Paging call	PC
Paging response	PR
HOLD	HD
TRANSFER	TR
FUNCTION	FN
REDIAL	RD
MENU	MN
SELECT	SL
Left arrow key (◀)	LC
Right arrow key (▶)	RC
Up arrow key (▲)	UC
Down arrow key (▼)	DC

5.5.6. Contact output setting

Step 1. Click "Contact Output" tab. The setting screen is displayed.



Step 2. Set each item of "Contact output."
Set the access number for the contact output terminal to be activated when the station performs external equipment control (one-shot make output or make/break output).

(1) Contact output No. (Can't be edited.)
The Multi interface unit's contact output terminal number.

(2) Access No. digits
Select the number of digits to be used when controlling external equipment at the station.

(3) Access No.
Set the access number of the digit set in "Access No. digit", which is used to control external equipment at the station.
Notes
• The access number cannot be set to "0."
• If the number of digits of the access number is 4, the usable numbers range from "0001" to "6144."

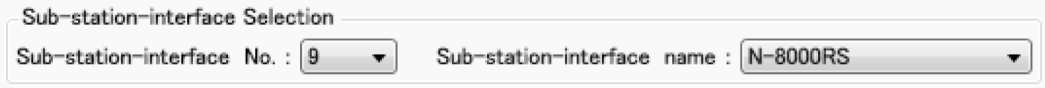
(4) Line status
Select the line to be diagnosed.
The specified contact output terminal is closed when such status is judged abnormal that the CPU failure is detected on the line or the line is not connected though the station number has been registered.

(5) Network status
Select the equipment to be diagnosed.
The specified contact output terminal is closed when the equipment is judged failed if no response is detected from it.

5.6. Setting Sub-station Interface

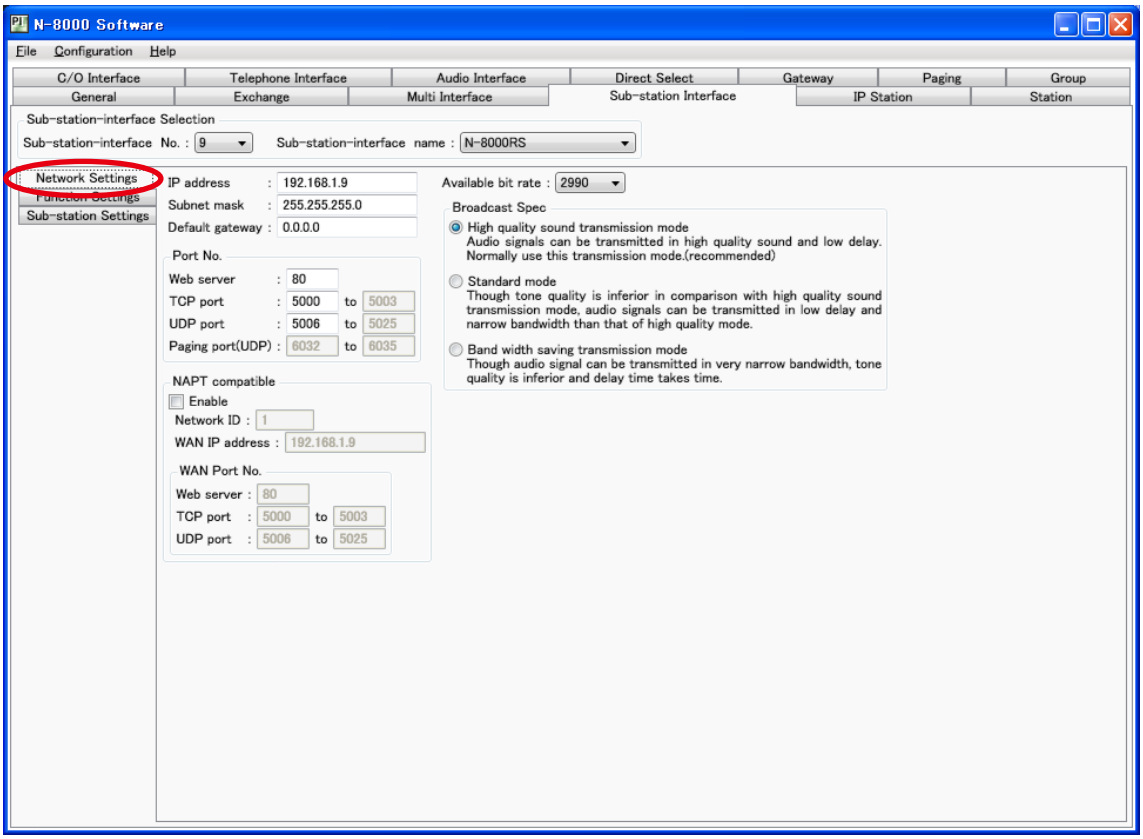
Click "Sub-station Interface" tab to select the Sub-station Interface to be set.

Choose the name or number of the Sub-station Interface unit from the list.



5.6.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the Sub-station Interface unit's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0	5006
Frequency compensation	UDP	Port start number + 1 to 3	5007 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

Note
Because UDP port number 15000 is used internally by the system, the numbers from 14981 to 15000 are not available.

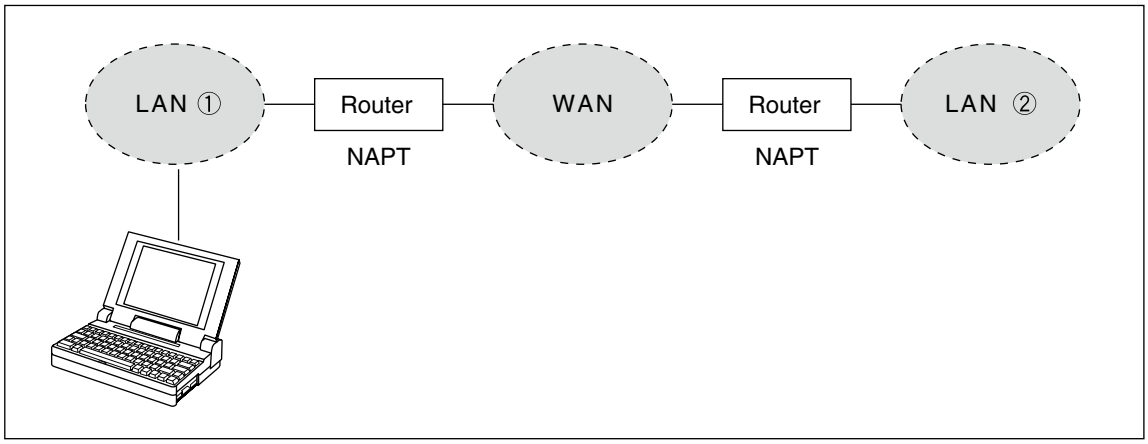
[Paging port (UDP)]
Displays the UDP port number to be used when making paging using the multicast communications.
To perform settings, refer to p. 5-121, Paging Zone Settings.

(5) NAPT compatible

When connecting a PC to the Sub-station interface unit using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the Sub-station interface unit using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the Sub-station interface unit's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0	5006
Frequency compensation	UDP	Port start number + 1 to 3	5007 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

(9) Available bit rate

Set the capacity (or a usable upper limit value) of the network line to which the Sub-station interface unit is connected. Setting this communication capacity prevents sound quality deterioration and longer time delays caused by excess conversation and/or paging communications traffic.

(10) Broadcast Spec

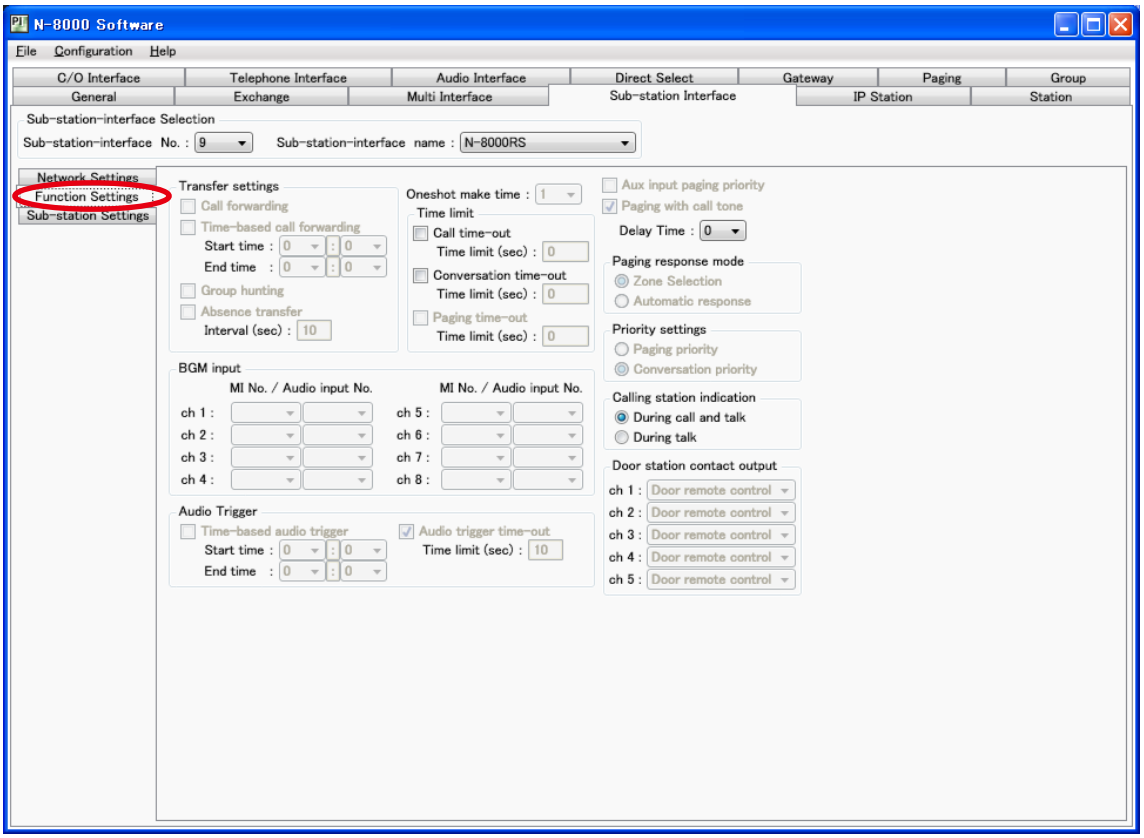
Select the voice transmission mode that is appropriate for the usable frequency band.

- High quality sound transmission mode
  Transmits voices at high sound quality with short time delay. Use this mode as the normal default mode. Also use this mode when BGM sound sources are connected.
- Standard mode
  Transmits voice audio with a short time delay. In this mode, the sound quality is reduced, but the delay time is identical to that in high quality mode, allowing a narrower frequency band to be used. Use this mode when Sub-station interface units are connected via an ISDN line (128 kbps).
- Band width saving transmission mode
  Voice transmission uses a very narrow frequency band, but with lesser quality sound and longer time delay. Use this mode when Sub-station interface units are connected via an Analog line (56 kbps).

	Sampling frequency	Delay time	Frequency band to be used
High quality sound transmission mode	16 kHz	0.08 second	130 kbps
Standard mode	8 kHz	0.08 second	98 kbps
Band width saving transmission mode	8 kHz	0.32 second	49.5 kbps

5.6.2. Function settings

Step 1. Click "Function Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) Transfer settings (N-8400RS only)

Set the transfer function ON or OFF for the station connected to the exchange.

Call forwarding: Calls to stations are automatically transferred to another designated station without sounding a call tone only when Call forwarding function is enabled.

Time-based call forwarding: Calls to stations are automatically transferred to another designated station without sounding a call tone only when the preset time is reached.
This function can be set only when the call forwarding function is enabled.
Preset time can be set only when the time-based call forwarding function is enabled.

Group hunting: Calls to a busy station are automatically transferred to another designated station, if group hunting function is set to the called station.

Absence transfer: When no response is made to a call to the station for a set period of time, the call is automatically transferred to another designated station. Preset time duration can be set only when the absence transfer mode is enabled.

(2) Time limit

Set the time-out value for calling, conversation or paging functions in ten-second units between 10 and 990 seconds.

Call time-out: Set whether to limit the duration of a call to the station. If setting a timeout, enter the time limit after which calls to the station are automatically terminated. If not setting a timeout, calls will continue until they are cancelled or the called station responds.

Conversation time-out: Set whether to limit the duration of conversations with the station. If setting a timeout, enter the time limit after which conversations to the station are automatically terminated. If not setting a timeout, conversations will continue until executing the termination operation.

Paging time-out: (N-8400RS only)
Set whether to limit the duration of paging call with the station. If setting a time-out, enter the time limit after which paging calls to the station are automatically terminated.
If not setting a time-out, paging calls will continue until executing the termination operation.

(3) Paging with call tone (N-8400RS only)
Sounds a pre-announcement tone when paging is initiated.

(4) Delay Time
Set the delay time before paging is initiated.

(5) Paging response mode (N-8400RS only)
Select either “Zone Selection” or “Automatic response” modes when responding to the paging.

Zone Selection: Responds to a paging call by designating the number of the paging zone. Respond to the paging party who made the paging to the designated zone last is called. Use this mode if paging announcements are heard from multiple zones.

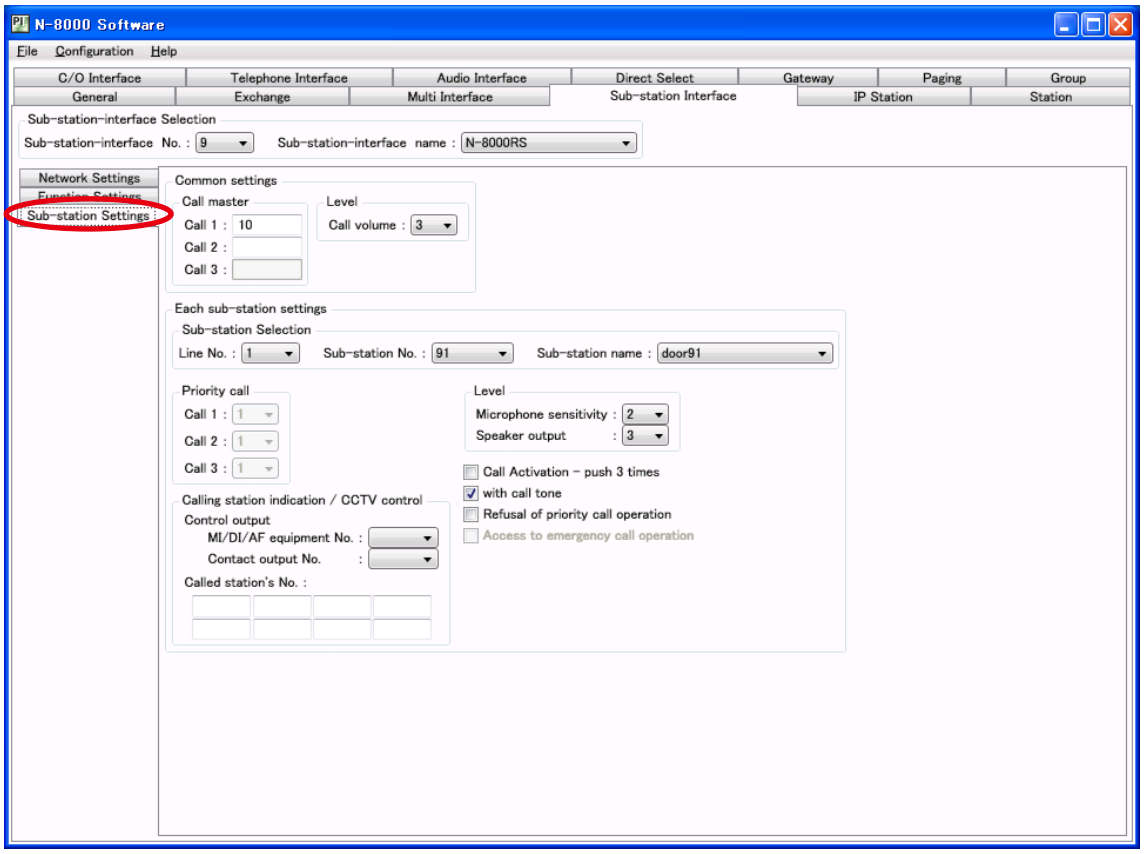
Automatic response: Use only the paging response key to make a response. The responding station is connected to the station that made a paging call over the paging zone through which the responding station last received a call.

(6) Calling station indication
Select either “During call and talk” or “During talk” mode when performing the calling station indication function.
The table below shows the timing that the Multi interface unit’s, Direct select unit’s, or Audio interface unit’s contact output is closed.

Calling station indication / Station operation	During call and talk	During talk
Calling	Closed	Open
Being called	Open	Open
Call waiting	Closed	Open
Talking	Closed	Closed
Being paged	Open	Open
Receiving scan monitor	Closed	Closed

5.6.3. Sub-station Settings

Step 1. Click "Sub-station Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) Common settings

Set common functions of all substations to be connected to the substation interface unit.

Call master: Enter the master station number to be called when each station's "Call 1," "Call 2," or "Call 3" button is pressed.

Call volume (N-8000RS/8010RS only): Substation call volume can be adjusted in five increments from 1 (minimum) to 5 (maximum).
The default setting is Level 3.

(2) Each sub-station settings

Set functions of individual substations to be connected to the substation interface unit.

Sub-station Selection: Choose the line number, substation number or substation name of the substation from the list.
Choose the Line No. and Sub-station No. or Sub-station name from the list.

Priority call (Selective response mode only): Set the priority level from 1 to 5 to be assigned to each station's "Call 1," "Call 2," or "Call 3" button. Priority level 1 is the lowest, and Priority level 5 is the same as the priority for the Emergency call button. The default level is 5 only for the RS-144's Emergency call button and 1 for all other buttons.

Notes

- The stations' call buttons corresponding to "Call 1," "Call 2," or "Call 3" serve as function buttons as listed below.
- "Call 2" can be set only when the RS-142, RS-144, or RS-442 is connected.
- "Call 3" can be set only when the RS-442 is connected.

	RS-150/160/170/180 /450/460/470/480	RS-140	RS-142	RS-143	RS-144	RS-442
Call 1	Call button	Call button (CALL)	Call button 1	Call button (CALL)	Emergency call button (EMERGENCY)	Call button 1
Call 2	——	——	Call button 2	——	Call button 2 (NORMAL)	Call button 2
Call 3	——	——	——	——	——	Call button 3

Calling station indication/CCTV control

Control output: Set the Multi interface unit's, Direct select unit's, or Audio interface unit's unit number and contact output terminal number, which provide a make signal when the station is called.

Called party's station No.: Provides a make contact when the station to be set here is called. Up to 8 stations can be set.

Level (N-8000RS/8010RS only)

Microphone sensitivity: Substation hands-free microphone sensitivity can be adjusted in three increments from 1 (minimum) to 3 (maximum).
The default sensitivity is Level 2.

Speaker output: Substation's speaker output level can be adjusted in five increments from 1 (minimum) to 5 (maximum).
The default sensitivity is Level 3.

Call Activation - push 3 times (Sequential response mode, RS-150/160/170/450/460/470/480/442 only): Sets whether or not to make a call by the operation of pressing the Call button 3 times within 3 seconds.

With call tone: Call with a call tone or without a call tone can be set.

Refusal of priority call operation: (Sequential response mode only) Enables the substation to refuse priority calls from others stations.

Access to emergency call operation: (Selective response mode only) Sets whether or not to allow the substation to make an emergency call.

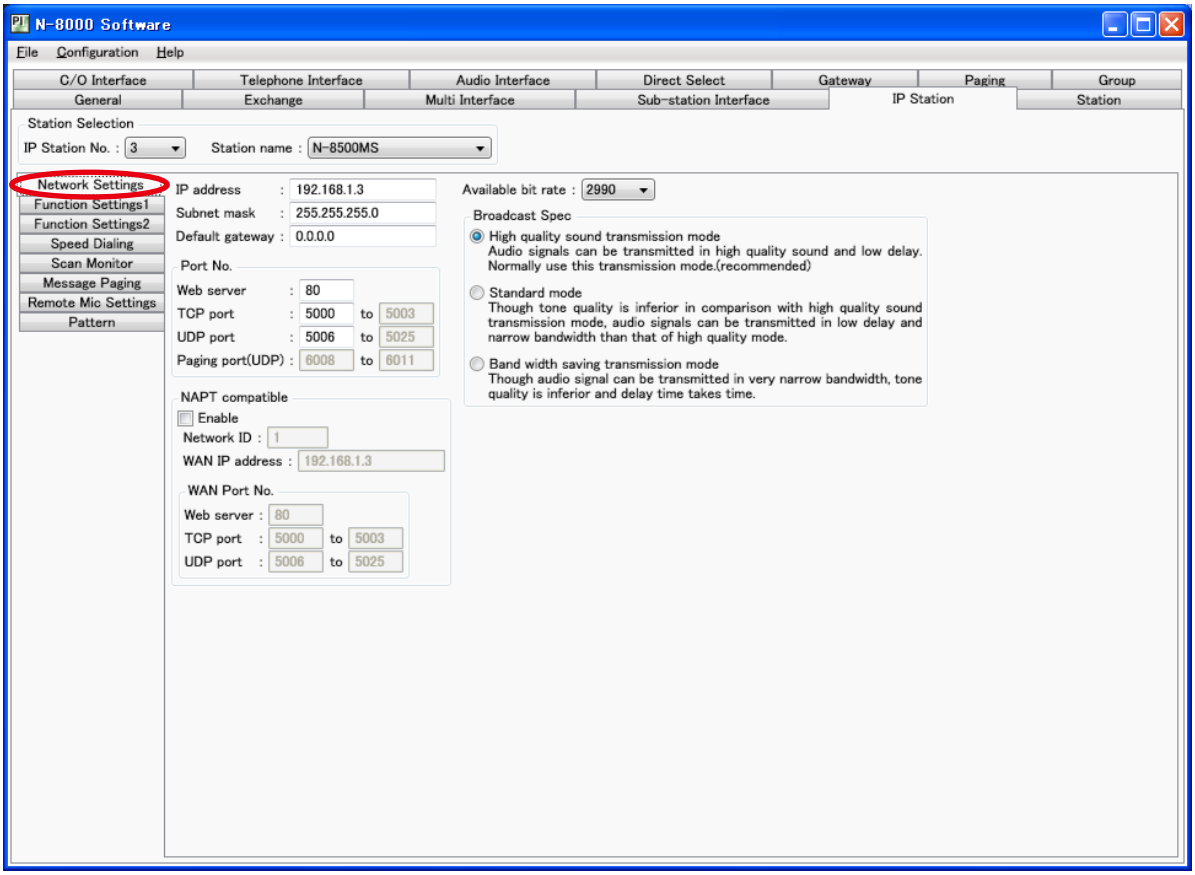
5.7. Setting IP Stations

Click "IP Station" tab to select the IP station to be set.

Choose the name or number of the IP station from the list.

5.7.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the IP station's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

Note
Because UDP port number 15000 is used internally by the system, the numbers from 14981 to 15000 are not available.

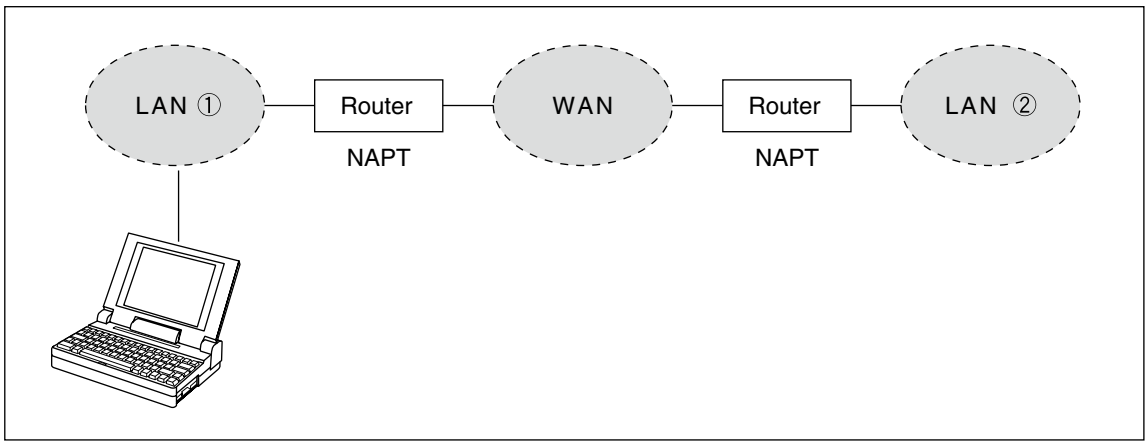
[Paging port (UDP)]
Displays the UDP port number to be used when making paging using the multicast communications.
To perform settings, refer to p. 5-121, Paging Zone Settings.

(5) NAPT compatible

When connecting a PC to the IP station using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the IP station using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the IP station's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used. (valid range from 1 to 65516) The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

(9) Available bit rate

Set the capacity (or a usable upper limit value) of the network line to which the IP station is connected. Setting this communication capacity prevents sound quality deterioration and longer time delays caused by excess conversation and/or paging communications traffic.

(10) Broadcast Spec

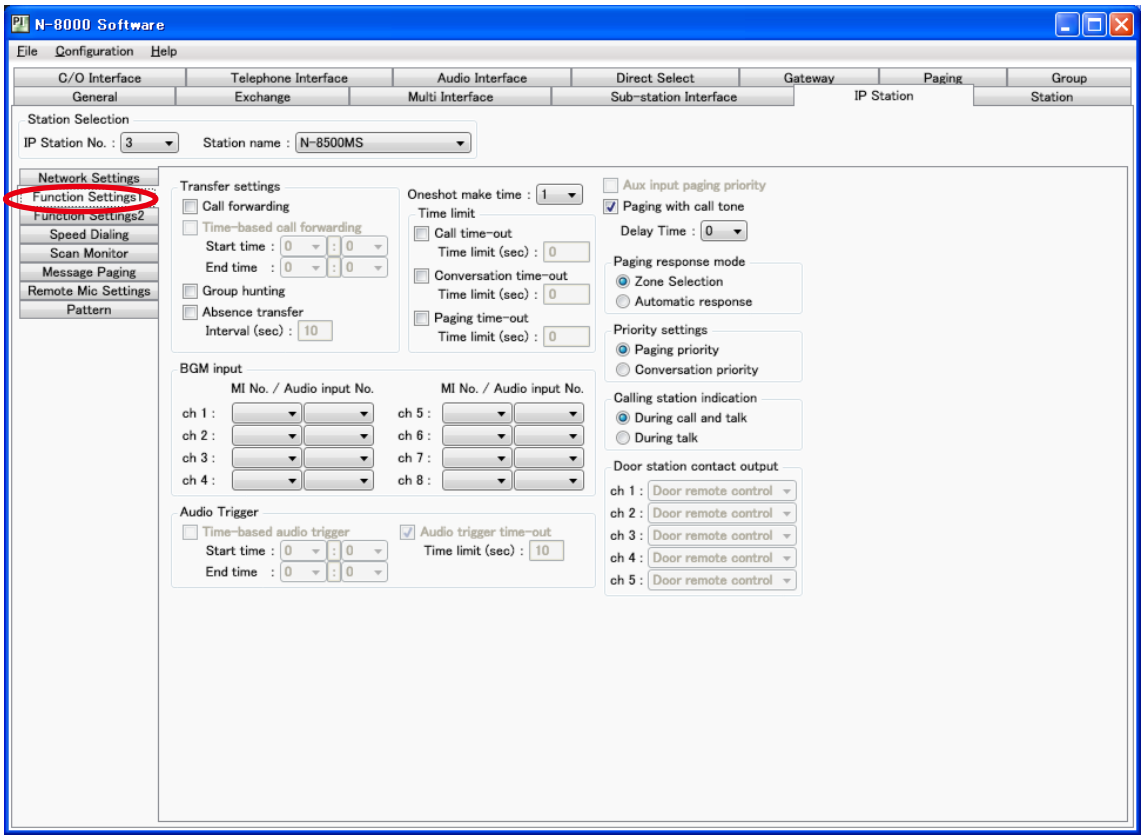
Select the voice transmission mode that is appropriate for the usable frequency band.

- High quality sound transmission mode
  Transmits voices at high sound quality with short time delay. Use this mode as the normal default mode.
- Standard mode
  Transmits voice audio with a short time delay. In this mode, the sound quality is reduced, but the delay time is identical to that in high quality mode, allowing a narrower frequency band to be used. Use this mode when IP stations are connected via an ISDN line (128 kbps).
- Band width saving transmission mode
  Voice transmission uses a very narrow frequency band, but with lesser quality sound and longer time delay. Use this mode when IP stations are connected via an Analog line (56 kbps).

	Sampling frequency	Delay time	Frequency band to be used
High quality sound transmission mode	16 kHz	0.08 second	130 kbps
Standard mode	8 kHz	0.08 second	98 kbps
Band width saving transmission mode	8 kHz	0.32 second	49.5 kbps

5.7.2. Function settings

Step 1. Click "Function Settings 1" tab to display the following setting screen.



Available item differs depending on the type of IP stations.

Step 2. Set individual items.

(1) Transfer settings (IP Master station and IP Remote microphone station only)
Set the transfer function ON or OFF.

Call forwarding:	Calls to stations are automatically transferred to another designated station without sounding a call tone only when Call forwarding function is enabled.
Time-based call forwarding:	Calls to stations are automatically transferred to another designated station without sounding a call tone only when the preset time is reached. Preset time can be set only when the time-based call forwarding function is enabled.
Group hunting:	Calls to a busy station are automatically transferred to another designated station, if group hunting function is set to the called station.
Absence transfer:	When no response is made to a call to the station for a set period of time, the call is automatically transferred to another designated station. Preset time duration can be set only when the absence transfer mode is enabled.

(2) Oneshot make time (second)
Sets the duration that the external control output terminals are shorted momentarily.
The setting range is from 1 to 9 (in 1-second units).

(3) Time limit

Set the time-out value for calling, conversation or paging functions in ten-second units between 10 and 990 seconds.

Call time-out: Set whether to limit the duration of a call to the station. If setting a time-out, enter the time limit after which calls to the station are automatically terminated. If not setting a time-out, calls will continue until they are cancelled or the called station responds.

Conversation time-out: Set whether to limit the duration of conversations with the station. If setting a time-out, enter the time limit after which conversations to the station are automatically terminated. If not setting a time-out, conversations will continue until executing the termination operation.

Paging time-out (IP Master station and IP Remote microphone station only):
Set whether to limit the duration of paging call with the station. If setting a time-out, enter the time limit after which paging calls to the station are automatically terminated.
If not setting a time-out, paging calls will continue until executing the termination operation.

(4) BGM input

Set BGM to be heard at this IP station.
Select the unit's number and audio input number of the Multi interface unit to which the BGM sound sources are connected.

(5) Paging with call tone (IP Master station and IP Remote microphone station only)

Sounds a pre-announcement tone when paging is initiated.

(6) Delay Time

Set the delay time before paging is initiated.

(7) Paging response mode (IP Master station and IP Remote microphone station only)

Select either "Zone Selection" or "Automatic response" modes when responding to the paging.

Zone Selection: Responds to a paging call by designating the number of the paging zone. Respond to the paging party who made the paging to the designated zone last is called. Use this mode if paging announcements are heard from multiple zones.

Automatic response: Use only the paging response key to make a response. The responding station is connected to the station that made a paging call over the paging zone through which the responding station last received a call.

(8) Priority settings (Sequential response mode only)

Sets whether paging calls or conversations should take precedence when these occur simultaneously.

Paging priority: When a call is received while receiving a paging call, the called station becomes busy and the paging call is gone through. Station keys cannot be used while receiving a paging call. (Paging response cannot be performed at a paging receiving station, either.)

Conversation priority: A paging call is not received when paged during a conversation or dialing operation. Station keys can be dialed even while receiving a paging call.

(9) Calling station indication

Select either "During call and talk" or "During talk" mode when performing the calling station indication function.

The table below shows the timing that the Multi interface unit's, Direct select unit's, or Audio interface unit's contact output is closed.

Calling station indication / IP station operation	During call and talk	During talk
Calling	Closed	Open
Being called	Open	Open
Call waiting	Closed	Open
Talking	Closed	Closed
Being paged	Open	Open
Receiving scan monitor	Closed	Closed

(10) Door station contact output (IP door station only)

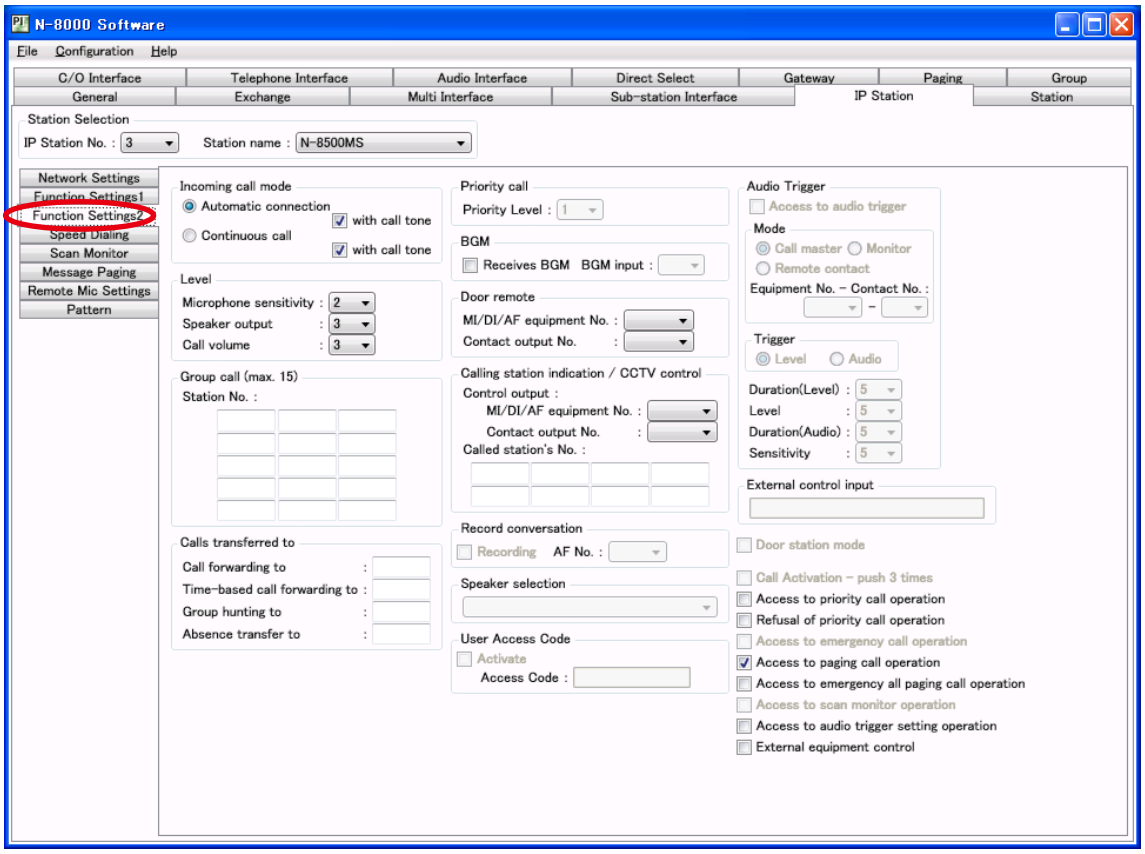
Set the contact output operation mode of the IP door station connected to this exchange.

Select one from "Door remote control," "During call," "During talk," "During call and talk," and "Status indicator sync."

The table below shows the timing that the IP door station's contact output is closed.

Door station contact output / IP door station operation	Door remote control	During call	During talk	During call and talk	Status indicator sync (N-8640DS/8650DS only)
Calling	Open	Closed	Open	Closed	Sequential Response mode: Closed (lit) Selective Response mode: Closed/open repeated (flashing)
Being called	Open	Open	Closed	Open	Closed/open repeated (flashing)
Call waiting	Open	Closed	Open	Closed	Closed (lit)
Talking	Open	Open	Closed	Closed	Closed (lit)
Being paged	Open	Open	Open	Open	Closed (lit)
Receiving scan monitor	Open	Open	Closed	Closed	Subject to the monitor alert operation set at the scan-monitoring station
Door remote	Closed	——	——	——	——

Step 3. Click "Function Settings 2" tab to display the following setting screen.



Available item differs depending on the type of IP stations.

Step 4. Set individual items.

(1) Incoming call mode

Call receiving mode (p. 2-10) can be selected either "Automatic connection" or "Continuous call". Call with a call tone or without a call tone can be set on both modes.
The IP door station is fixed to "Automatic connection" mode.

(2) Level

Microphone sensitivity: Station hands-free microphone sensitivity can be adjusted in three increments from 1 (minimum) to 3 (maximum). The default sensitivity is Level 2.

Speaker output: Station speaker output level can be adjusted in five increments from 1 (minimum) to 5 (maximum). The default sensitivity is Level 3.

Call volume: Station call volume can be adjusted in five increments from 1 (minimum) to 5 (maximum). The default sensitivity is Level 3.

(3) Group call (max. 15) (IP Master station and IP Remote microphone station only)

Set a group of up to 15 stations that will be called simultaneously when the IP station being set now is called. With this setting, even when a called station is busy, any registered station in the group can respond.

(4) Calls transferred to (IP Master station and IP Remote microphone station only)

Set the station number to which each transfer is to be directed.
When the C/O interface unit is set as a transfer destination station, enter "#", followed by the access number. For example, when setting the C/O interface unit with access number "05," enter "#05".
Call forwarding receiving station can be set only when the call forwarding function is enabled. (Refer to p. 5-62.)

Note

The station to be called via Multi interface unit cannot be programmed as a transfer destination station.

(5) Priority call (Selective response mode, IP door station only)

Call priorities can be adjusted in five increments from 1 (minimum) to 5 (maximum).
Level 5 is the same priority as an emergency call.
The default sensitivity is Level 1.

(6) BGM

Set whether the IP station receives BGM broadcasts. If receiving, place a checkmark and select the BGM channel number (1 – 8; Channel No.).

(7) Door remote

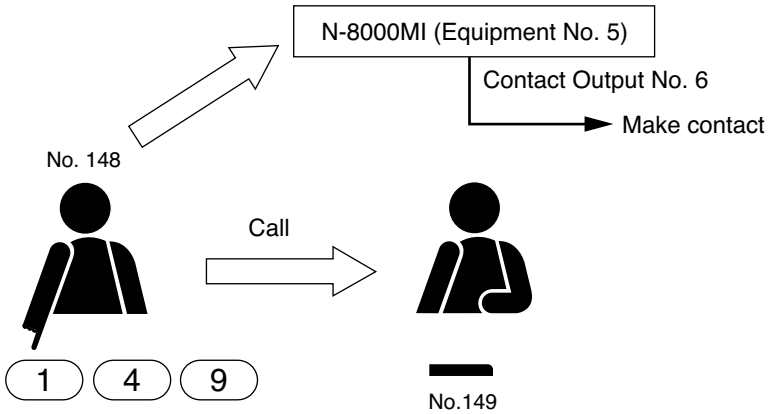
Set the Multi interface unit's, Direct select unit's, or Audio interface unit's unit number and contact output terminal number to be used for door remote control.

(8) Calling station indication/CCTV control

Control output : Set the Multi interface unit's, Direct select unit's, or Audio interface unit's unit number and contact output terminal number, which provide a make contact when the station is called.

Called station's No.: Provides a make contact when the station to be set here is called. Up to 8 stations can be set.
When the C/O interface unit is set as a called station, enter "#", followed by the access number. For example, when setting the C/O interface unit with access number "05," enter "#05".

(Example)
The operation example illustrated below is based on the following settings:
Station No. (for IP station): 148
Control Output
MI Equipment No.: 5
Contact output No.: 6
Called station's No.: 149



The Multi interface unit's (equipment No. 5) Contact No. 6 closes when the station No. 148 calls the station No. 149.

(9) Record conversation

Records IP station conversations.

The conversation of the station is provided from the audio output of the designated N-8000AF audio interface unit.

(10) Speaker selection (N-8640DS/8650DS only)

Select the internal or external speaker to output paging calls or conversations.
Select one from "Always use internal speaker," "External speaker only in paging call," and "Always use external speaker."

(11) User Access Code (N-8600MS only)

Set whether or not to enable the Access code authentication.
Enter the access code number (4-digit number).

(12) Audio Trigger (N-8640DS/8650DS only)
Performs the audio trigger settings for the station.
Access to audio trigger: Set whether or not to use the audio trigger function.

(13) Mode (N-8640DS/8650DS only)
Selects operation when audio is detected.

Call master:	Calls the master station.
Monitor:	The station's audio is output from the master station's handsfree speaker.
Remote contact:	Provides a one-shot pulse to close the contact output of the designated device.

(14) Trigger (N-8640DS/8650DS only)
Selects the trigger.

Level:	Detects sounds of a sound pressure level higher than the set level that last for a specified period of time.
Audio:	Detects human voices.
Duration (Level):	Set the time interval till sounds are detected.
Level:	Set the threshold sound pressure level.
Duration (Audio):	Set the duration of the human voice's vowels to detect.
Sensitivity:	Sets the detection sensitivity of the human voice. Setting range: 1 – 9 (9 steps, 1: Most likely to detect, 9: Least likely to detect)

(15) External control input (N-8640DS/8650DS only)
Enter the station number to call when the IP door station's contact input is closed.

(16) Door station mode (Sequential response mode, IP door station only)
Set whether to operate the IP door station in door station mode*.
* The call tone sounds only once at the IP door station when the IP door station calls the pre-programmed master station. The call timeout and conversation timeout are set to 30 seconds each.

(17) Call Activation - push 3 times (Sequential response mode, N-8640DS/8650DS only):
Sets whether or not to make a call by the operation of pressing the Call button 3 times within 3 seconds.

(18) Access to priority call operation (Sequential response mode, IP Master station and IP Remote microphone station only)
Enables the IP station to initiate priority calls.
This function can only be used when the system has been set for sequential response mode.

(19) Refusal of priority call operation (Sequential response mode only)
Enables the IP station to refuse priority calls from others stations.

(20) Access to emergency call operation (Selective response mode, IP door station only)
Sets whether or not to allow the IP station to make an emergency call.
This function is only possible for the IP door station when the system has been set for selective response mode.

(21) Access to paging call operation (IP Master station and IP Remote microphone station only)
Enables or disables paging calls from the IP station.

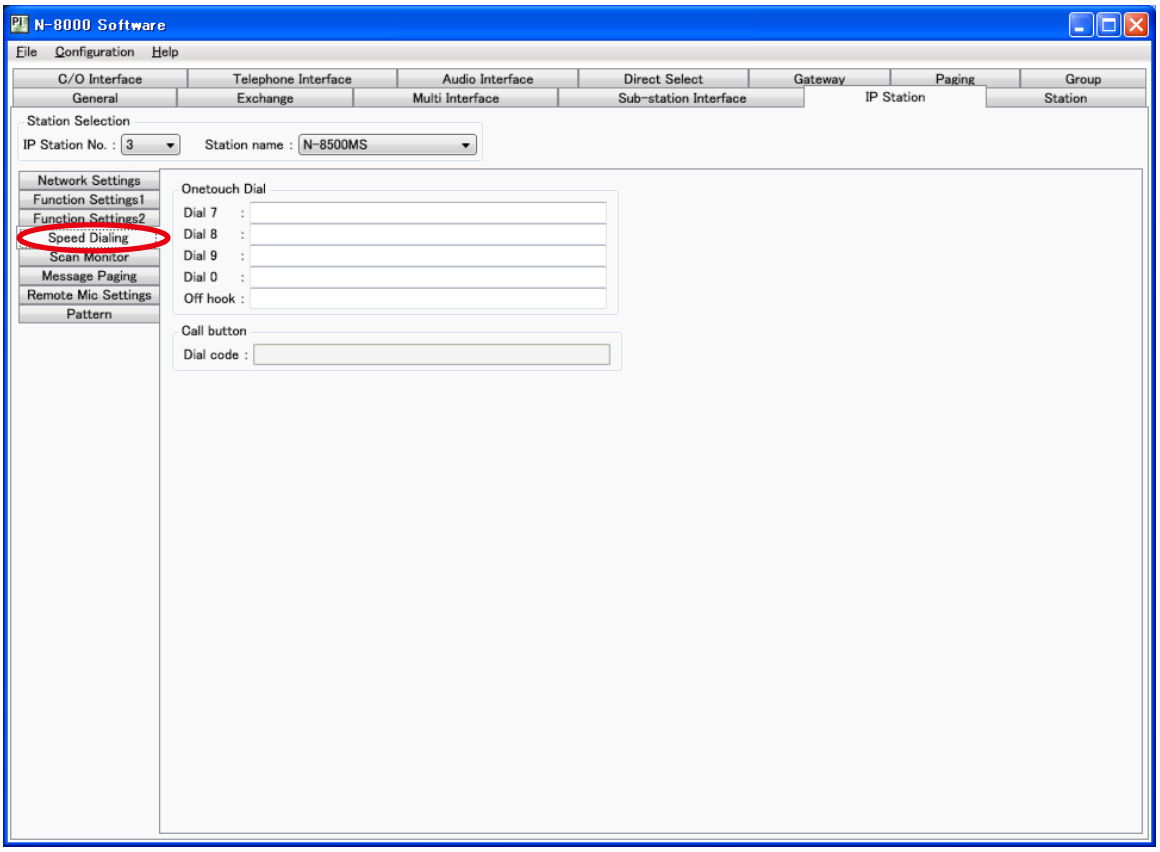
(22) Access to emergency all paging call operation (IP Master station and IP Remote microphone station only)
Enables or disables emergency all paging calls from the IP station.

(23) Access to audio trigger setting operation (IP Master station and IP Remote microphone station only)
Enables or disables audio trigger setting from the IP station.

(24) External equipment control (IP Master station and IP Remote microphone station only)
Set whether the one-shot make contact output or make/break contact output is operated at the IP station.

5.7.3. Speed dialing settings

Step 1. Click "Speed Dialing" tab to display the following setting screen.



Available item differs depending on the type of stations.

Step 2. Enter the station numbers to be called for each of the one-touch dial keys ([7], [8], [9] and [0] keys) and the Off-Hook function*. (IP Master station and IP Remote microphone station only)
* This function cannot be assigned to the IP Remote microphone station.

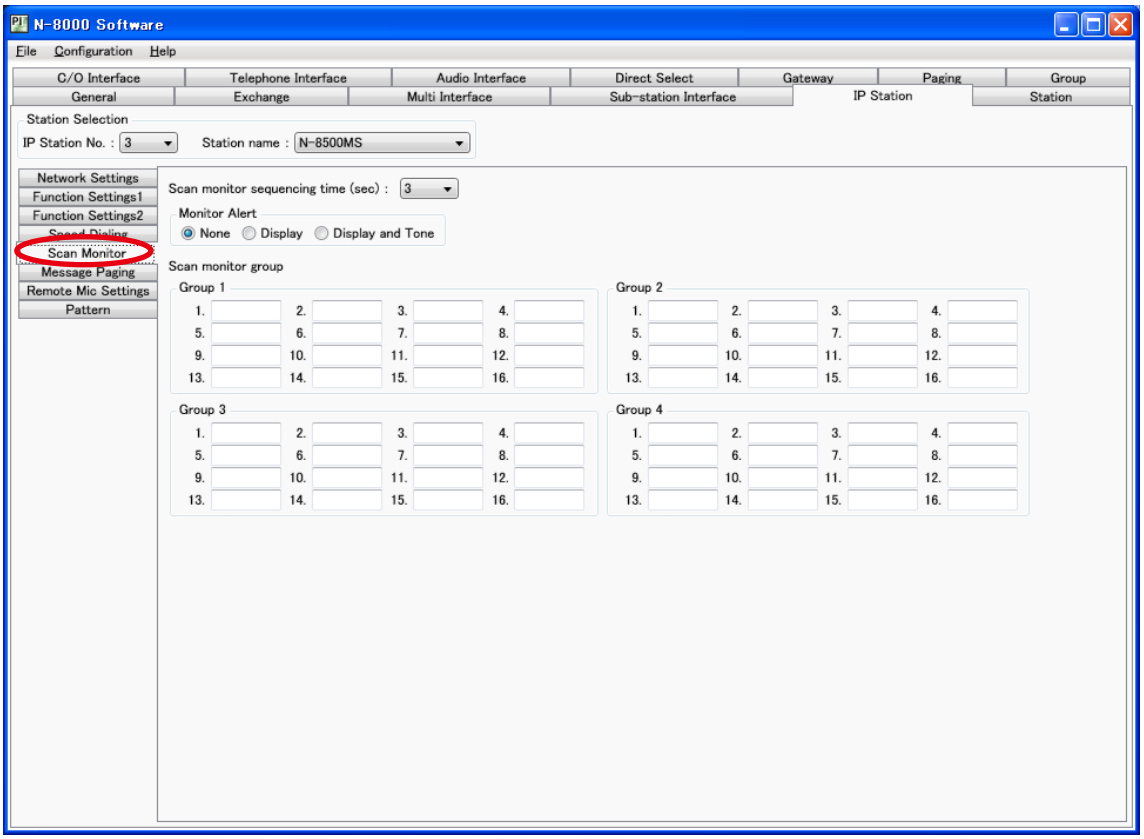
Tips
- Enter one-touch dialing programming using the Dial keys (12), Paging key, Paging response key, Function key, Hold key, and/or Transfer key.
- Up to 32 digits dialing operation can be preset.
- To set keys other than the numerical keys listed above for speed dialing, enter these as follows:

[#/▲] key	: #
[∗/▼] key	: *
Paging key	: P
Paging response key	: R
Function key	: F
Hold key	: H
Transfer key	: T

Step 3. Enter the master station number to be called when the door station's call button is pressed. (IP door station only)

5.7.4. Scan Monitor settings (IP Master station and IP Remote microphone station only)

Step 1. Click "Scan monitor" tab to display the following setting screen.



Step 2. Set the scan monitor sequencing time in 1-second units from 1 to 10 seconds.

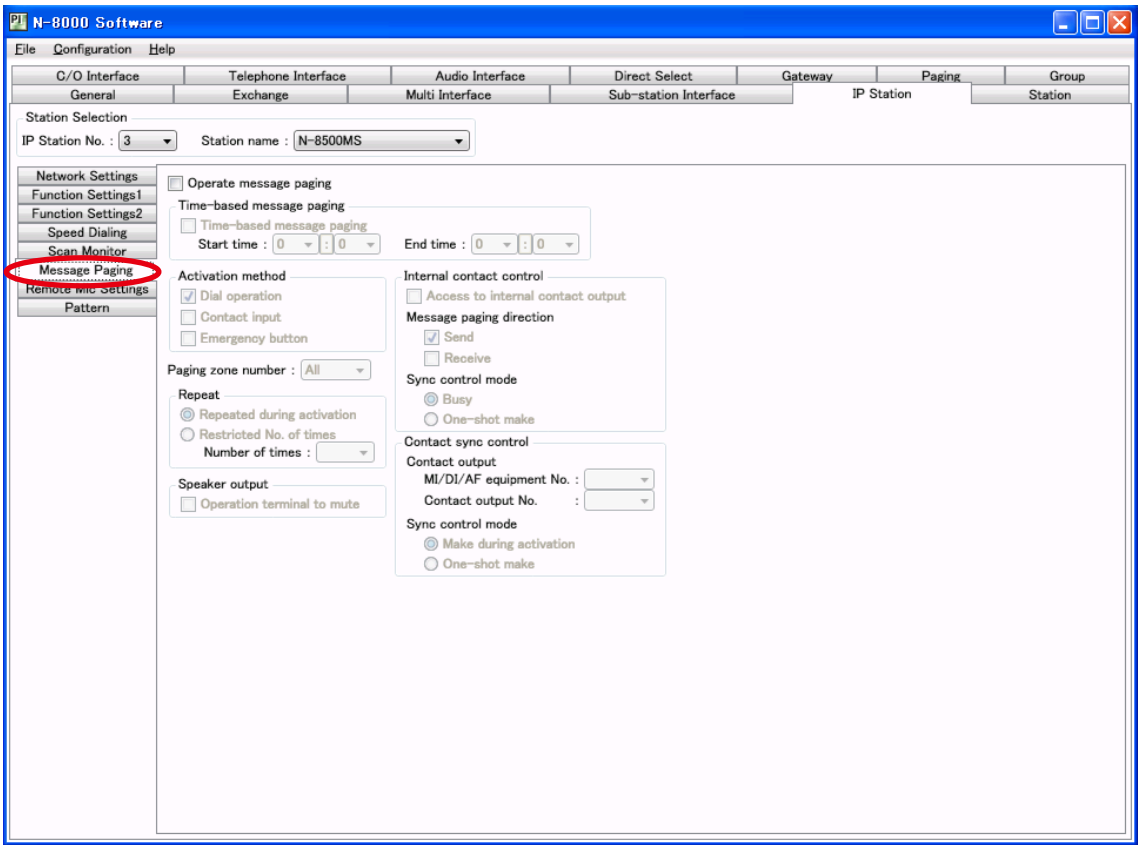
Step 3. Set the operation of monitor alert.

None:	The display remains the same as in standby mode even during monitoring.
Display:	The status indicator continuously lights during monitoring.
Display and Tone:	A start tone sounds when monitoring begins, and the status indicator remains lit during monitoring.

Step 4. Set the group of stations to be monitored.
Input the number of station to be monitored in the order of monitoring.

5.7.5. Message Paging settings (IP Master station and IP Remote microphone station only)

Step 1. Click "Message Paging" tab to display the following setting screen.



Step 2. Mark the [Operate message paging] checkbox. This allows the following items to be set.

Step 3. Set the [Time-based message paging].
Time-based message paging: Restricts the duration available for the message paging. The message paging operation can be performed only for the duration between Start and End time.

Step 4. Set the [Activation method].

Dial operation: Activates the message paging by means of dial operation.
Contact input: Activates the message paging by means of external contact input.
Note: The N-8500MS/8600MS/8610RM IP Master Station cannot activate broadcasts using the external contact input.

Step 5. Set the broadcast destination.
Set the [Paging zone number] of the broadcast destination.

Step 6. Perform settings for [Repeat].

Repeated during activation: The message is endlessly repeated and broadcast until operation is terminated.
Restricted No. of times: The message is repeated for the designated number of times from 1 to 10.

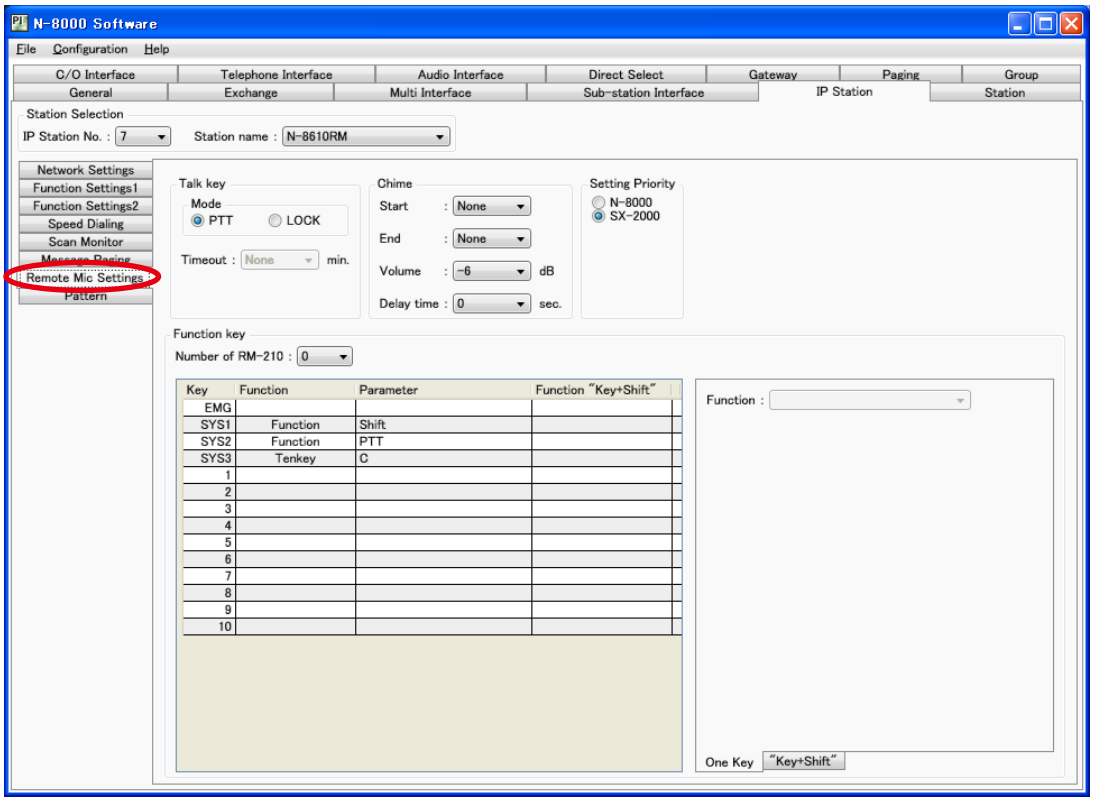
Step 7. Set the mute function of the station to operate. (N-8510MS only)
Set whether or not to mute sound to be output from the built-in speaker of the master station that activates Message pagings.

Step 8. Perform settings for [Contact sync control].
Set the Multi Interface unit's, Direct Select unit's, or Audio Interface unit's unit number and the contact output number that is closed in synchronization with the start of the message paging.

Make during activation: The contact is closed when the message paging is started, and opens when the broadcast ends.
One-shot make: The contact is closed when the message paging is started, and automatically opens after the time set in One-Shot Make duration settings elapses.

5.7.6. Remote microphone setting (N-8600MS and IP Remote microphone station only)

Step 1. Click "Remote Mic Settings" tab.
The setting screen below is displayed.



Step 2. Perform Talk key setting.

2-1. Set the Talk key operation mode to either “PTT” or “LOCK.” (N-8610RM only)

PTT: Microphone announcement can be made while the Talk key is held down.
LOCK: Pressing the Talk key once initiates microphone announcement and pressing the key again terminates the microphone announcement.

2-2. Set the Time-out. (only when the Talk key operation mode is set to “LOCK”) (N-8600MS and N-8610RM)
In case that you forget turning off the microphone switch, select the time to automatically terminate announcement from the remote microphone.
The time can be selected from 0 to 20 minutes (in 1-minute steps).

Step 3. Perform the chime setting when making zone broadcasts.
(N-8600MS and N-8610RM)

3-1. Select the chime tones at the start and end of the microphone announcement.
Start chime :Select the chime tone at the start of announcement.
End chime :Select the chime tone at the end of announcement.
The chime tone can be selected from “None (no chime tone),” “1 (Ascending 4-note tone),” “2 (Descending 4-note tone),” “3 (2-note tone),” or “4 (gong).”

3-2. Set the chime volume.
Chime volume to be output at the station can be selected.
The setting range is from 0 to -20 dB (in 2 dB steps).

3-3. Set the delay time.
Set the interval after pressing the Talk key until the microphone announcement starts.
When “None” is selected for the Start chime setting, the delay time is time duration before the microphone announcement starts, and when one other than “None” is selected, it is the time duration before the chime sounds.
Set the delay time depending on the start-up time of the power amplifier or line selector relay.
The setting value: 0, 0.5, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0 (sec.)

Step 4. Perform priority setting.(N-8600MS and N-8610RM)
Select one of 2 settings in the table below when making simultaneous paging/zone broadcasts.

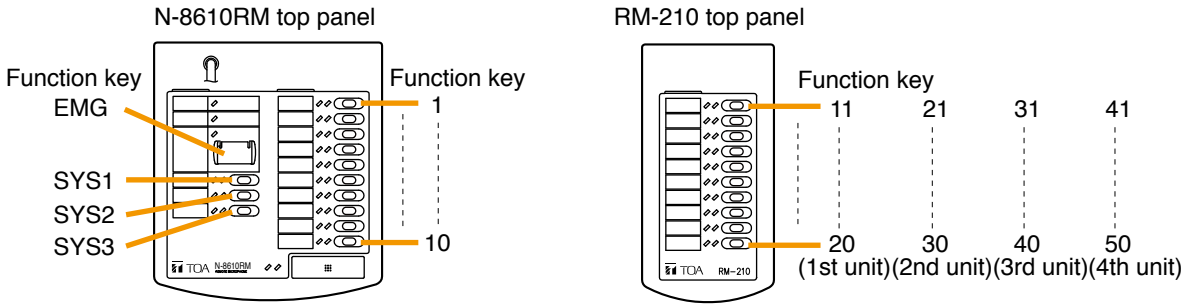
Options	Settings
N-8000	Paging with call tone, delay time, and time-out set in the Function setting (see p. 5-63)
SX-2000	Chime tone,delay time, and time-out set in the Remote microphone setting (see p. 5-72)

Step 5. Perform Function key setting. (Subsequent settings: N-8610RM)
Note: Two kinds of functions can be assigned to each Function key; one is the function that works when the function assigned Function key is pressed and the other is the function that works when both the Function key and Shift key are simultaneously pressed.

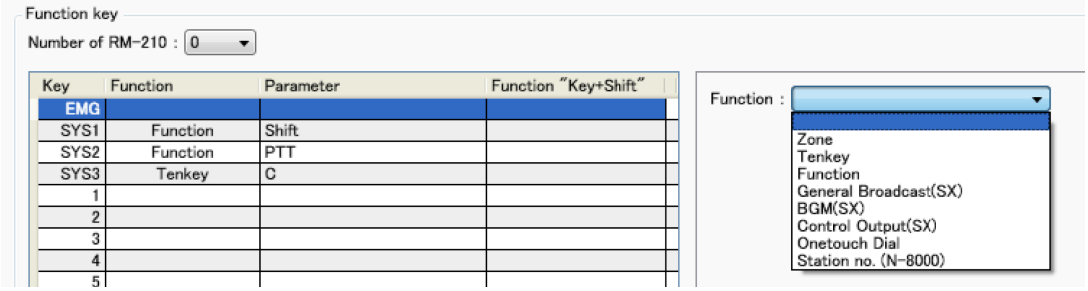
5-1. Set the number of the RM-210 Remote Microphone Extension units.
Select the number of the units.
The setting range is from 0 to 4.

5-2. Set the function to be assigned to the Function key.
Select the line of the key to be set, then select the desired function from the pull-down menu on the "Key+Shift" tab.

Function key's names are as follows.

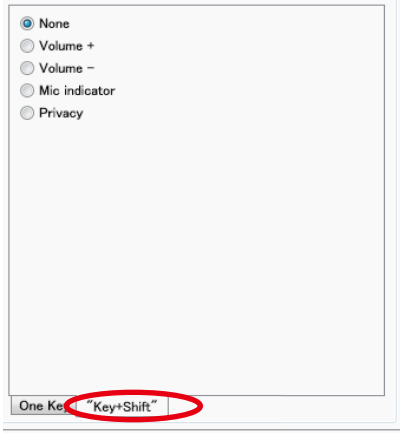


The following functions can be set.
"Zone(SX)," "Tenkey," "Function," "General Broadcast (SX)," "BGM (SX)," "Control Output (SX)," "Onetouch Dial," or "Station no. (N-8000)."
Click on the line of the Function key to be set, then select the function from the pull-down menu on the right side of the screen.



5-3. Set the details of the function to be assigned to the Function key.
Read the next page regarding the detailed settings for each function.

5-4. Assign another different function to the Function key as needed.
If the "Key+Shift" tab is selected, another function of "Volume +," "Volume –," "Mic indicator," or "Privacy (N-8000)" can be assigned to the Function key.
When the Function key is pressed while holding down the Shift key, the 2nd function assigned to it on the "Key + Shift" tab works.

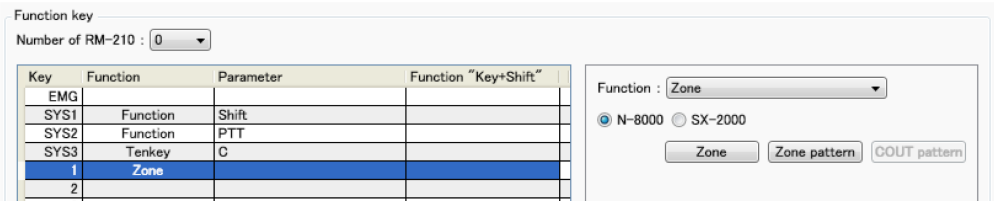


[Setting the details of the function]

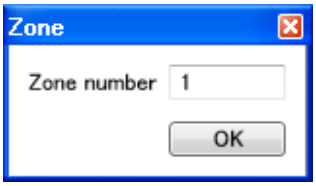
(1) Paging (N-8000)/Zone (SX)
Broadcast destinations can be selected either from zones of the SX-2000 system or those of the N-8000 system.
Multiple zones can be set.
If the SX-2000 system zone is set, a control output pattern can also be programmed. (p. 5-76)

Step 1. Select "N-8000" or "SX-2000."

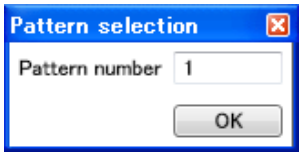
Step 2. Click the [Zone] or [Zone pattern] button to determine the broadcast destination.



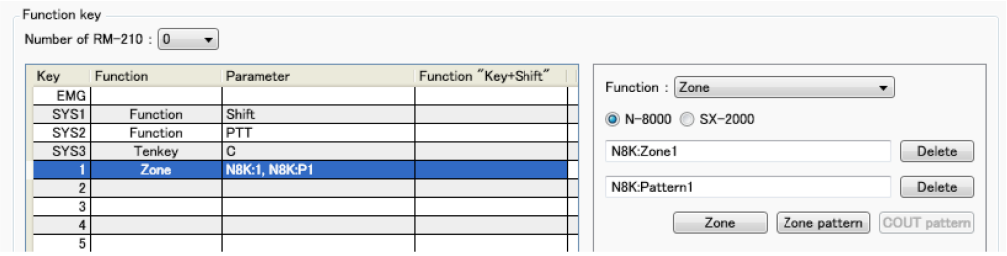
Zone button: Sets one zone.
Clicking on this button displays the Zone dialog, then enter the number.



Zone pattern button: Sets the paging zone pattern.
Clicking on this button displays the Pattern selection dialog, then enter the number.

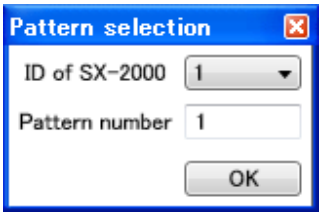


Step 3. Repeat the operation in Step 2 as needed to add the broadcast destination.
Clicking the [Zone] button followed by the [Zone pattern] button allows the zones or channels to be added.
But it is not possible to mix and set the N-8000 zones and SX-2000 zones.



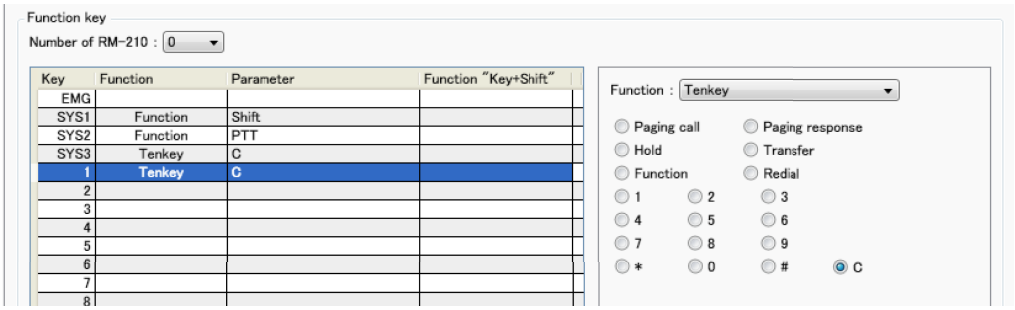
Step 4. (Only when "SX-2000" is selected in Step 1) To activate the control output pattern in synchronization with broadcast, program the control output pattern by clicking the [COUT pattern] button.
Select the ID of the SX-2000 system, then enter the pattern number.
The ID of the SX-2000 system is the system ID having been assigned to the SX-200IP IP module in the Gateway settings (p. 5-28).

Multiple control output patterns can be programmed by repeating operations.



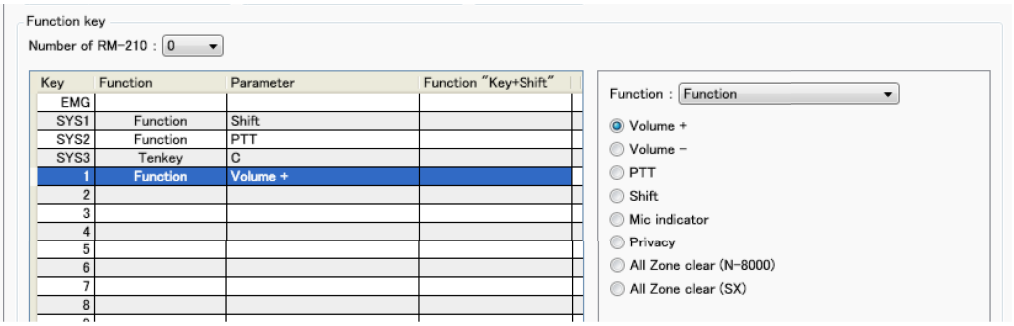
(2) Tenkey

The following keys can be selected.
Paging call, Paging response, Hold, Transfer, Function, Redial, 1, 2, 3, 4, 5, 6, 7, 8, 9, ∗, 0, #, and C



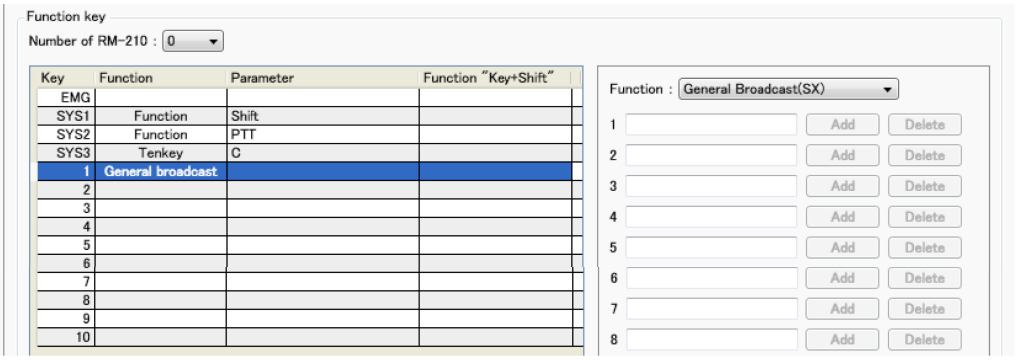
(3) Function

The following functions can be selected.
Volume +, Volume –, PTT, Shift, Mic indicator, Privacy, All Zone clear (N-8000), and All Zone clear (SX)



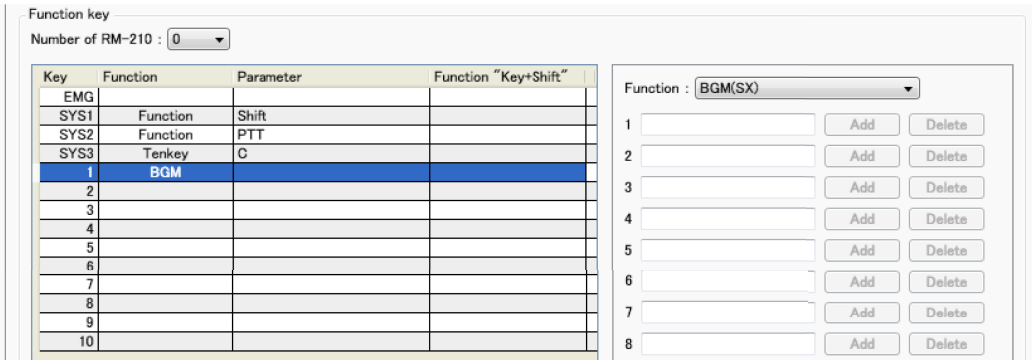
(4) General broadcast (SX)

The General broadcast (SX) patterns having been set in the SX-2000 system can be selected.
Only the events set to the General broadcast patterns (Level) among the events to be activated by the SX-2000 system's control input can be selected.
Click the [Add] button to select the event.



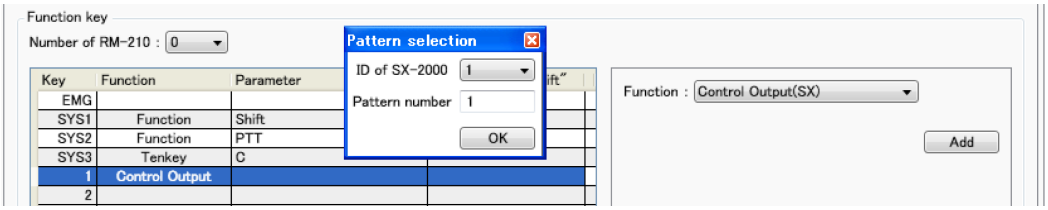
(5) BGM (SX)

"BGM (SX)" having been set in the SX-2000 system can be selected.
Only the events set to "BGM pattern change/end" among the events to be activated by the SX-2000 system's control input can be selected.
Click the [Add] button to select the event.



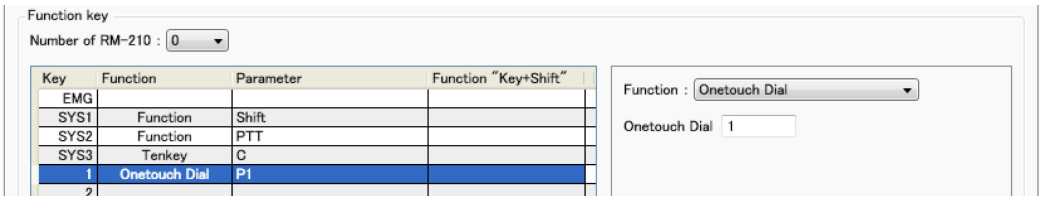
(6) Control output (SX)

Control output destination can be selected from the control output patterns.
Clicking the [Add] button displays the pattern selection dialog.
Select the ID of SX-2000 from the pull-down menu, then enter pattern number assigned to the control input.
The ID of SX-2000 is the one of the SX-2000 system having been set to the SX-200IP Smart matrix IP module in the Gateway setting (p. 5-28).
Multiple control output patterns can be set by repeating the procedure of addition.



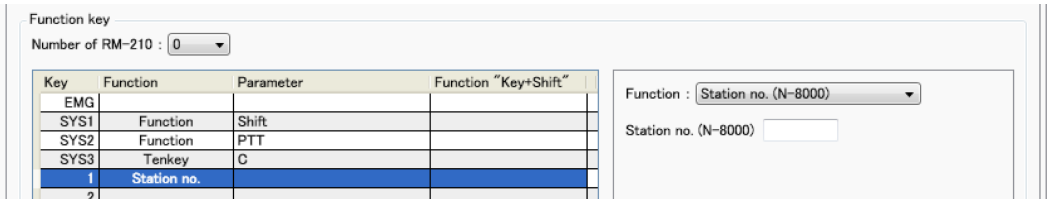
(7) Onetouch dial

Onetouch dial can be selected.
Enter the Onetouch dial number having been set in the Onetouch dial setting (p. 5-77).



(8) Station no. (N-8000)

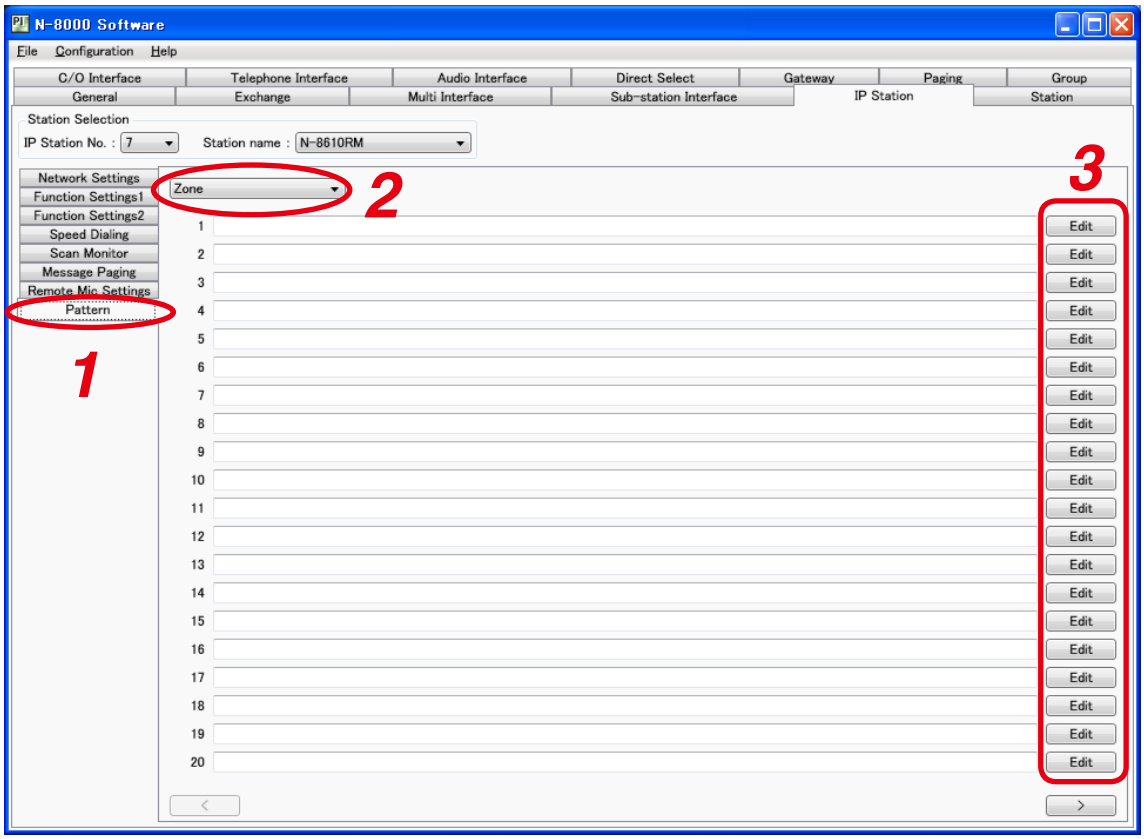
Station number can be selected.
Enter the Station number.



5.7.7. Pattern setting (N-8600MS and IP Remote microphone only)

Each pattern of the "Zone," "Control" and "Dial" can be registered.

Step 1. Click "Pattern" tab.
The setting screen is displayed.



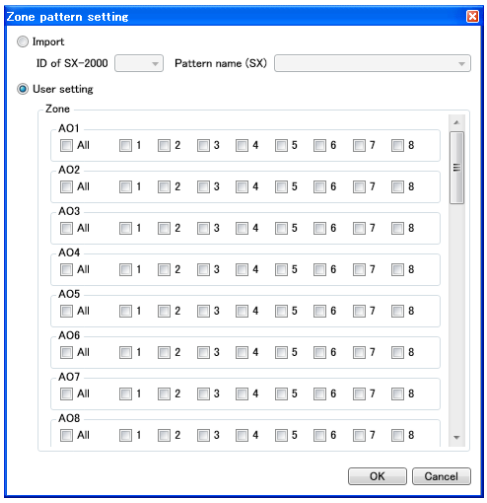
Step 2. Select the Pattern type.
It can be selected from "Zone," "Control" or "Dial" on the pull-down menu.

Step 3. Press the [Edit] button, then set the details of the pattern selected in Step 2.
A detailed setting dialog corresponding to the selected pattern type is displayed.

[Detailed settings for the pattern]

(1) Zone pattern

Zone pattern can be registered by selecting either "Import" or "User setting."



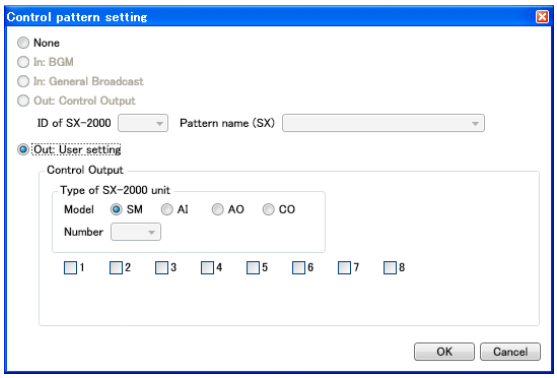
- **When importing from the SX-2000 system's setting data**
  Select "Import," then select ID of SX-2000 and Pattern name from the pull-down menu.
  The ID of SX-2000 is that of the SX-2000 system having been set to the SX-200IP Smart matrix IP module in the Gateway setting (p. 5-28).

- **When setting the new zone pattern (SX)**
  Select "User setting," then mark the checkbox(es) of the zone(s) to be registered.
  [AO1] – [AO32] represent the SX-2000AO Audio output unit.
  [All] and [1] through [8] represent the audio output terminal numbers.

- **When setting the new zone pattern (N-8000)**
  When "User setting" is selected, the N-8000 System's zone patterns can be set.
  In this event, regard the [AO1] - [AO32] as the N-8000 System's zones, and read them as follows.
  1 of [AO1] → Zone 1
  2 of [AO1] → Zone 2
  ⋮
  8 of [AO24] → Zone 192

(2) Control pattern

- **When no pattern is used**
  Select "None."



- **When importing the BGM pattern from the SX-2000 system's setting data**
  Select "In: BGM," then select the ID of SX-2000* and Pattern name (SX) from the pull-down menu.

- **When importing the General broadcast pattern from the SX-2000 system's setting data**
  Select "In: General Broadcast," then select the ID of SX-2000 and Pattern name (SX) from the pull-down menu.

- **When importing the Control output pattern from the SX-2000 system's setting data**
  Select "Out: Control Output," then select the ID of SX-2000 and Pattern name (SX) from the pull-down menu.

* The "ID of SX-2000" is the system ID having been assigned to the SX-200IP in the "Gateway Settings" on p. 5-28.

- **When setting the new control pattern (SX)**
  Select "Out: User setting," then select the Model.
  SM: SX-2000SM System manager
  AI: SX-2100AI Audio input unit
  AO: SX-2000AO or SX-2100AO Audio output unit
  CO: SX-2000CO Control output unit
  For the AI, AO, and CO, select the ID as well.
  The numbers next to the checkboxes represent the control output terminal numbers.
  The number of the checkboxes varies depending on the equipment.

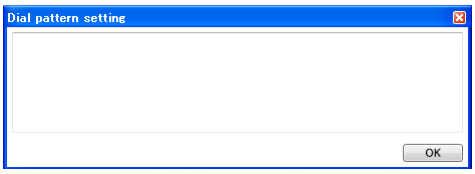
(3) Dial pattern

Can be registered by entering dial keys.

Tips

- Keys that can be registered in the Dial pattern are the Dial keys (12 kinds), Paging call key, Paging response key, Function key, Hold key, and Transfer key.
- Up to 380-digit dial operation can be registered.
- When wishing to register the codes other than figures, enter the following characters.

[#/▲] key	: #
[∗/▼] key	: *
Paging key	: P
Paging response key	: R
Function key	: F
Hold key	: H
Transfer key	: T



5.8. Setting Stations Connected to the Exchange, and Analog Master Stations Connected to the Substation Interface Unit

Click "Station" to select the station to be set.

Choose the number of the exchange, exchange name, line number, station number or station name from the list.

(1) Exchange No.
Select the equipment number of the exchange or Substation interface unit to which the station is connected.

(2) Exchange name
Select the exchange or Substation interface unit name to which the station is connected.

(3) Line No.
Select the number of the line to which the station is connected.

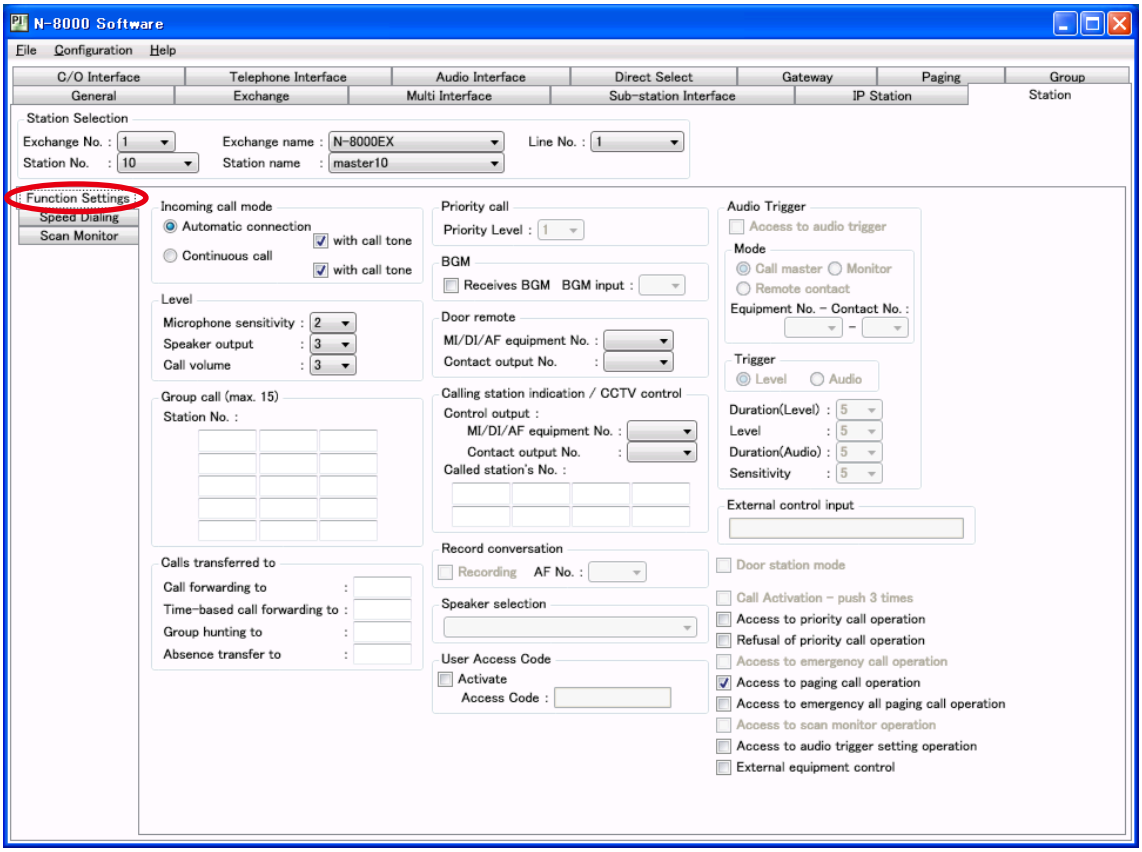
(4) Station No.
Select the station number.

(5) Station name
Select the station name.

5.8.1. Function settings

Step 1. Click "Function Settings" tab to display the following setting screen

.



Available item differs depending on the type of stations.

Step 2. Set individual items.

(1) Incoming call mode

Call receiving mode (p. 2-10) can be selected either "Automatic Connection" or "Continuous Call". Call with a call tone or without a call tone can be set on both modes.
The door station is fixed to "Automatic connection" mode.

(2) Level (except the analog master station)

Microphone sensitivity: Station hands-free microphone sensitivity can be adjusted in three increments from 1 (minimum) to 3 (maximum). The default sensitivity is Level 2.

Note
The sensitivity for the handset microphone is fixed (not adjustable).

Speaker output: Station speaker output level can be adjusted in five increments from 1 (minimum) to 5 (maximum). The default sensitivity is Level 3.

Call volume: Station call volume can be adjusted in five increments from 1 (minimum) to 5 (maximum). The default sensitivity is Level 3.

(3) Group call (max. 15) (Master station only)

Set a group of up to fifteen stations that will be called simultaneously when the station being set now is called. With this setting, even when a called station is busy, any registered station in the group can respond.

Note
When the call response mode is set to “Selective Response,” the stations connected to the same N-8010EX Exchange or the N-8400RS Substation Interface Unit cannot be assigned to the group call member stations.

(4) Calls transferred to (Master station only)

Set the station number to which each transfer is to be directed.
When the C/O interface unit is set as a transfer destination station, enter "#", followed by the access number. For example, when setting the C/O interface unit with access number "05," enter "#05".
Call forwarding receiving station can be set only when the call forwarding function of the Exchange is enabled. (Refer to p. 5-35)

Note
The station to be called via Multi interface unit cannot be programmed as a transfer destination station.

(5) Priority call (Selective response mode, Door station only)

Call priorities can be adjusted in five increments from 1 (minimum) to 5 (maximum).
Level 5 is the same priority as an emergency call.
The default sensitivity is Level 1.

(6) BGM

Set whether the station receives BGM broadcasts. If receiving, place a checkmark and select the BGM channel number (1 – 8; Channel).

(7) Door remote

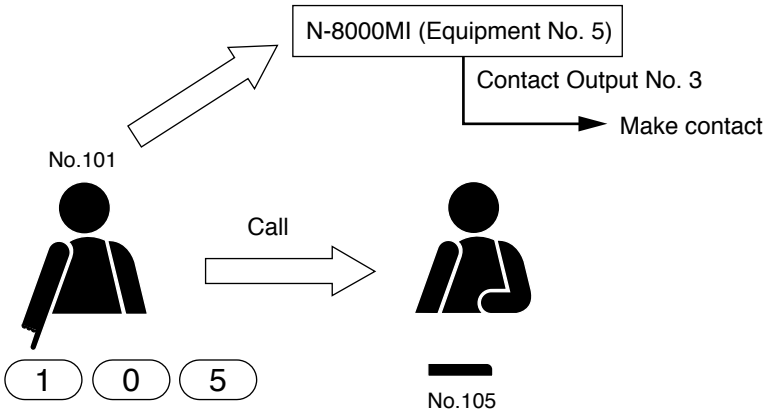
Set the Multi interface unit's, Direct select unit's, or Audio interface unit’s unit number and contact output terminal number to be used for door remote control.

(8) Calling station indication/CCTV control

Control output : Set the Multi interface unit's, Direct select unit's, or Audio interface unit's unit number and contact output terminal number, which provide a make signal when the station is called.

Called station's No.: Provides a make contact when the station to be set here is called. Up to 8 stations can be set.
When the C/O interface unit is set as a called station, enter "#", followed by the access number. For example, when setting the C/O interface unit with access number "05," enter "#05".

(Example)
The operation example illustrated below is based on the following settings:
Station No.: 101
Control Output
MI Equipment No.: 5
Contact output No.: 3
Called station's No.: 105



The Multi interface unit's (equipment No. 5) Contact No. 3 closes when the station No. 101 calls the station No. 105.

(9) Record conversation

Records Station conversations.
The conversation of the station is provided from the audio output of the designated N-8000AF audio interface unit.

(10) User Access Code (Master station only)

Sets whether or not to enable the Access code authentication.
Enter the access code number (4-digit number).

(11) Audio Trigger (Door station only)

Performs the audio trigger settings for the station.
Access to audio trigger: Set whether or not to use the audio trigger function.

(12) Mode (Door station only)

Selects operation when audio is detected.

Call master: Calls the master station.

Monitor: The station's audio is output from the master station's handsfree speaker.

Remote contact: Provides a one-shot pulse to close the contact output of the designated device.

(13) Trigger (Door station only)
Selects the trigger.

Level:	Detects sounds of a sound pressure level higher than the set level that last for a specified period of time.
Audio:	Detects human voices.

Duration (Level):	Set the time interval till sounds are detected.
Level:	Set the threshold sound pressure level.
Duration (Audio):	Set the duration of the human voice's vowels to detect.
Sensitivity:	Sets the detection sensitivity of the human voice. Setting range: 1 – 9 (9 steps, 1: Most likely to detect, 9: Least likely to detect)

(14) Door station mode (Sequential response mode, Door station only)
Set whether to operate the door station in door station mode*.

* The call tone sounds only once at the door station when the door station calls the pre-programmed master station. The call timeout and conversation timeout are set to 30 seconds each.

(15) Call Activation - push 3 times (Sequential response mode, Door station only):
Sets whether or not to make a call by the operation of pressing the Call button 3 times within 3 seconds.

(16) Access to priority call operation (Sequential response mode, Master station only)
Enables the station to initiate priority calls.

(17) Refusal of priority call operation (Sequential response mode only)
Enables the station connected to the N-8000EX to refuse priority calls from other stations.
For the station connected to the N-8010EX, this function is fixed to ON (with the checkbox ticked).

(18) Access to emergency call operation (Selective response mode, Door station only)
Sets whether or not to allow the station to make an emergency call.

(19) Access to paging call operation (Master station only)
Enables or disables paging calls from the station.

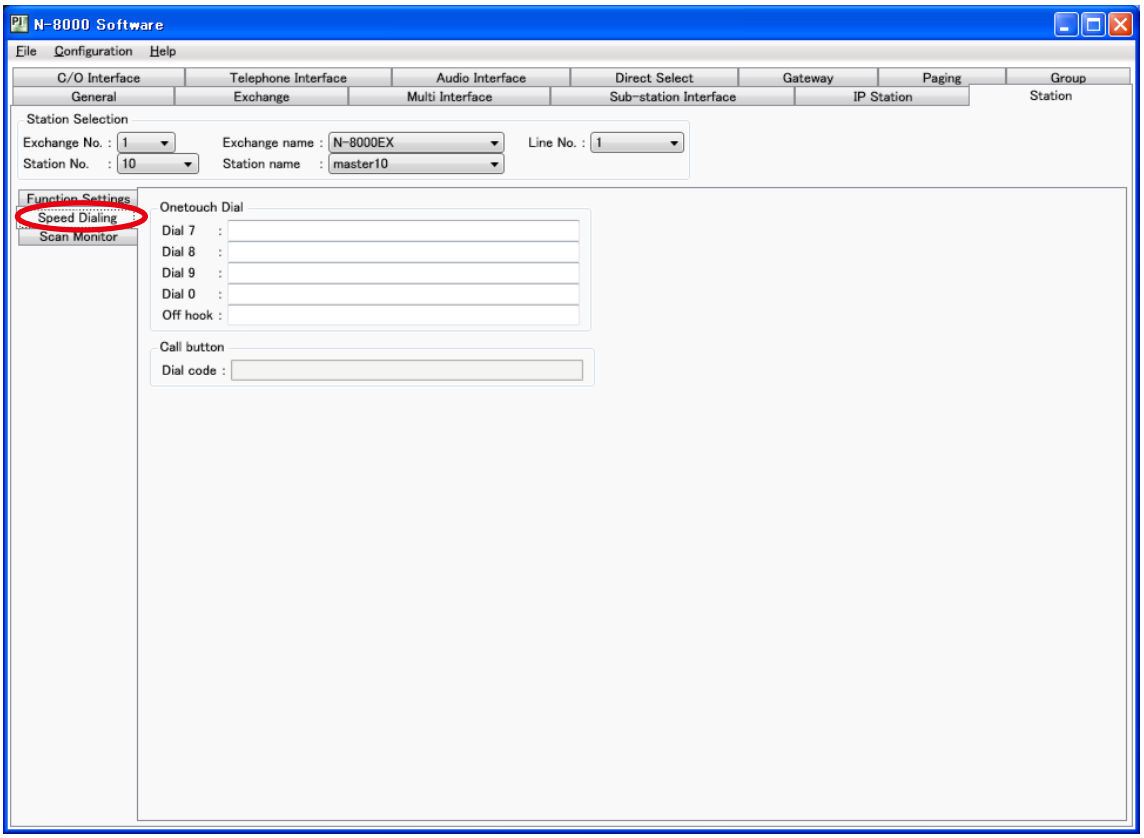
(20) Access to emergency all paging call operation (Master station only)
Enables or disables emergency all paging calls from the station.

(21) Access to audio trigger setting operation (Master station only)
Enables or disables audio trigger setting from the station.

(22) External equipment control (Master station only)
Set whether the one-shot make output or make/break output is operated at the station.

5.8.2. Speed dialing settings

Step 1. Click "Speed Dialing" tab to display the following setting screen.



Available item differs depending on the type of stations.

Step 2. Enter the station numbers to be called for each of the one-touch dial keys ([7], [8], [9] and [0] keys) and the Off-Hook function. (Master station only)

Tips

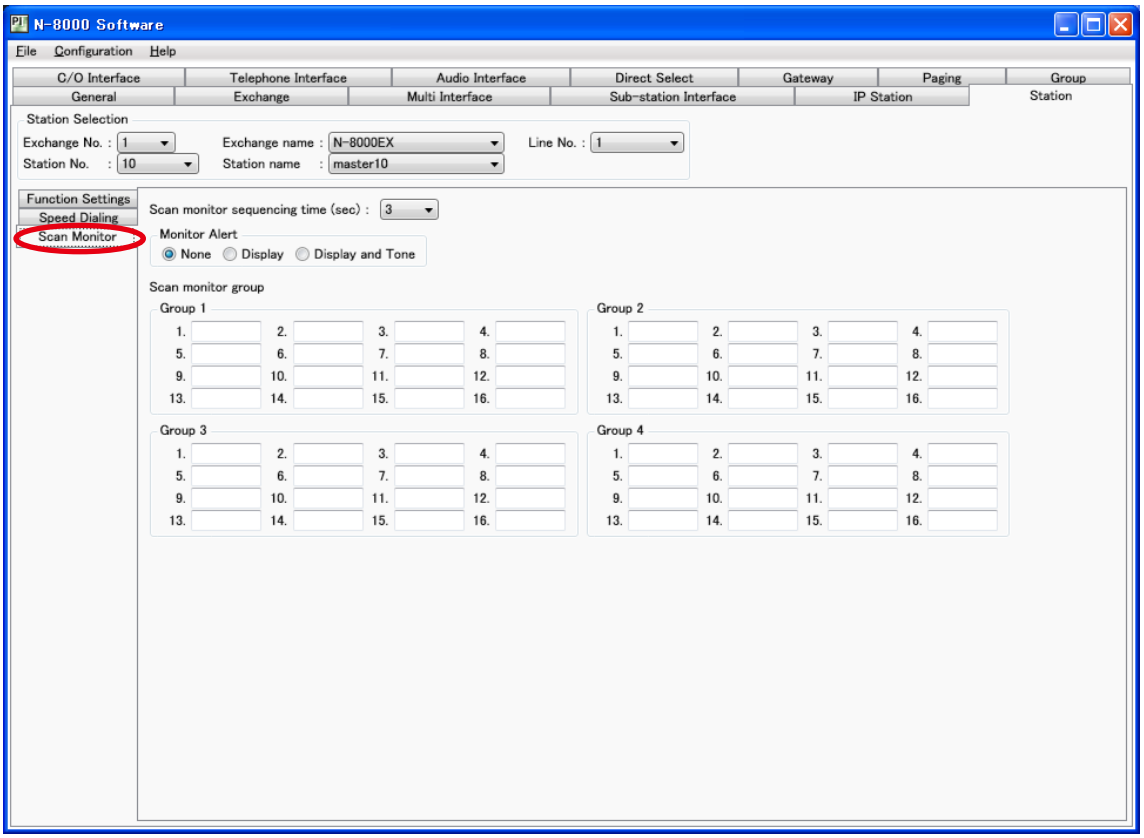
- Enter one-touch dialing programming using the Dial keys (12), Paging key, Paging response key, Function key, Hold key, and/or Transfer key.
- Up to 32 digits dialing operation can be preset.
- To set keys other than the numerical keys listed above for speed dialing, enter these as follows:

[#/▲] key	: #
[∗/▼] key	: *
Paging key	: P
Paging response key	: R
Function key	: F
Hold key	: H
Transfer key	: T

Step 3. Enter the master station number to be called when the IP door station's call button is pressed. (Door station only)

5.8.3. Scan monitor settings

Step 1. Click "Scan monitor" tab to display the following setting screen.



Step 2. Set the scan monitor sequencing time in 1-second units from 1 to 10 seconds.

Step 3. Set the operation of monitor alert.

None: The display remains the same as in standby mode even during monitoring.

Display: The status indicator continuously lights during monitoring.

Display and Tone: A start tone sounds when monitoring begins, and the status indicator remains lit during monitoring.

Step 4. Set the group of stations to be monitored.
Input the number of station to be monitored in the order of monitoring.

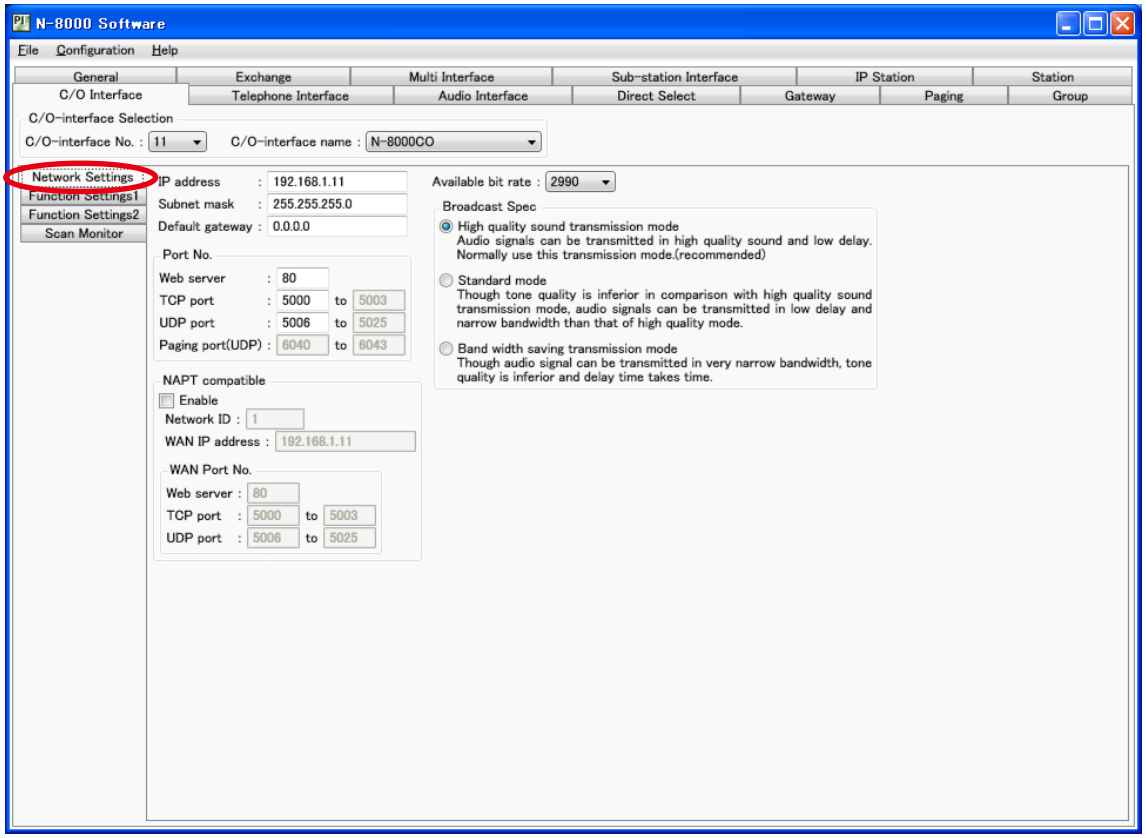
5.9. Setting C/O Interface

Click "C/O Interface" tab to select the C/O Interface to be set.

Choose the number of the C/O interface unit or name from the list.

5.9.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the C/O Interface unit's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

Note
Because UDP port number 15000 is used internally by the system, the numbers from 14981 to 15000 are not available.

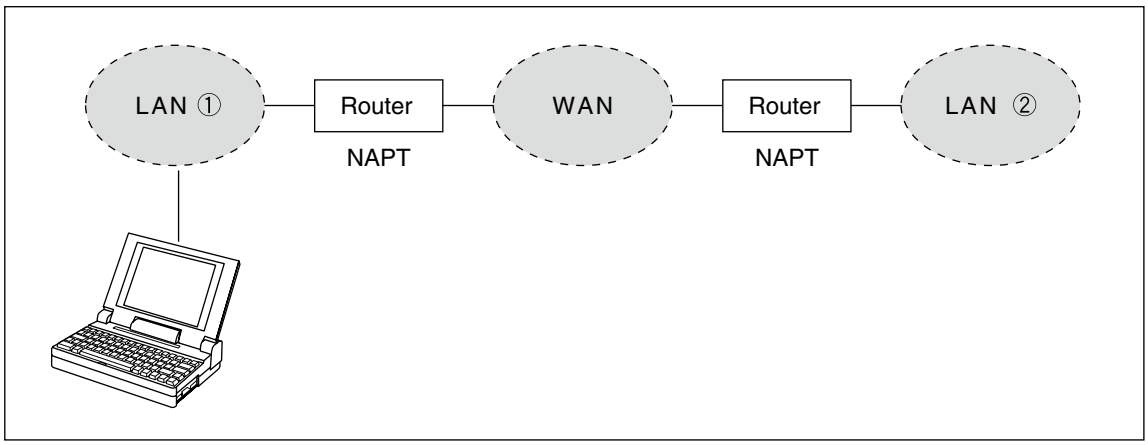
[Paging port (UDP)]
Displays the UDP port number to be used when making paging using the multicast communications.
To perform settings, refer to p. 5-121, Paging Zone Settings.

(5) NAPT compatible

When connecting a PC to the C/O interface unit using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the C/O interface unit using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the C/O Interface's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used. (valid range from 1 to 65516) The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

(9) Available bit rate

Set the capacity (or a usable upper limit value) of the network line to which the C/O interface unit is connected. Setting this communication capacity prevents sound quality deterioration and longer time delays caused by excess conversation and/or paging communications traffic.

(10) Broadcast Spec

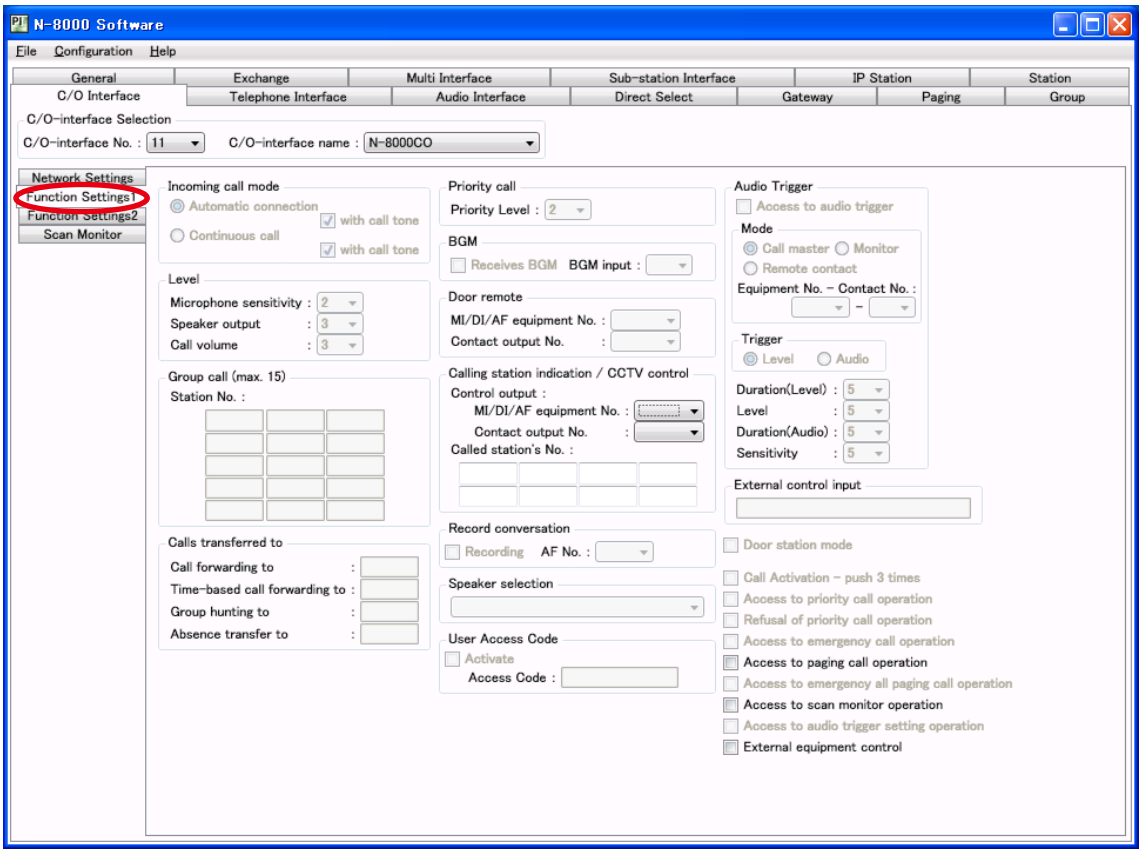
Select the voice transmission mode that is appropriate for the usable frequency band.

- High quality sound transmission mode
  Transmits voices at high sound quality with short time delay. Use this mode as the normal default mode.
- Standard mode
  Transmits voice audio with a short time delay. In this mode, the sound quality is reduced, but the delay time is identical to that in high quality mode, allowing a narrower frequency band to be used. Use this mode when C/O interface units are connected via an ISDN line (128 kbps).
- Band width saving transmission mode
  Voice transmission uses a very narrow frequency band, but with lesser quality sound and longer time delay. Use this mode when C/O interface units are connected via an Analog line (56 kbps).

	Sampling frequency	Delay time	Frequency band to be used
High quality sound transmission mode	16 kHz	0.08 second	130 kbps
Standard mode	8 kHz	0.08 second	98 kbps
Band width saving transmission mode	8 kHz	0.32 second	49.5 kbps

5.9.2. Function settings

Step 1. Click "Function Settings 1" tab to display the following setting screen.



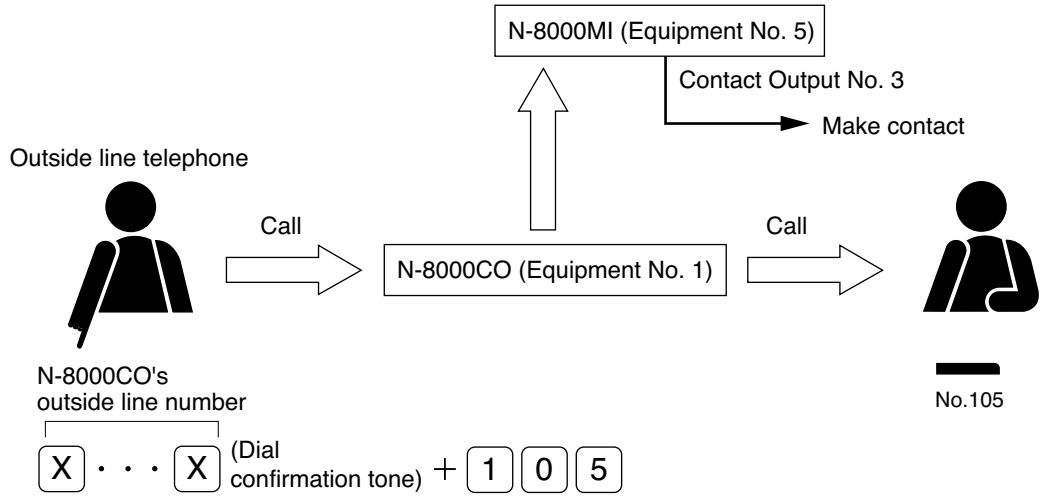
Step 2. Set individual items.

(1) Calling station indication/CCTV control

Control output : Set the Multi interface unit's, Direct select unit's, or Audio interface unit's unit number and contact output terminal number, which provide a make signal when the station is called.

Called station's No.: Provides a make contact when the station to be set here is called. Up to 8 stations can be set.
When the C/O interface unit is set as a called station, enter "#", followed by the access number. For example, when setting the C/O interface unit with access number "05," enter "#05".

(Example)
The operation example illustrated below is based on the following settings:
C/O interface unit No.: 1
Control Output
MI Equipment No.: 5
Contact output No.: 3
Called station's No.: 105



The Multi interface unit's (equipment No. 5) Contact No. 3 closes when the C/O interface unit (equipment No.1) calls the station No. 105.

(2) Record conversation

Records C/O Interface conversations.

The conversation of the C/O Interface is provided from the audio output of the designated N-8000AF audio interface unit.

(3) Access to paging call operation

Enables or disables paging calls from the C/O Interface.

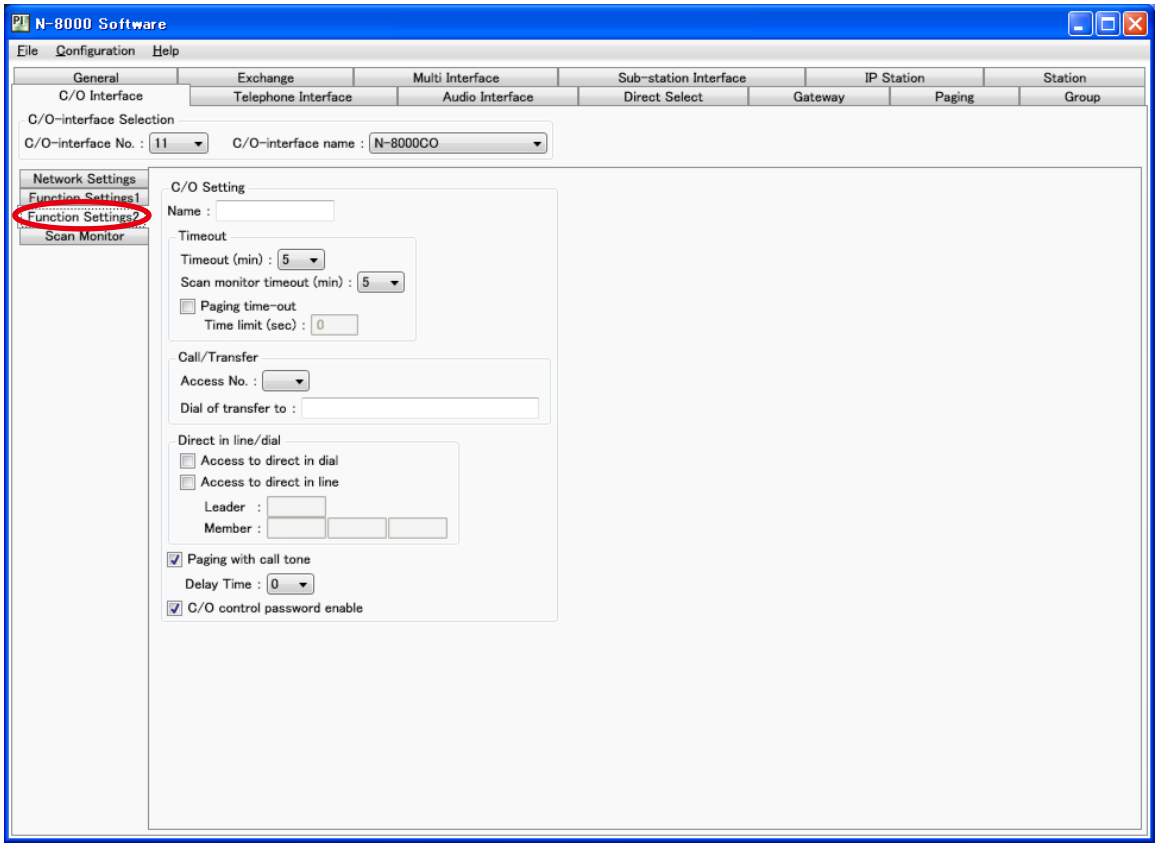
(4) Access to scan monitor operation

Enables or disables scan monitor from the C/O Interface.

(5) External equipment control

Set whether the one-shot make contact output or make/break contact output is operated at the C/O Interface.

Step 1. Click "Function Settings 2" tab to display the following setting screen.



Step 2. Set individual items.

(1) C/O Setting

Name: Set the name of the C/O line.

(2) Timeout

Timeout: Set the time interval for automatic termination of conversations (1 – 99 min).

Scan monitor timeout: Set the time interval for automatic termination of scan monitoring (1 – 99 min).

Paging time-out: Set whether to limit the duration of paging call with the station. To set a timeout, enter the time limit after which paging calls to the station are automatically terminated.

If a time-out is not set, paging calls will continue until executing the termination operation.

(3) Call/Transfer

Access No: Select the identification number (from 0 to 99) to be dialed when making a call to the C/O line.

Note

When a single digit number is set for the access number, avoid using numbers that match the first 1 digit of station numbers.

When a double digit number is set for the access number, avoid using numbers that match the first 2 digits of station numbers.

Dial of transfer to: Set a telephone number of up to 32 digits to be used when a call is transferred through the C/O line interface unit.

(4) Direct in line/dial

Access to direct in dial: Set whether to enable or disable direct inward dialing operation.

Access to direct in line: Set whether to enable or disable direct in line operation.

Leader: Set the master station to be called up.

Member: Up to 3 member stations can be simultaneously called up when the representative station receives a call.

Note
If the representative station has not been set, calls are not made to the member stations.

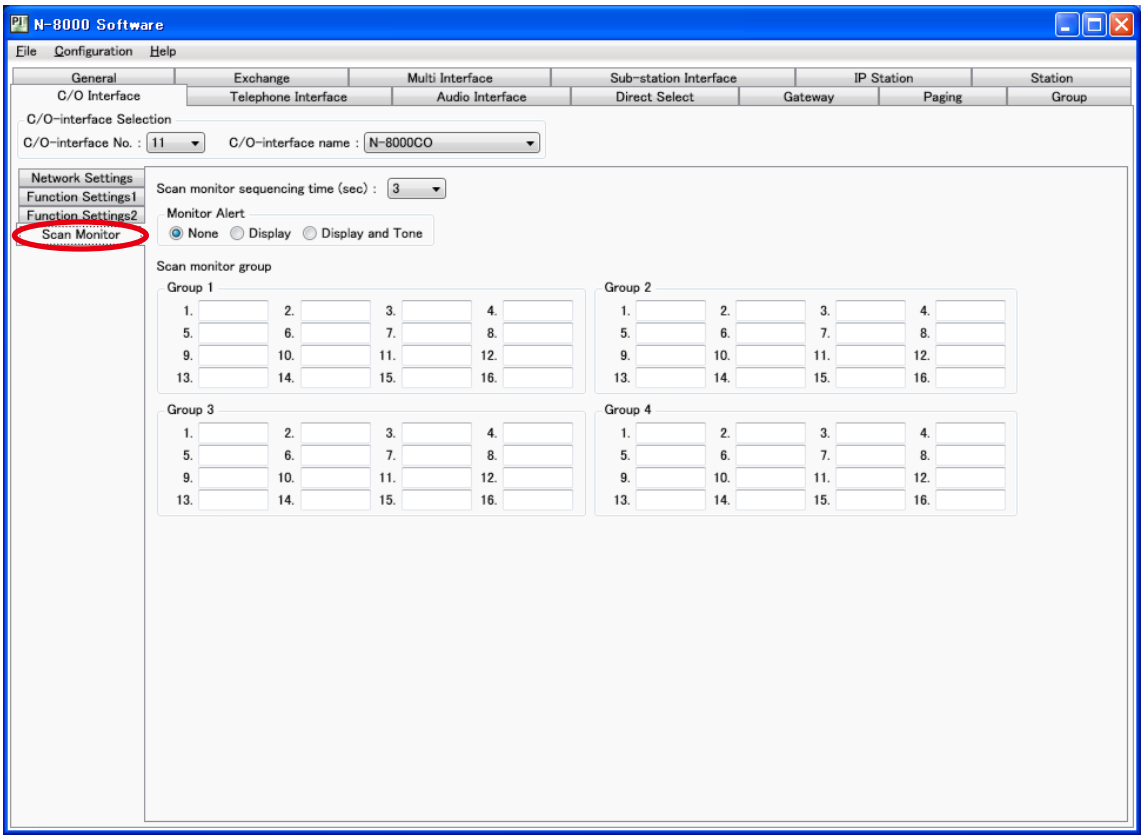
(5) Paging with call tone
Sounds a pre-announcement tone when paging is initiated.

(6) Delay time
Set the delay time before paging is initiated.

(7) C/O control password enable
Set whether or not to use a password when C/O line scan monitoring or C/O line external equipment control is performed.

5.9.3. Scan monitor settings

Step 1. Click "Scan Monitor" tab to display the following setting screen.



Step 2. Set the scan monitor sequencing time in 1-second units from 1 to 10 seconds.

Step 3. Set the operation of monitor alert.

None: The display remains the same as in standby mode even during monitoring.

Display: The status indicator continuously lights during monitoring.

Display and Tone: A start tone sounds when monitoring begins, and the status indicator remains lit during monitoring.

Step 4. Set the group of stations to be monitored.
Input the number of station to be monitored in the order of monitoring.

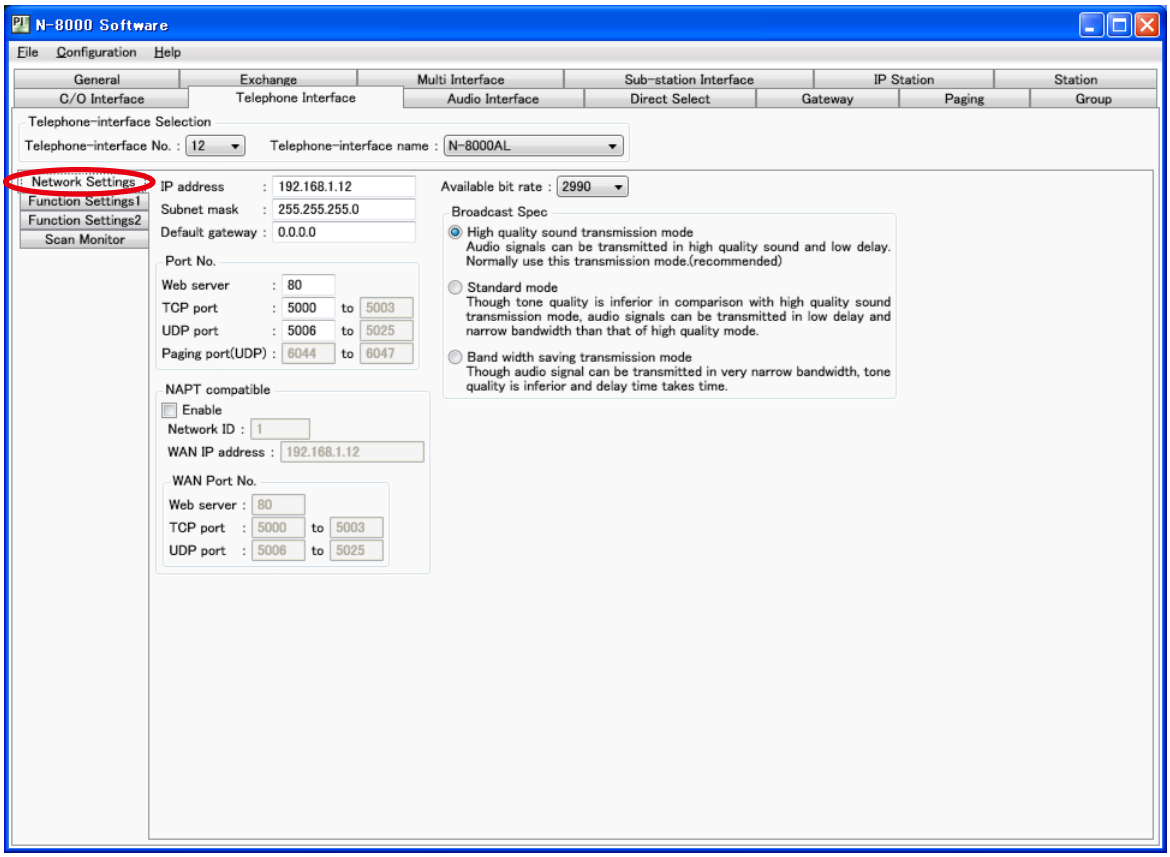
5.10. Setting Telephone Interface

Click "Telephone Interface" tab to select the Telephone Interface to be set.

Choose the number of the Telephone Interface unit or name from the list.

5.10.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the Telephone Interface unit's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

Note
Because UDP port number 15000 is used internally by the system, the numbers from 14981 to 15000 are not available.

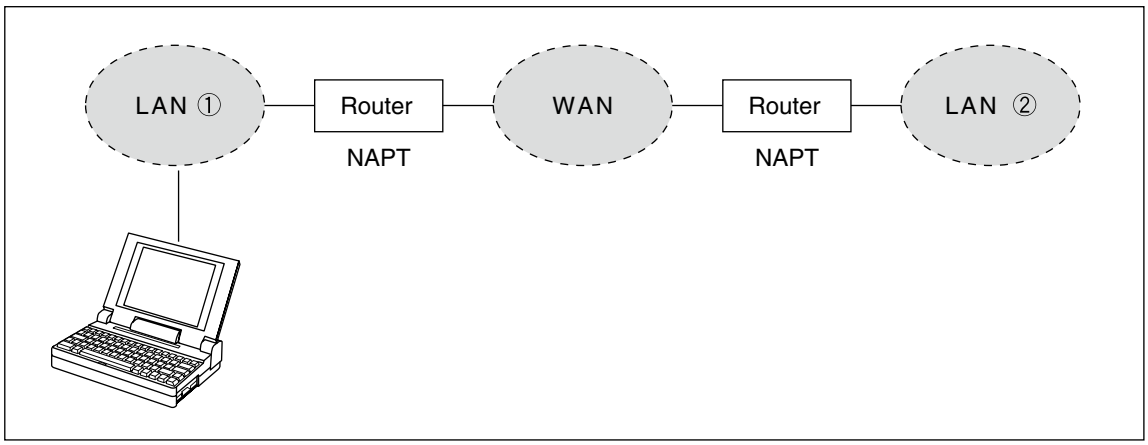
[Paging port (UDP)]
Displays the UDP port number to be used when making paging using the multicast communications.
To perform settings, refer to p. 5-121, Paging Zone Settings.

(5) NAPT compatible

When connecting a PC to the Telephone interface unit using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the Telephone interface unit using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the Telephone Interface unit's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used. (valid range from 1 to 65516) The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

(9) Available bit rate

Set the capacity (or a usable upper limit value) of the network line to which the Telephone interface unit is connected. Setting this communication capacity prevents sound quality deterioration and longer time delays caused by excess conversation and/or paging communications traffic.

(10) Broadcast Spec

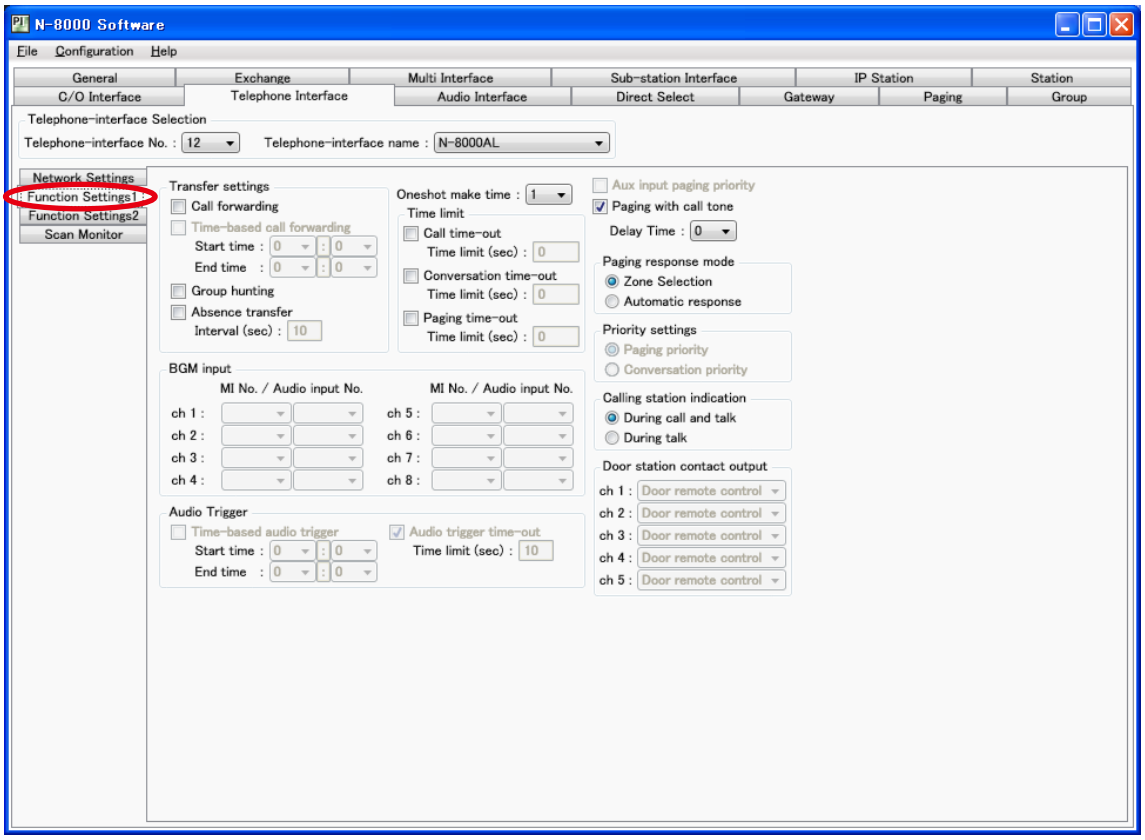
Select the voice transmission mode that is appropriate for the usable frequency band.

- High quality sound transmission mode
  Transmits voices at high sound quality with short time delay. Use this mode as the normal default mode.
- Standard mode
  Transmits voice audio with a short time delay. In this mode, the sound quality is reduced, but the delay time is identical to that in high quality mode, allowing a narrower frequency band to be used. Use this mode when Telephone interface units are connected via an ISDN line (128 kbps).
- Band width saving transmission mode
  Voice transmission uses a very narrow frequency band, but with lesser quality sound and longer time delay. Use this mode when Telephone interface units are connected via an Analog line (56 kbps).

	Sampling frequency	Delay time	Frequency band to be used
High quality sound transmission mode	16 kHz	0.08 second	130 kbps
Standard mode	8 kHz	0.08 second	98 kbps
Band width saving transmission mode	8 kHz	0.32 second	49.5 kbps

5.10.2. Function settings

Step 1. Click "Function Settings 1" tab to display the following setting screen.



Step 2. Set individual items.

(1) Transfer settings

Set the transfer function ON or OFF for the station connected to the exchange.

Call forwarding:	Calls to stations are automatically transferred to another designated station without sounding a call tone only when Call forwarding function is enabled.
Time-based call forwarding:	Calls to stations are automatically transferred to another designated station without sounding a call tone only when the preset time is reached. This function can be set only when the call forwarding function is enabled. Preset time can be set only when the time-based call forwarding function is enabled.
Group hunting:	Calls to a busy station are automatically transferred to another designated station, if group hunting function is set to the called station.
Absence transfer:	When no response is made to a call to the station for a set period of time, the call is automatically transferred to another designated station. Preset time duration can be set only when the absence transfer mode is enabled.

(2) Oneshot make time (second)

Sets the duration that the external control output terminals are shorted momentarily.
The setting range is from 1 to 9 (in 1-second units).

(3) Time limit

Set the time-out value for calling, conversation or paging functions in ten-second units between 10 and 990 seconds.

Call time-out: Set whether to limit the duration of a call to the station. If setting a time-out, enter the time limit after which calls to the station are automatically terminated. If not setting a time-out, calls will continue until they are cancelled or the called station responds.

Conversation time-out: Set whether to limit the duration of conversations with the station. If setting a time-out, enter the time limit after which conversations to the station are automatically terminated. If not setting a time-out, conversations will continue until executing the termination operation.

Paging time-out: Set whether to limit the duration of paging call with the station. If setting a time-out, enter the time limit after which paging calls to the station are automatically terminated.
If not setting a time-out, paging calls will continue until executing the termination operation.

(4) Paging with call tone

Sounds a pre-announcement tone when paging is initiated.

(5) Delay Time

Set the delay time before paging is initiated.

(6) Paging response mode

Select either "Zone Selection" or "Automatic Response" modes when responding to the paging.

Zone Selection: Responds to a paging call by designating the number of the paging zone. Respond to the paging party who made the paging to the designated zone last is called. Use this mode if paging announcements are heard from multiple zones.

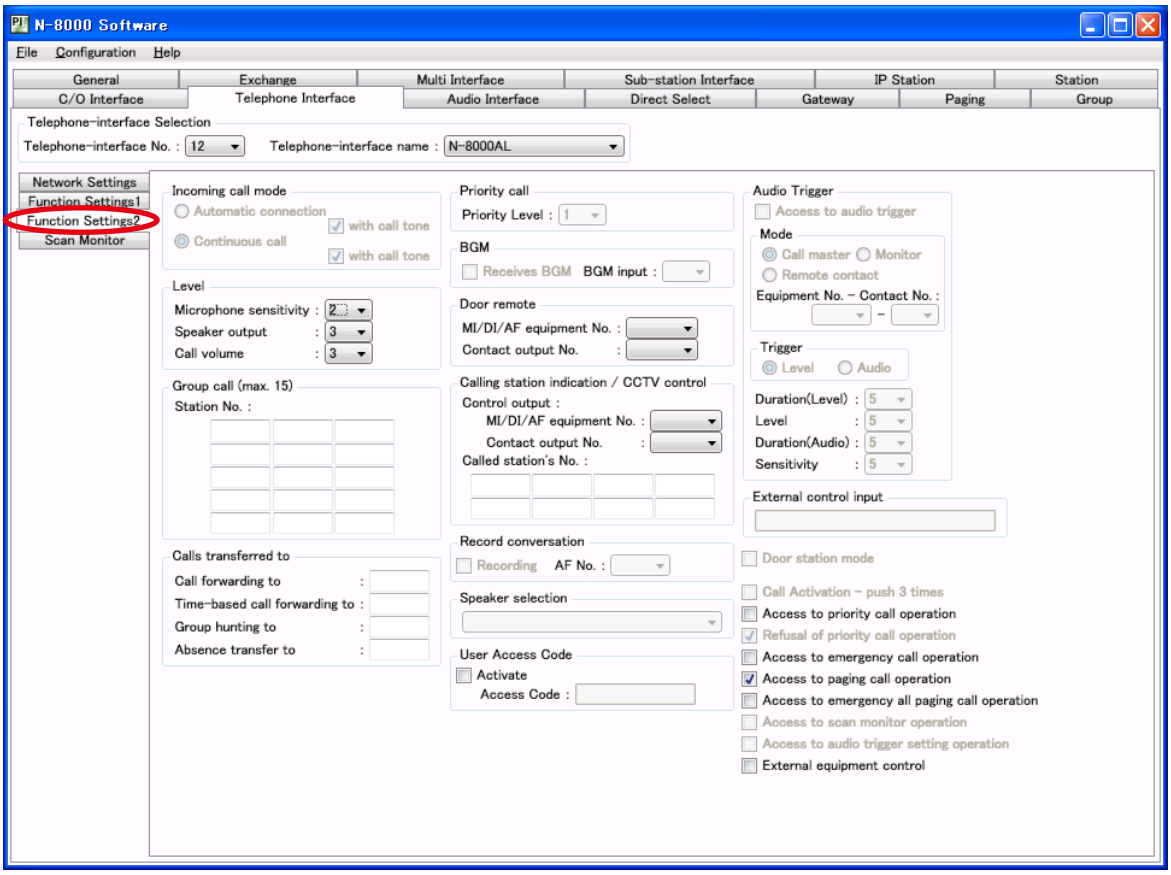
Automatic Response: Use only the paging response key to make a response. The responding station is connected to the station that made a paging call over the paging zone through which the responding station last received a call.

(7) Calling station indication

Select either "During call and talk" or "During talk" mode when performing the calling station indication function.
The table below shows the timing that the Multi interface unit's, Direct select unit's, or Audio interface unit's contact output is closed.

Calling station indication / Station operation	During call and talk	During talk
Calling	Closed	Open
Being called	Open	Open
Call waiting	Closed	Open
Talking	Closed	Closed
Being paged	Open	Open
Receiving scan monitor	Closed	Closed

Step 1. Click "Function Settings 2" tab to display the following setting screen.



Step 2. Set individual items.

(1) Level

Microphone sensitivity: Station hands-free microphone sensitivity can be adjusted in three increments from 1 (minimum) to 3 (maximum). The default sensitivity is Level 2.

Note
The sensitivity for the handset microphone is fixed (not adjustable).

Speaker output: Station speaker output level can be adjusted in five increments from 1 (minimum) to 5 (maximum). The default sensitivity is Level 3.

Call volume: Station call volume can be adjusted in five increments from 1 (minimum) to 5 (maximum). The default sensitivity is Level 3.

(2) Group call (max. 15)

Set a group of up to fifteen stations that will be called simultaneously when the Station being set now is called. With this setting, even when a called station is busy, any registered station in the group can respond.

(3) Calls transferred to

Set the station number to which each transfer is to be directed.
Call forwarding receiving station can be set only when the call forwarding function is enabled. (Refer to p. 5-97.)

Note
The station to be called via Multi interface unit cannot be programmed as a transfer destination station.

(4) Door remote

Set the Multi interface unit's, Direct select unit's, or Audio interface unit's unit number and contact output terminal number to be used for door remote control.

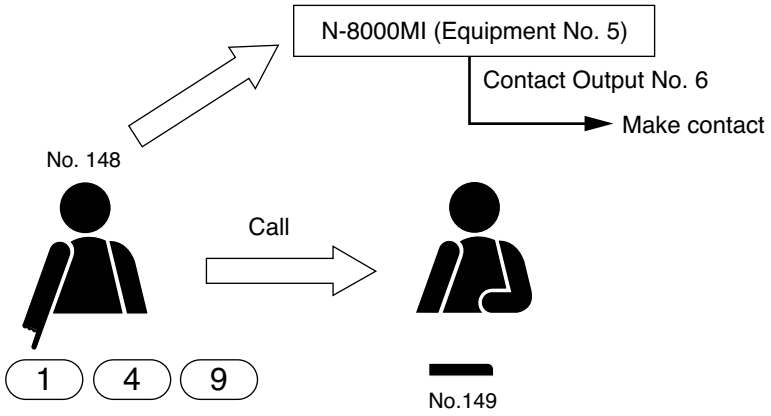
(5) Calling station indication/CCTV control

Control output : Set the Multi interface unit's, Direct select unit's, or Audio interface unit's unit number and contact output terminal number, which provide a make contact when the station is called.

Called station's No.: Provides a make contact when the station to be set here is called. Up to 8 stations can be set.
When the C/O interface unit is set as a called station, enter "#", followed by the access number. For example, when setting the C/O interface unit with access number "05," enter "#05".

(Example)
The operation example illustrated below is based on the following settings:

Station No. (for Station): 148
Control Output
MI Equipment No.: 5
Contact output No.: 6
Called station's No.: 149



The Multi interface unit's (equipment No. 5) Contact No. 6 closes when the station No. 148 calls the station No. 149.

(6) Record conversation

Records Telephone interface conversations.
The conversation of the Telephone interface is provided from the audio output of the designated N-8000AF audio interface unit.

(7) User Access Code

Sets whether or not to enable the Access code authentication.
Enter the access code number (4-digit number).

(8) Access to priority call operation

Enables the station to initiate priority calls.
This function can only be used when the system has been set for sequential response mode.

(9) Access to paging call operation

Enables or disables paging calls from the station.

(10) Access to emergency all paging call operation

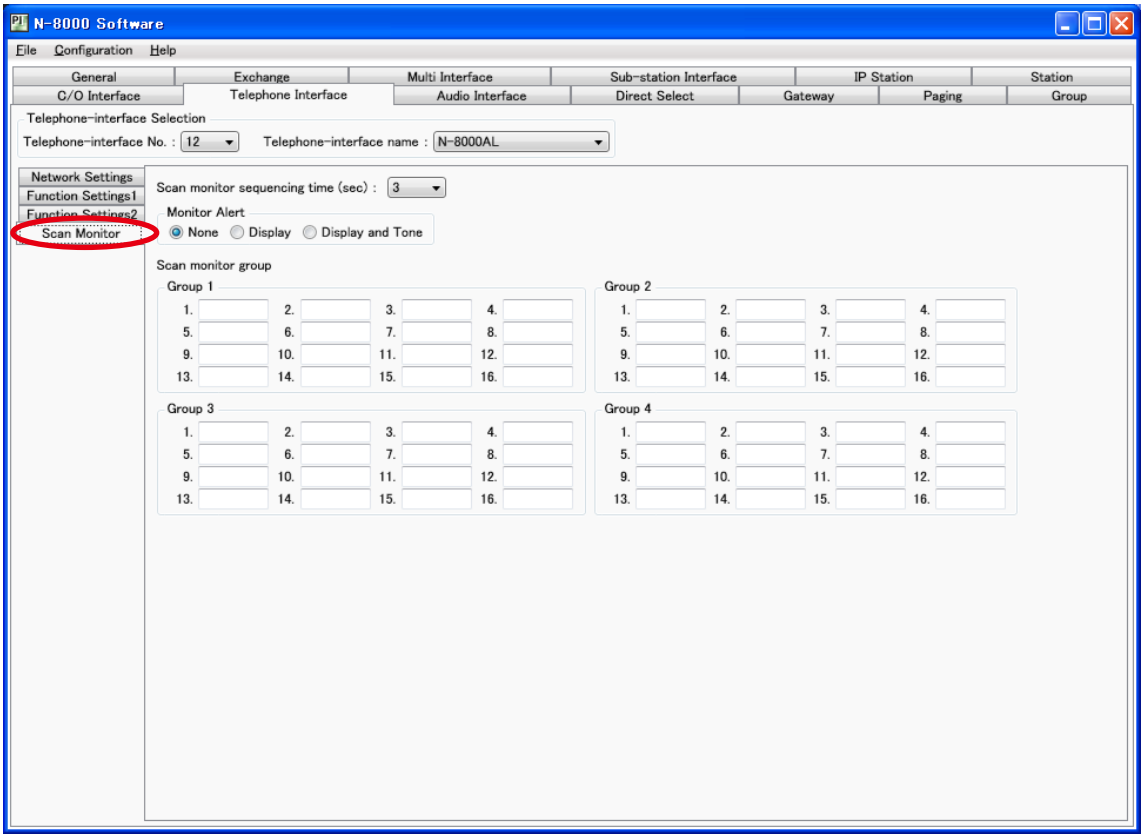
Enables or disables emergency all paging calls from the station.

(11) External equipment control

Set whether the one-shot make contact output or make/break contact output is operated at the station.

5.10.3. Scan Monitor settings

Step 1. Click "Scan Monitor" tab to display the following setting screen.



Step 2. Set the scan monitor sequencing time in 1-second units from 1 to 10 seconds.

Step 3. Set the operation of monitor alert.

None: The display remains the same as in standby mode even during monitoring.

Display: The status indicator continuously lights during monitoring.

Display and Tone: A start tone sounds when monitoring begins, and the status indicator remains lit during monitoring.

Step 4. Set the group of stations to be monitored.
Input the number of station to be monitored in the order of monitoring.

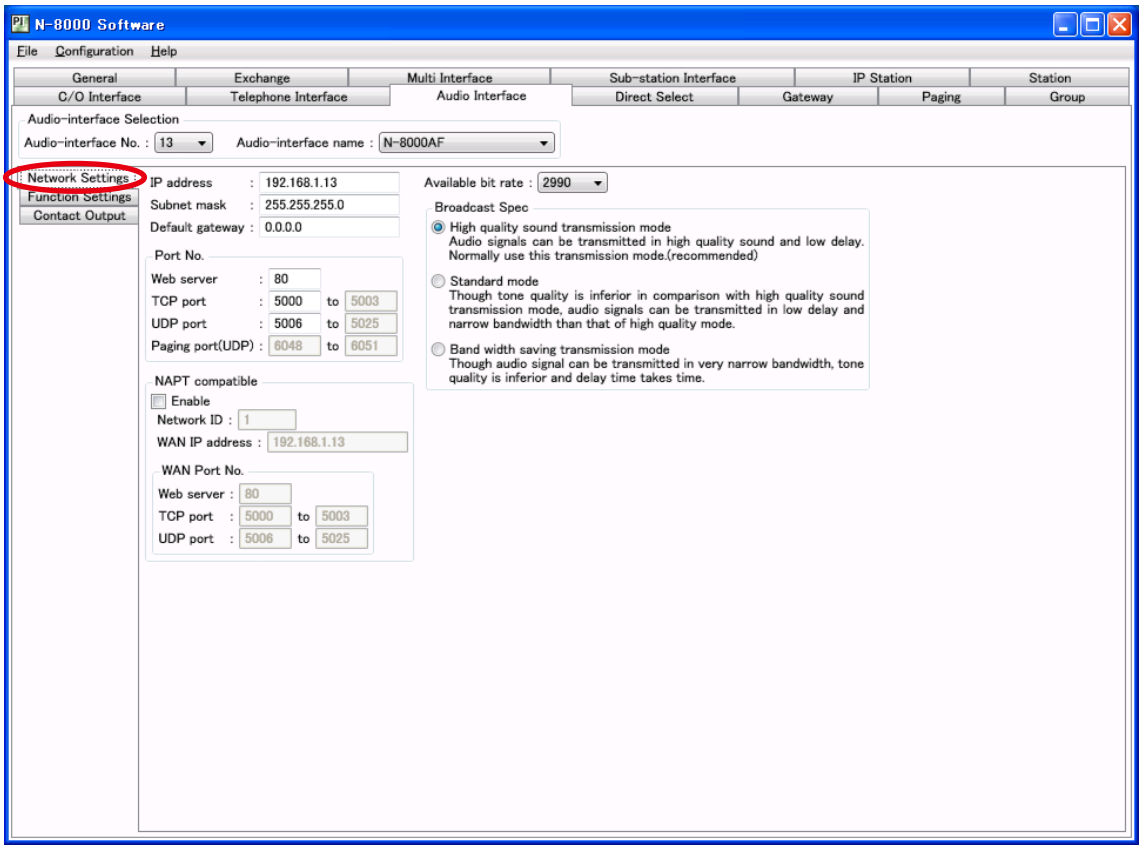
5.11. Setting Audio Interface

Click "Audio Interface" tab to select the Audio Interface to be set.

Choose the number of the Audio interface unit or name from the list.

5.11.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the Audio Interface unit's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

Note
Because UDP port number 15000 is used internally by the system, the numbers from 14981 to 15000 are not available.

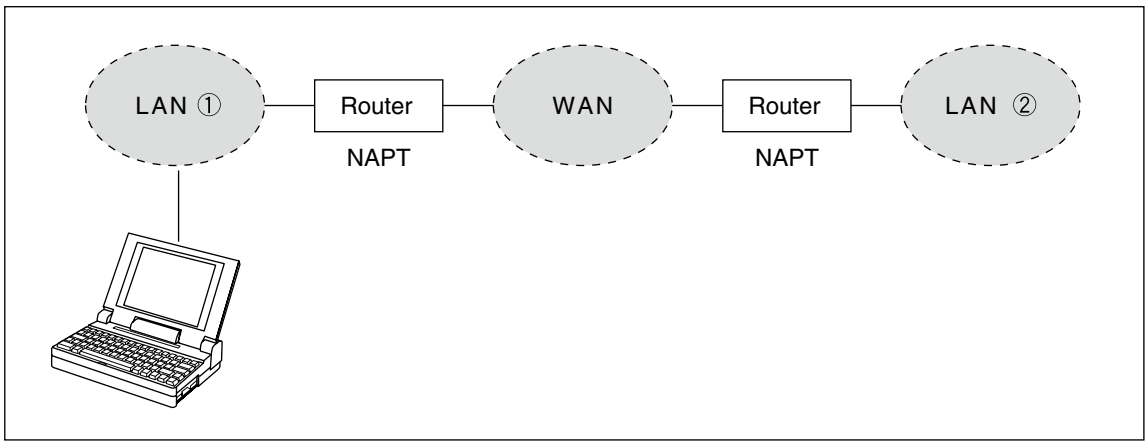
[Paging port (UDP)]
Displays the UDP port number to be used when making paging using the multicast communications.
To perform settings, refer to p. 5-121, Paging Zone Settings.

(5) NAPT compatible

When connecting a PC to the Audio interface unit using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the Audio interface unit using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the Audio interface unit's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used. (valid range from 1 to 65516) The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

(9) Available bit rate

Set the capacity (or a usable upper limit value) of the network line to which the Audio interface unit is connected. Setting this communication capacity prevents sound quality deterioration and longer time delays caused by excess conversation and/or paging communications traffic.

(10) Broadcast Spec

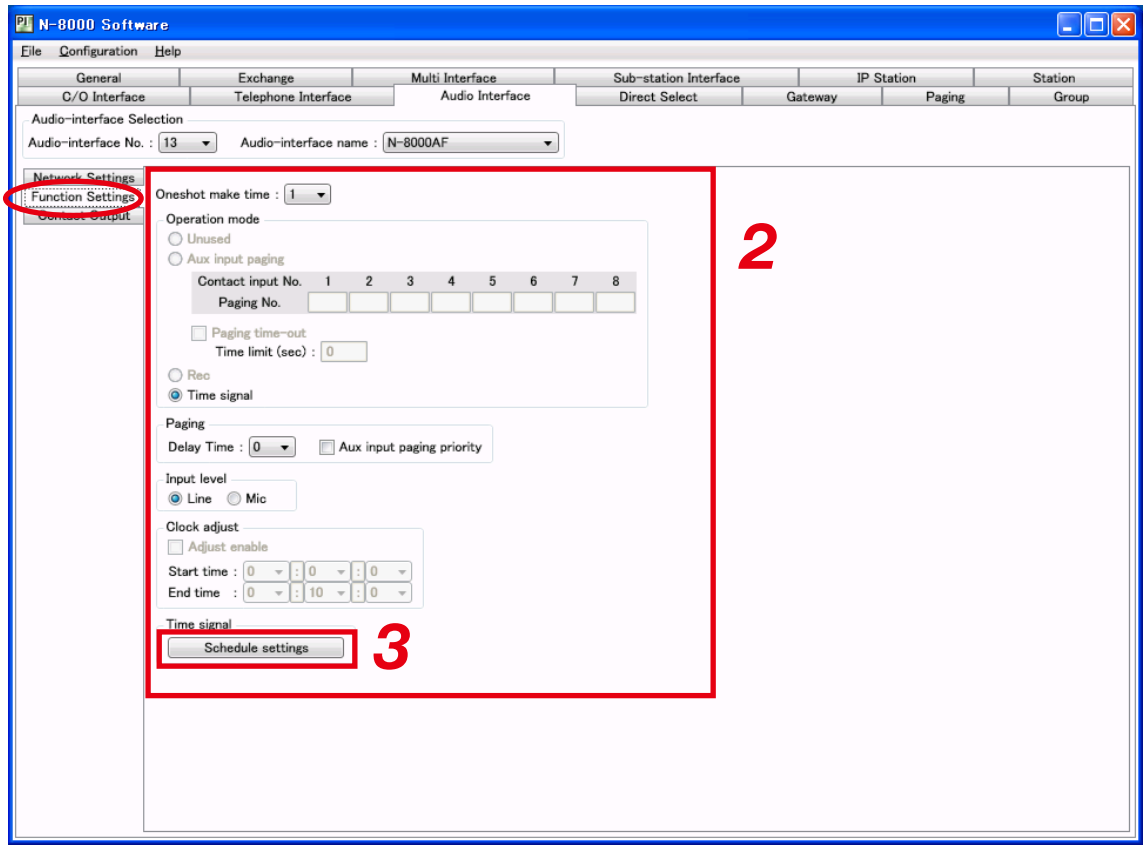
Select the voice transmission mode that is appropriate for the usable frequency band.

- High quality sound transmission mode
  Transmits voices at high sound quality with short time delay. Use this mode as the normal default mode.
- Standard mode
  Transmits voice audio with a short time delay. In this mode, the sound quality is reduced, but the delay time is identical to that in high quality mode, allowing a narrower frequency band to be used. Use this mode when Audio interface units are connected via an ISDN line (128 kbps).
- Band width saving transmission mode
  Voice transmission uses a very narrow frequency band, but with lesser quality sound and longer time delay. Use this mode when Audio interface units are connected via an Analog line (56 kbps).

	Sampling frequency	Delay time	Frequency band to be used
High quality sound transmission mode	16 kHz	0.08 second	130 kbps
Standard mode	8 kHz	0.08 second	98 kbps
Band width saving transmission mode	8 kHz	0.32 second	49.5 kbps

5.11.2. Function settings

Step 1. Click "Function Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) Oneshot make time (second)
Sets the duration that the external control output terminals are shorted momentarily.
The setting range is from 1 to 9 (in 1-second units).

(2) Operation mode
Set the operation mode of the audio interface unit.

Unused:	This unit is not used.
Aux input paging:	Select this item when connecting the Audio interface unit to playback components or Remote microphone to make paging calls. Paging calls can be made to the preprogrammed paging zones when the control input is activated.
Contact input No./Paging No.:	Set the paging zone number to be called when the contact input is closed for each contact input terminal.
Rec:	Select this function when recording the station conversation by connecting the audio interface unit to a recorder, etc.
Time signal:	Select this function when playing chime tones or other sound sources at the fixed time or on the fixed day. **Note** Only a single equipment per system can be set to "Time signal." "Time signal" item in this operation mode can be selected only for the equipment for which Time signal has been set on the system settings screen (refer to p. 5-26).

(3) Paging

Set the operation mode of the audio interface unit.

Delay Time:	Set the delay time before paging is initiated.
Aux input paging priority:	Allows external input broadcasts to take precedence over all-zone paging and individual zone paging.

(4) Input level

Set the audio input sensitivity.

(5) Time sync function

Set the Time sync function.

Adjust enable:	Set whether or not to enable the time sync function.
Start time/End time:	Set time ranges that make the time sync function operable.

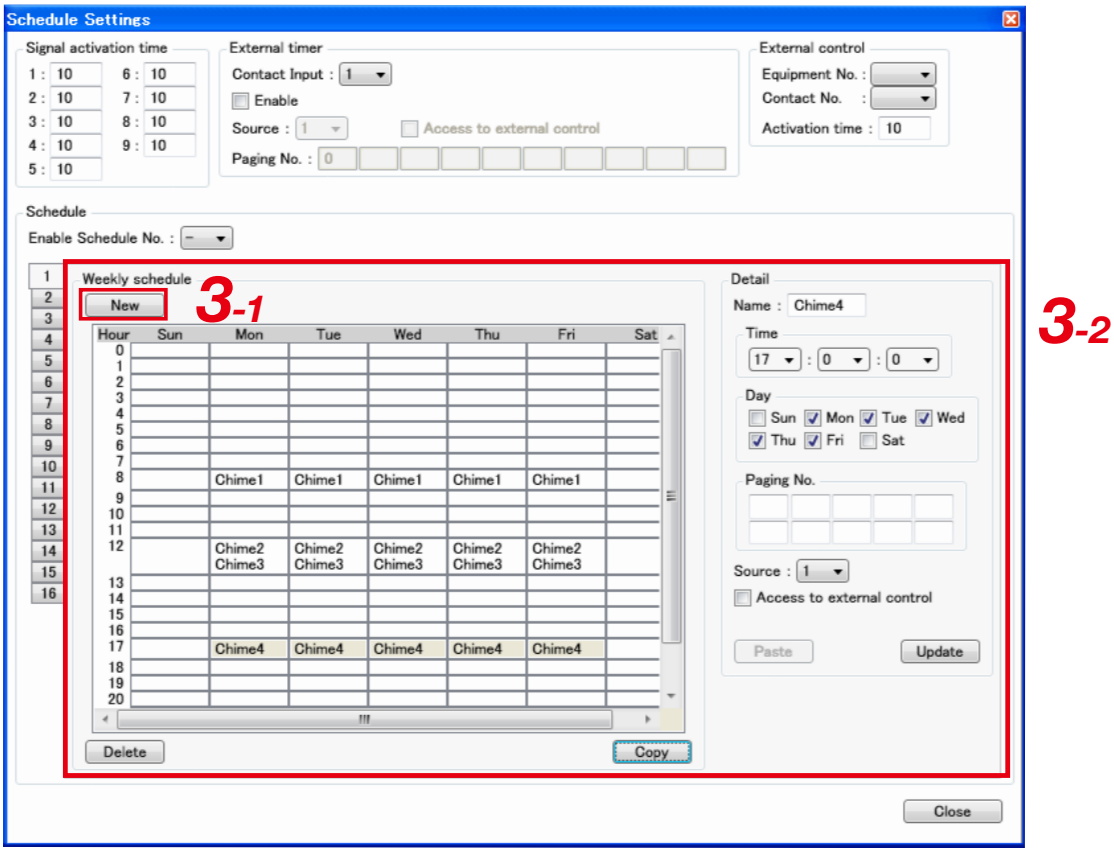
Note

This function cannot be used simultaneously with the NTP Client function.

(6) Time signal

This function sets the schedule for the time signal.

Clicking the "Schedule settings" button displays the schedule setting screen.



Step 3. Set the schedule.

(1) Signal activation time

Set the activation time interval for individual sound sources (1 – 1,024 sec).

Sound source numbers 1 – 5 correspond to an internal sound source, while numbers 6 – 9 correspond to an external sound source (contact outputs 1 – 4).

(2) External timer

Perform settings for broadcasting time signals enabled by a make signal from external equipment connected to the contact input of the audio interface unit.

Contact Input:	The Audio interface unit's contact input terminal number. (Can't be edited.)
Enable:	Enables the external timer function of the selected contact input.
Source:	Set the sound source number to be activated when the selected contact input terminal is closed. Numbers 1 – 5 correspond to internal sound sources, while numbers 6 – 9 correspond to external sound sources (contact outputs 1 – 4).
Access to external control:	Controls the contact output terminal set in the External Equipment Activation setting when the selected contact input terminal is closed.
Paging No.:	Set the paging zone over which broadcasts are made when the selected contact input terminal is closed.

(3) External control

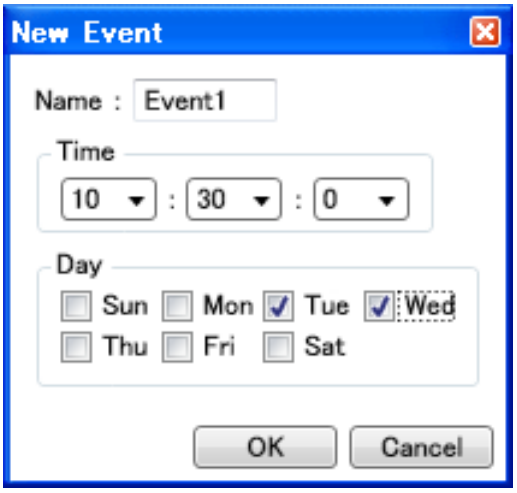
External equipment can be set to be activated when the timer-controlled or time signal programs are initiated.

Equipment No.:	Select the equipment number of the Multi interface unit, Direct select unit, or Audio interface unit of which operation mode is set to "Time signal."
Contact No.:	Select one of the contact output terminals. When the target unit is Audio interface unit, only the terminal numbers 5 to 8 can be set.
Activation time:	Set the time interval that activates the contact (1 – 1,024 sec).

(4) Schedule

Up to 16 types of schedules can be registered, and up to 64 events registered for each schedule.

Enable Schedule No.:	Activated schedule number: Set the schedule number to be used.
Each schedule settings:	Selecting one of tabs 1 – 16 allows each schedule to be set.
New button:	Add new events. Up to 64 events can be added per individual schedule. Clicking the "New" button displays the New Event screen.



Step 3-1. Set the New event.

(1) Name

Set an event name.
The name is displayed on the multi-function master station's LCD screen. The name must be of 8 characters or less.

(2) Time

Set the time that the event takes place.

(3) Day
Set the day that the event takes place.
Note: Multiple events cannot be simultaneously registered for the same time of the same day.

Step 3-2. Set the Weekly schedule.

(1) Weekly schedule
Shows a list of events registered on a day/time basis.

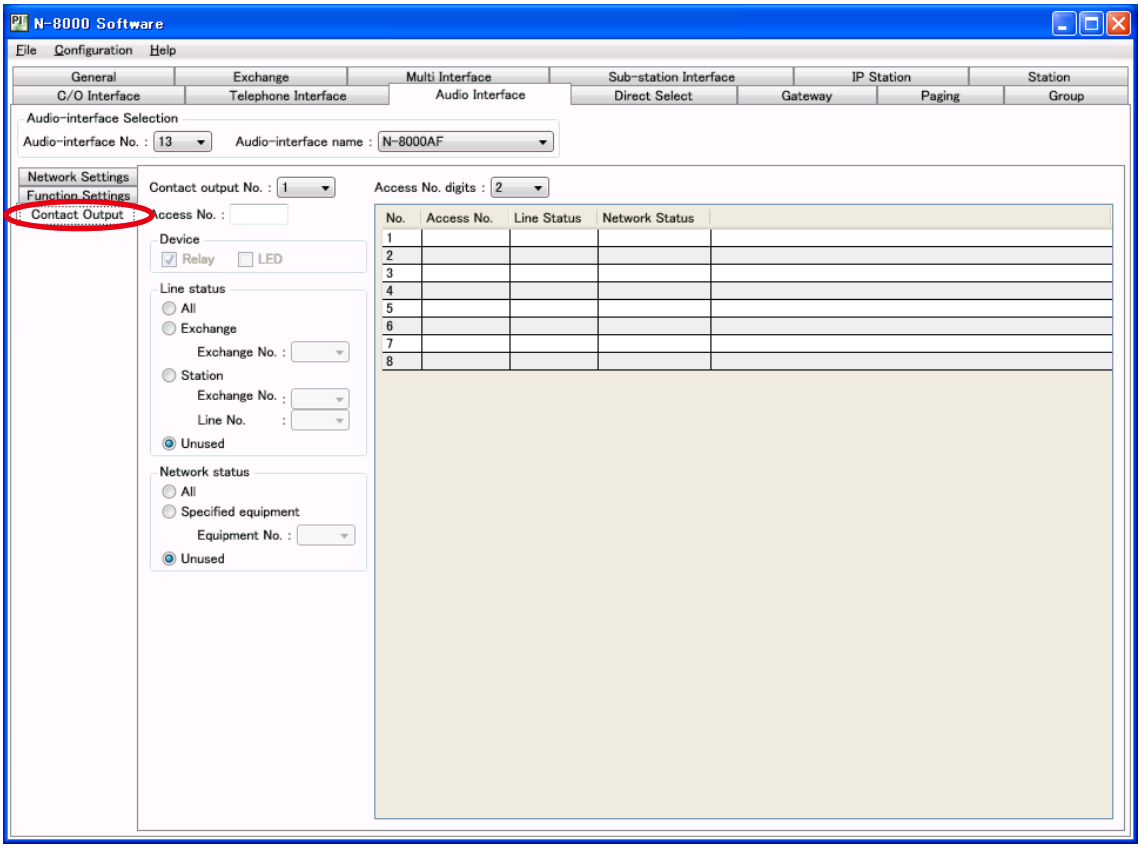
Delete button:	Deletes the selected event.
Copy button:	Copies the selected event's setting contents without time settings.

(2) Detail
Detailed contents of events can be set and confirmed.

Name:	Set an event name. Set the name of each event using up to eight alphanumeric characters.
Time:	Set the time that the event takes place.
Day:	Set the day that the event takes place. **Note** Multiple events cannot be simultaneously registered for the same time of the same day.
Paging No.:	Sets the paging zone over which broadcasts are made when the event takes place.
Source:	Selects the sound source number to be activated when the event occurs.
Access to external control:	Controls the contact output terminal set in the External Equipment Activation setting when the event takes place.
Paste button:	Pastes copied setting contents of the event.
Update button:	Makes the changed content valid.

5.11.3. Contact output setting

Step 1. Click "Contact Output" tab to display the following setting screen.



Step 2. Set each item of "Contact output."
Set the access number for the contact output terminal to be activated when the station performs external equipment control (one-shot make output or make/break output).

(1) Contact output No. (Can't be edited.)
The Audio interface unit's contact output terminal number.

(2) Access No. digits
Select the number of digits to be used when controlling external equipment at the station.

(3) Access No.
Set the access number of the digit set in "Access No. digit", which is used to control external equipment at the station.
Notes
• The access number cannot be set to "0."
• If the number of digits of the access number is 4, the usable numbers range from "0001" to "6144."

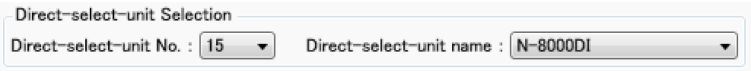
(4) Line status
Select the line to be diagnosed.
The specified contact output terminal is closed when such status is judged abnormal that the CPU failure is detected on the line or the line is not connected though the station number has been registered.

(5) Network status
Select the equipment to be diagnosed.
The specified contact output terminal is closed when the equipment is judged failed if no response is detected from it.

5.12. Setting Direct Select

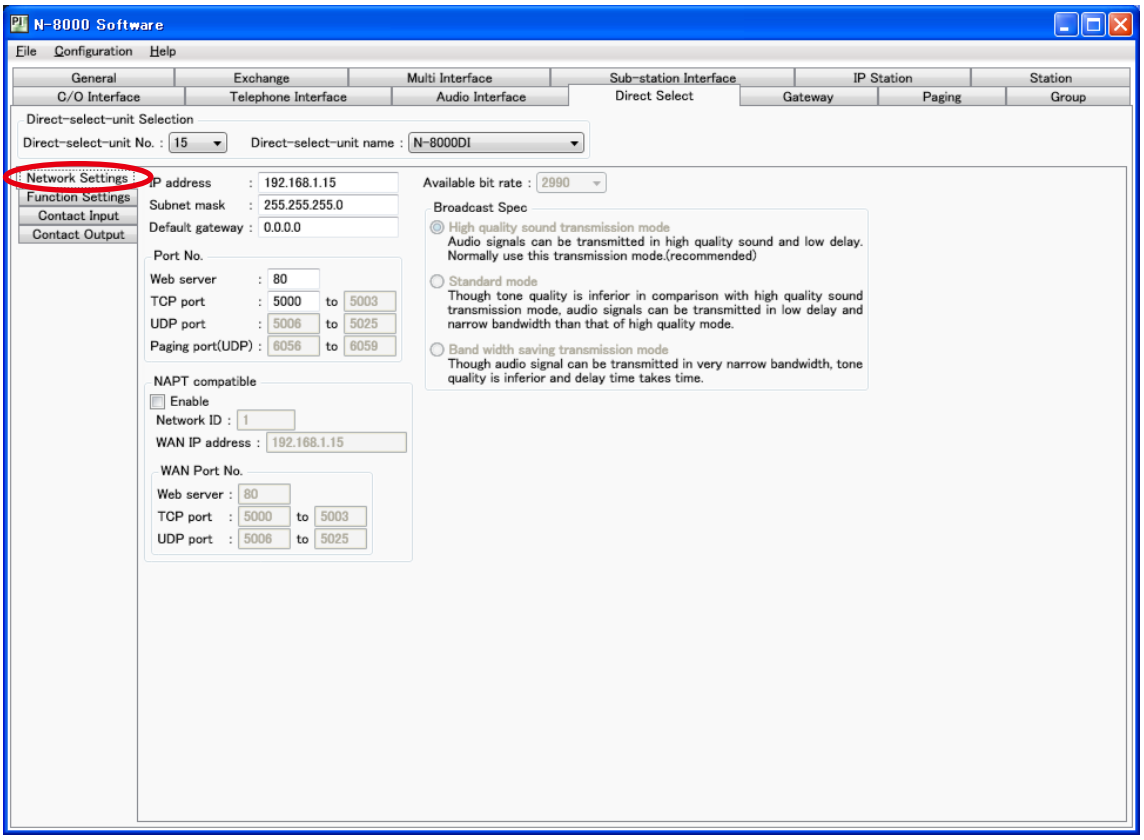
Click "Direct Select" tab to select the Direct Select to be set.

Choose the number of the Direct select unit or name from the list.



5.12.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the Direct select unit's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

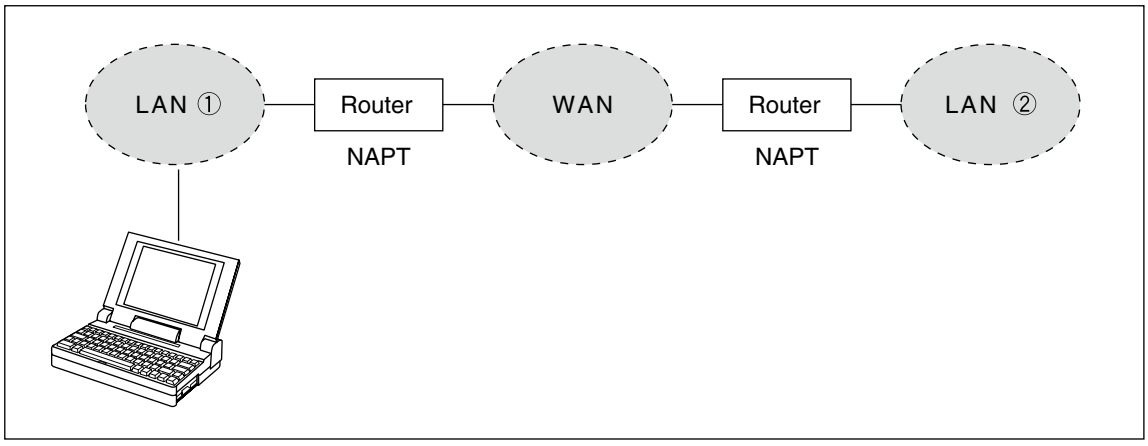
Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

(5) NAPT compatible

When connecting a PC to the Direct select unit using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the Direct select unit using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the Direct select unit's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

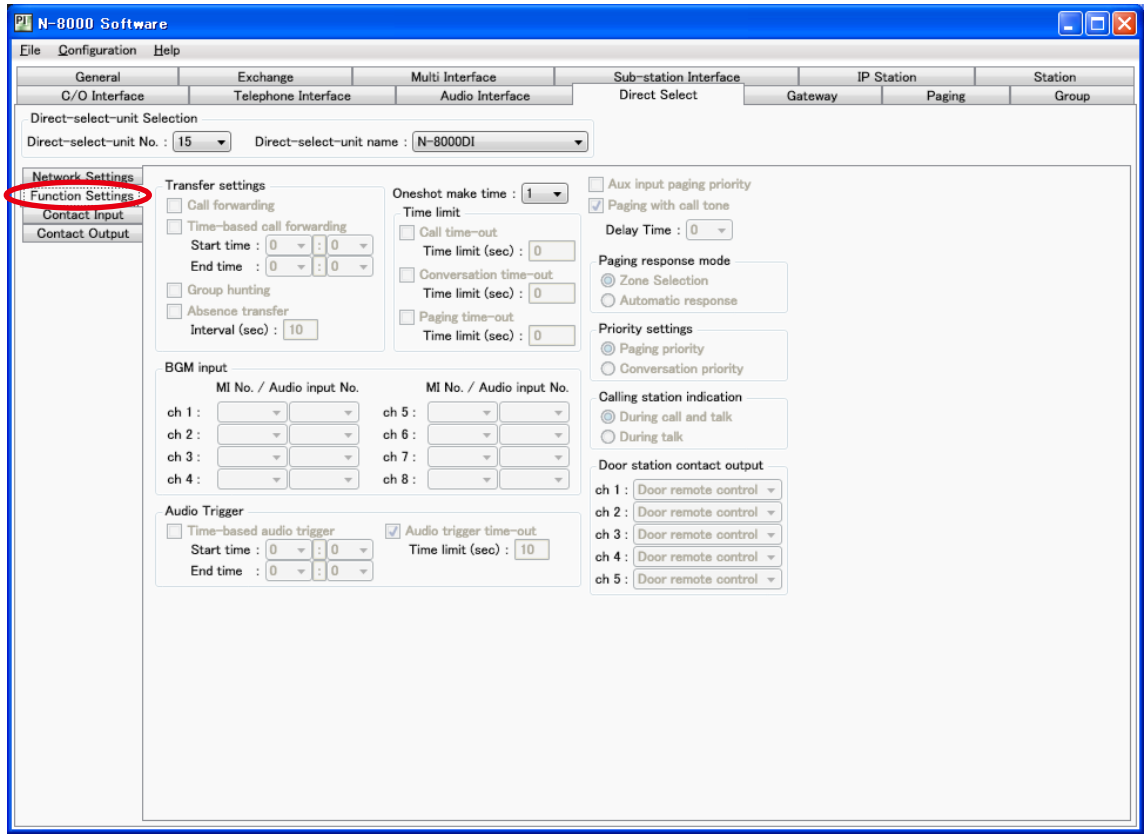
[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

5.12.2. Function settings

Step 1. Click "Function Settings" tab to display the following setting screen.

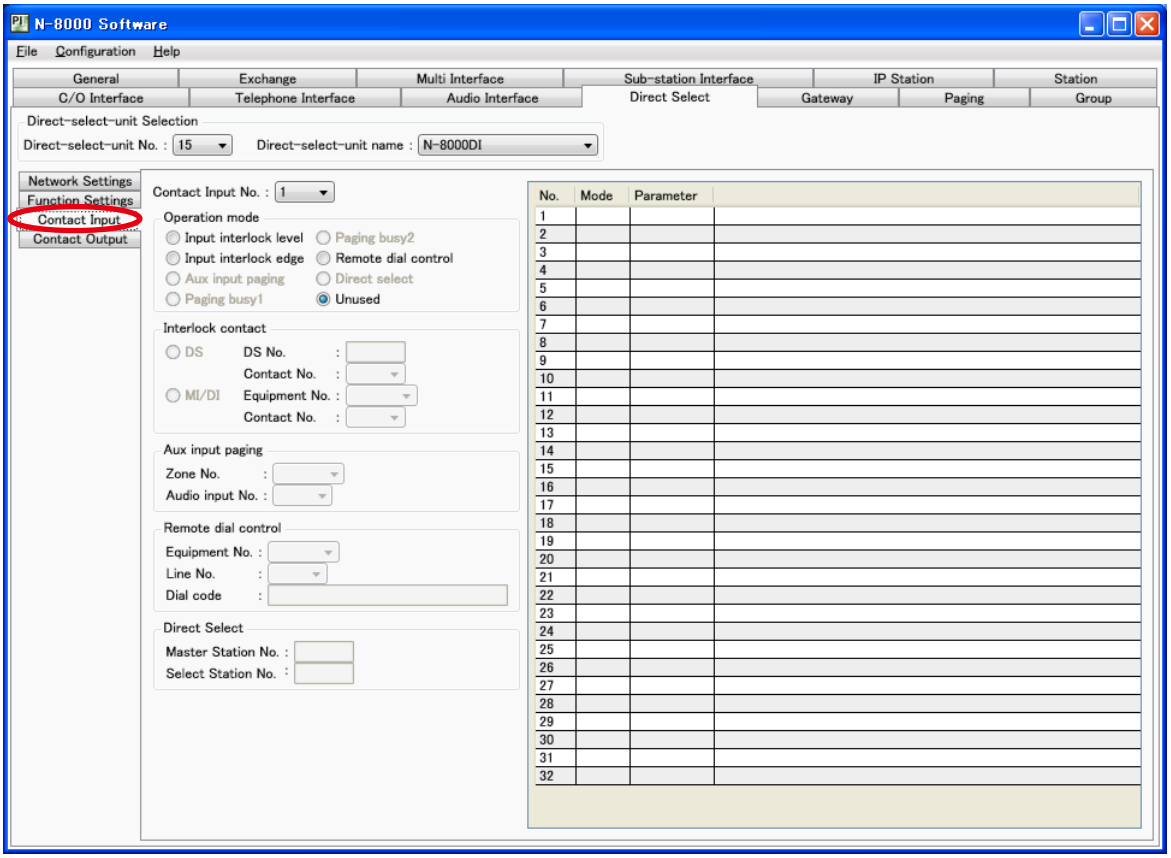


Step 2. Set the following item.

(1) Oneshot make time (second)
Sets the duration that the external control output terminals are shorted momentarily.
The setting range is from 1 to 9 (in 1-second units).

5.12.3. Contact input setting

Step 1. Click "Contact Input" tab to display the following setting screen.



Step 2. Set each item of "Contact input."

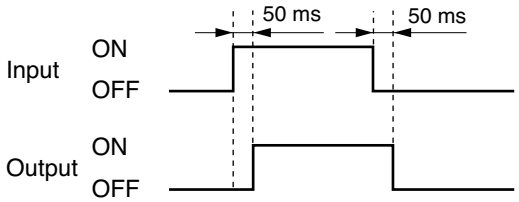
(1) Contact input No. (Can't be edited.)
The Direct select unit's contact input terminal number.

(2) Operation mode
Select the contact input's operation mode. The setting contents differ depending on the mode selected here.

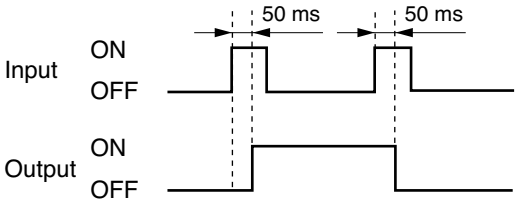
Input interlock level: Select this item when closing the contact output terminal in synchronization with the contact input terminal as shown below. (The input is defined when its level remains constant for 50 ms after change.)

Input interlock edge: Select this item when closing the contact output terminal in synchronization with the contact input terminal as shown below. (The input is defined when its level remains constant for 50 ms after change.)

[Input interlock level]



[Input interlock edge]



Remote dial control: When the Multi interface unit's or Direct select unit's contact input terminal is closed, a station is made to automatically perform dial operation. A set of up to 20 dial codes (including dial numbers and key operations) can be assigned to each contact input terminal.

Direct select: If the Direct select unit's contact input is closed, a set station is called up.

Unused: The contact input is not used.

(3) Interlock contact

Set the contact numbers to be output when "Input interlock level" or "Input interlock edge" is selected in the operation mode setting. To designate the door station's contact output terminal, select "DS" and enter the door station number. When the door station is N-8640DS or N-8650DS, enter the contact output number in the "Contact No." box as well. To designate the contact output terminal of the Multi interface unit or Direct select unit, select "MI/DI," and enter the equipment number and contact output terminal number of the unit.

(4) Remote dial control

Set the equipment number of exchange and line number to which the remote-controlled station is connected. Referring to the table below, enter the dial codes that correspond to the dial operation the station is made to perform.

• The table below shows assignable keys or operations vs. dial codes to be registered.
• A set of up to 32 dial codes can be registered.

Assignable key or operation	Dial code
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	0
✻/▼	*
#/▲	#
C	C

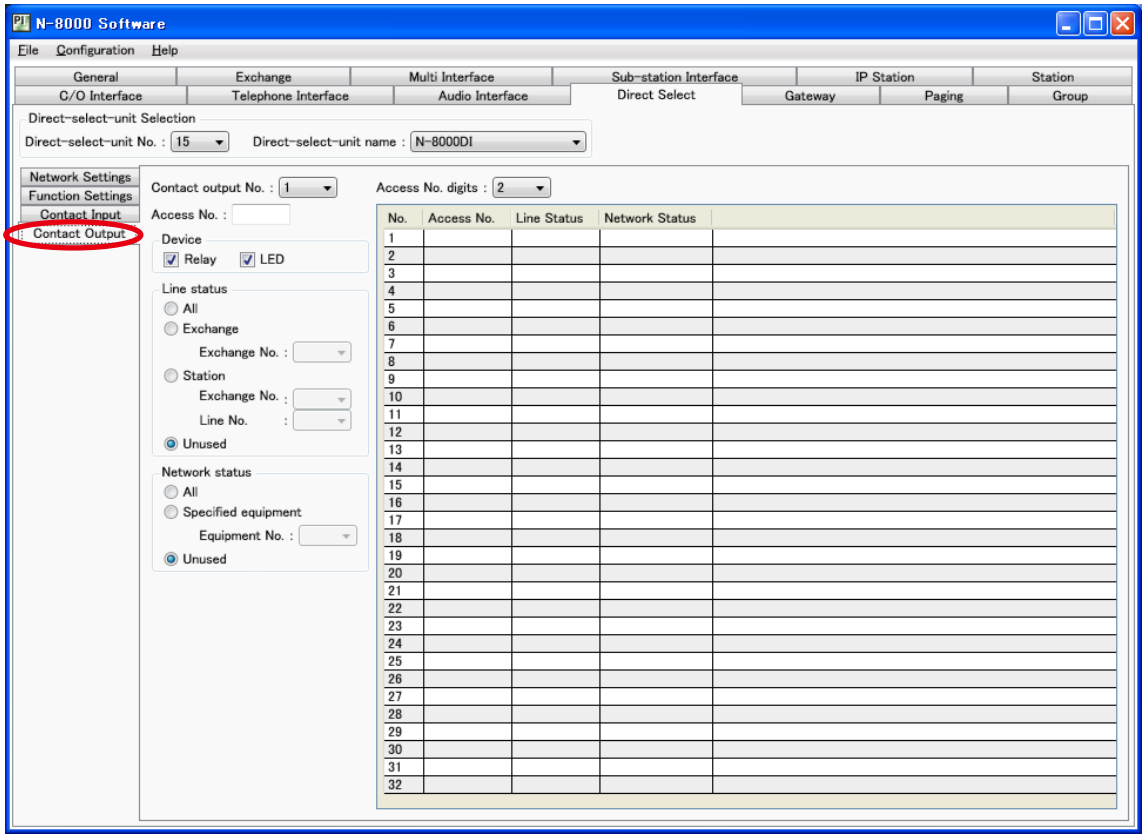
Assignable key or operation	Dial code
Press PTT key (PTT key is on.)	PN
Release PTT key (PTT key is off.)	PF
Paging call	PC
Paging response	PR
HOLD	HD
TRANSFER	TR
FUNCTION	FN
REDIAL	RD
MENU	MN
SELECT	SL
Left arrow key (◄)	LC
Right arrow key (►)	RC
Up arrow key (▲)	UC
Down arrow key (▼)	DC

(5) Direct select

Set the master station number to be controlled and the station number to be connected to the master station when "Direct Select" has been selected in the Operation mode setting.

5.12.4. Contact output setting

Step 1. Click "Contact Output" tab to display the following setting screen.



Step 2. Set each item of "Contact output."
Set the access number for the contact output terminal to be activated when the station performs external equipment control (one-shot make output or make/break output).

(1) Contact output No. (Can't be edited.)
The Direct select unit's contact output terminal number.

(2) Access No. digits
Select the number of digits to be used when controlling external equipment at the station.

(3) Access No.
Set the access number of the digit set in "Access No. digit", which is used to control external equipment at the station.
Notes
• The access number cannot be set to "0."
• If the number of digits of the access number is 4, the usable numbers range from "0001" to "6144."

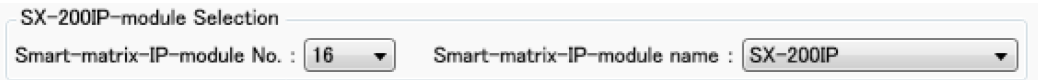
(4) Device
Enable or disable relay and LED outputs.

(5) Line status
Select the line to be diagnosed.
The specified contact output terminal is closed when such status is judged abnormal that the CPU failure is detected on the line or the line is not connected though the station number has been registered.

(6) Network status
Select the equipment to be diagnosed.
The specified contact output terminal is closed when the equipment is judged failed if no response is detected from it.

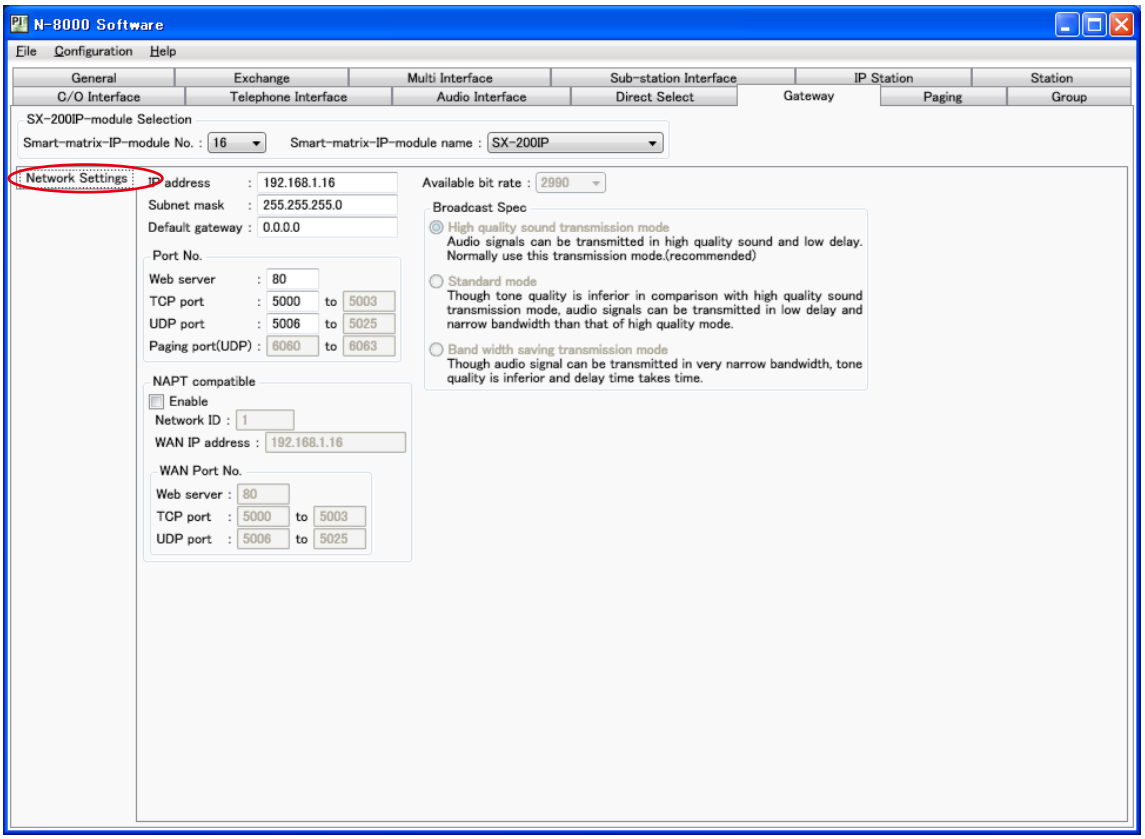
5.13. Setting Gateway

Click "Gateway" tab to select the IP module to be set.
Choose the name or number of the IP module from the list.



5.13.1. Network settings

Step 1. Click "Network Settings" tab to display the following setting screen.



Step 2. Set individual items.

(1) IP address
Allows entry of the IP module's IP address.

(2) Subnet mask
Allows entry of the Subnet mask.

(3) Default gateway
Allows entry of the Default gateway.

(4) Port No.

Set the start port number to be used for each protocol.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of a TCP port start number other than the Web server (valid range from 1 to 65532). The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

[UDP port]
Allows entry of UDP port start number to be used (valid range from 1 to 65516). The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0	5006
Frequency compensation	UDP	Port start number + 1 to 3	5007 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

Note
Because UDP port number 15000 is used internally by the system, the numbers from 14981 to 15000 are not available.

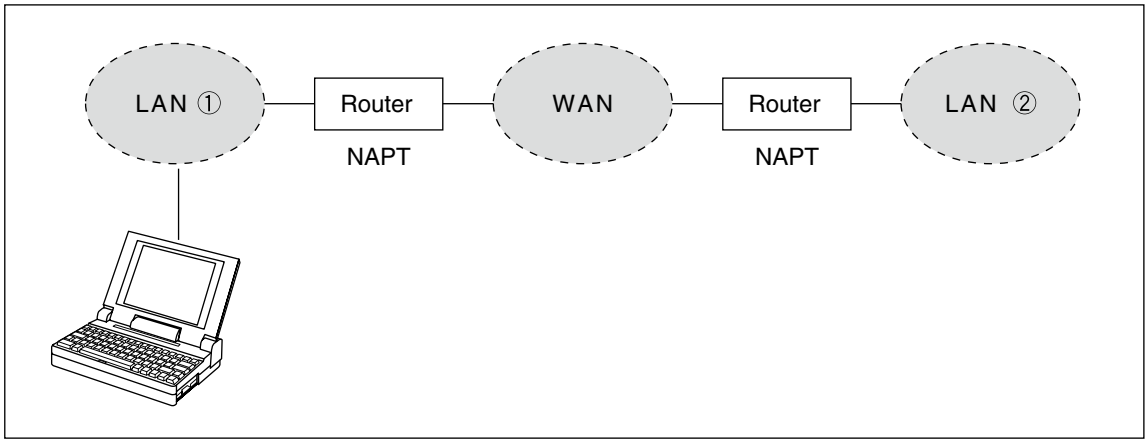
[Paging port (UDP)]
Displays the UDP port number to be used when making paging using the multicast communications.
To perform settings, refer to p. 5-121, Paging Zone Settings.

(5) NAPT compatible

When connecting a PC to the exchange using the global IP address, mark the [Enable] checkbox to make the items from [Network ID (6)] to [WAN port No. (8)] available for input.

(6) Network ID

When connecting a PC to the exchange using the global IP address, enter the number that identifies networks for each range accessible by the PC using the local address.
When networks are connected as shown below, for example, assign different ID numbers for each, such as "1" to equipment connected to LAN (1) and "2" to equipment connected to LAN (2).
Network ID No. 1 is assigned to the PC for setting. Set network ID No. 1 to equipment that can be accessed by the PC (for example, equipment connected to LAN 1) using the local address.



(7) WAN IP address

Allows entry of the IP module's IP address as viewed from the WAN side.

(8) WAN Port No.

Set the start port number to be used for each protocol as viewed from the WAN side.

[Web server]
Allows entry of the Web server's port number. The valid range is from 1 to 65535. The default factory setting is 80.

[TCP port]
Allows entry of TCP port start number other than the Web server. The valid range is from 1 to 65532. The N-8000 system uses 4 consecutive ports starting with the TCP start port. The default factory setting is 5000.

The TCP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Web server	TCP	Web server	80
Call control	TCP	Port start number + 0	5000
PC monitoring	TCP	Port start number + 1	5001
PC control	TCP	Port start number + 2	5002
Reservation	TCP	Port start number + 3	5003

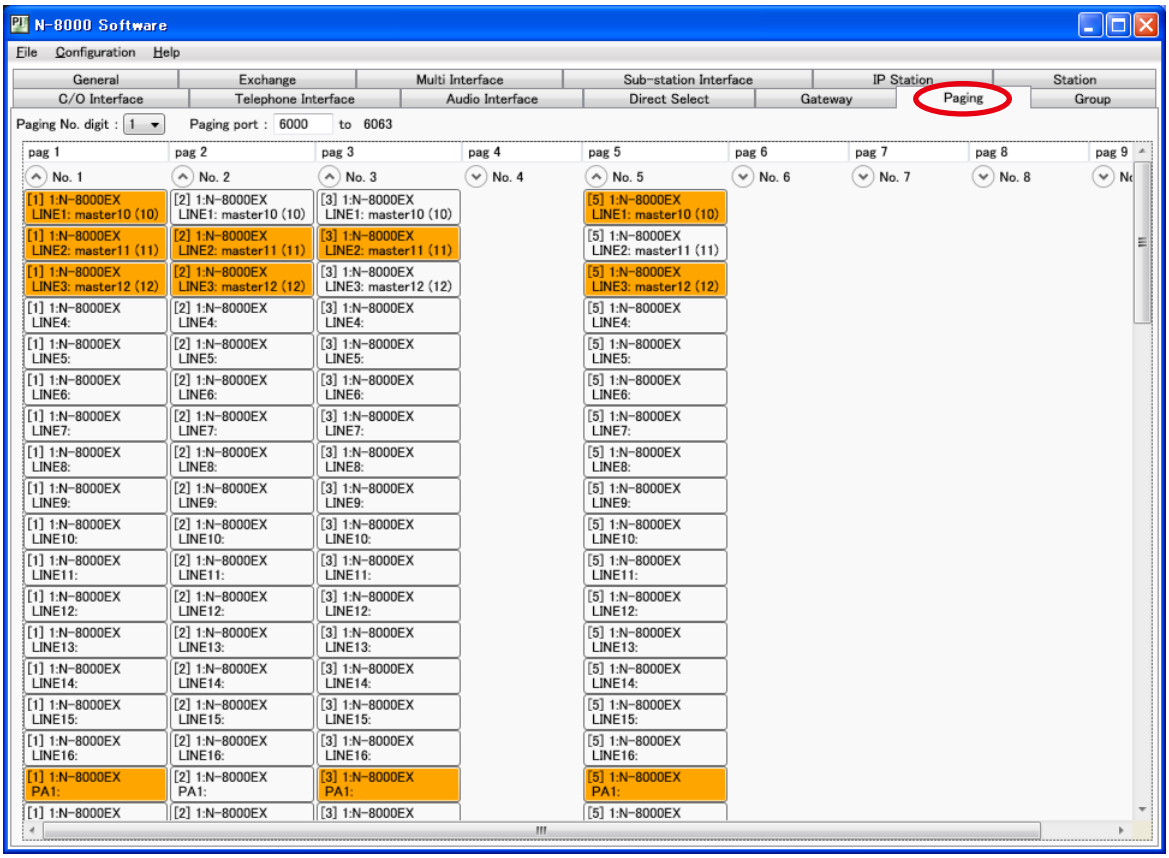
[UDP port]
Allows entry of UDP port start number to be used. (valid range from 1 to 65516) The N-8000 system uses 20 consecutive ports starting with the UDP start port. The default factory setting is 5006.

The UDP port is assigned as follows.

Port	Protocol	Port Number	Default setting
Reservation	UDP	Port start number + 0 to 3	5006 to 5009
Conversation	UDP	Port start number + 4 to 19	5010 to 5025

5.14. Paging Zone Settings

Step 1. Click "Paging" to display the following setting screen.



Step 2. Select the paging number digit.
Select the number for [Paging No. digit].
Zones are automatically indicated depending on which number is set.
The maximum number of zones is 192.

Step 3. Enter the paging port number to be used.
Enter the start paging port number to be used in the system. The valid range is from 1 to 65535. The N-8000 system uses (the number of Exchanges) x 4, (the number of various kinds of interface units) x 4 and (the number of IP Stations) x 4 consecutive ports starting with the start port.

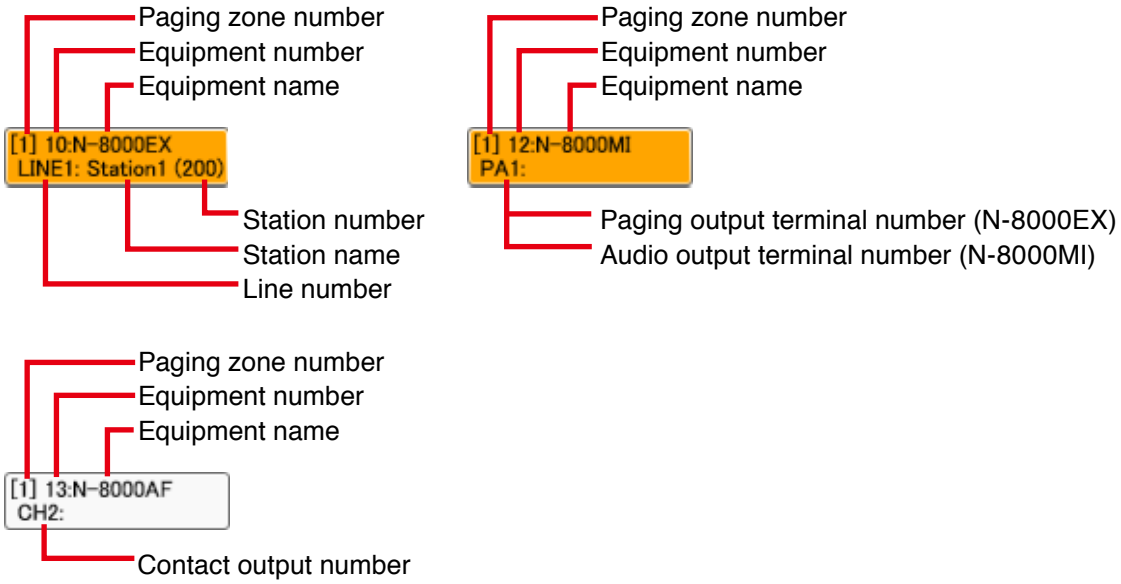
Note
Take care not to duplicate the number with the UDP port number set on p. 5-31, 5-39, 5-51, 5-59, 5-86, 5-94, 5-103, and 15000 that is internally used.

Step 4. Enter a zone name.
Double-clicking the cell (pag 1 –) located above the zone number allows the zone name to be edited.
The zone name can be up to eight characters long.

Step 5. Select stations, external PA paging outputs, and N-8000MI/8000AF's contact outputs included in each zone.
Pressing the down arrow button of the paging zone to be set displays individual buttons containing output destination information (station, PA paging output, or N-8000MI/8000AF's contact output).

Whether or not to include these output zones in the channel can be selected by clicking the button. When they have already been included in the channel, the button is displayed in orange.

[Display example]



5.15. Group Settings

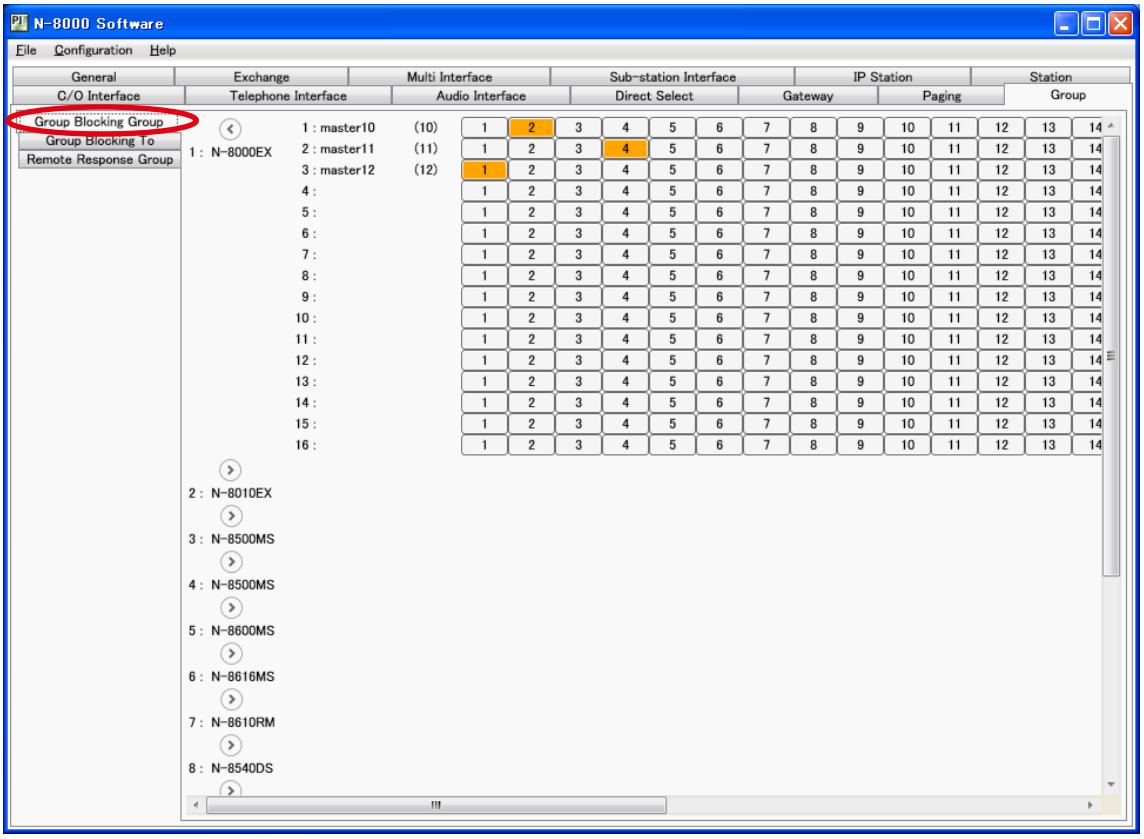
Step 1. Click "Group" to set either Group Blocking or Remote Response group.

5.15.1. Group blocking settings

Stations can be divided into groups, to each of which call-to-other groups setting and paging zone setting can be assigned. Setting groups in this way allows a single system to be divided into several independent zones. Up to 31 groups can be preset.

[Group settings]

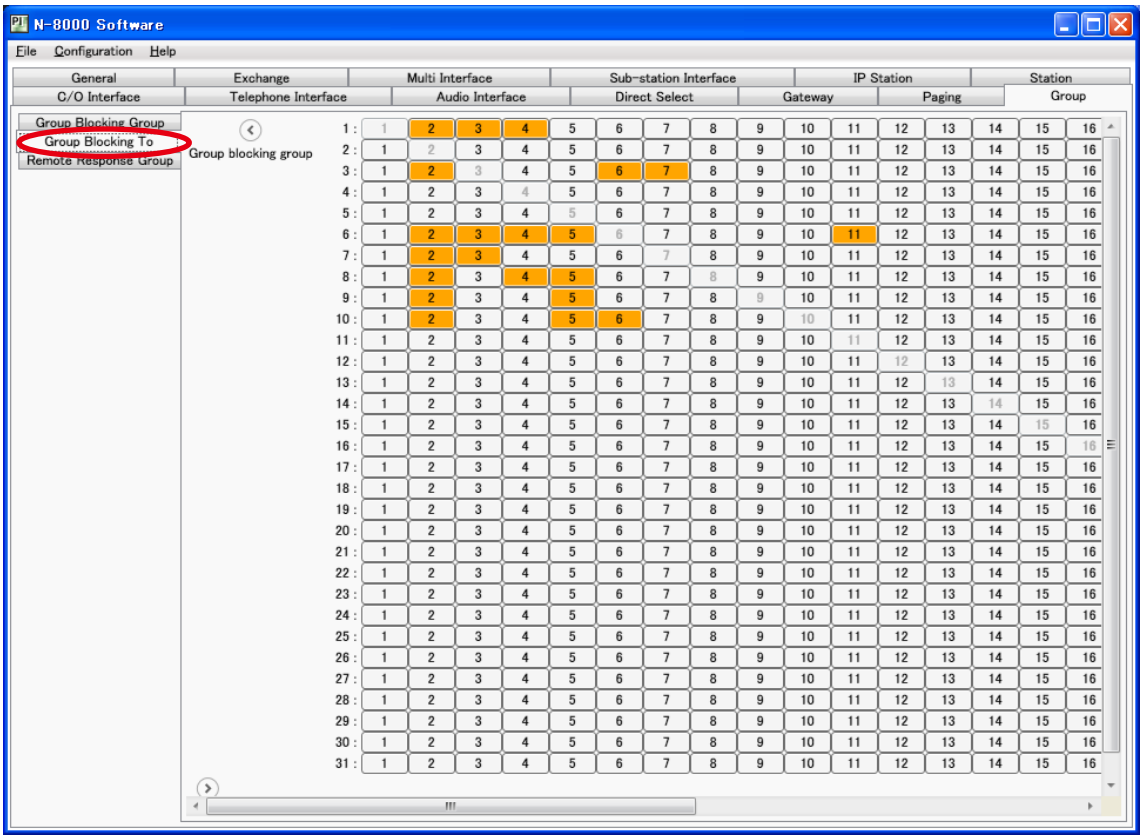
Step 1. Click "Group blocking group" tab to display the following screen.



Step 2. Select the station to be assigned to each group.
Clicking the right arrow button of the paging zone to be set displays the group buttons for individual devices. Clicking the button selects whether or not to include such devices in the group. If they have already been included, the corresponding button is displayed in orange.

[Group blocking group settings]

Step 1. Click "Group blocking to" tab to display the following screen.



Step 2. Tick the cell for the group to be selected to "Group blocking group" and "Paging."
Press the right arrow button of "Restricted Station Calling Group" to set the groups that can be called up by another group, and press the right arrow button of "Paging" to set the paging zones. This causes individual buttons to be displayed for the restricted station calling group or paging zones.

Whether or not calls are possible can be selected by clicking the button.
The button for the group that can be called is displayed in orange.

Note
The paging zones desired to be enabled can be selected from "ALL" and individual zone numbers.
Select the checkbox of "ALL" to make all zones paging.
Even if all zone numbers are selected, all-zone paging cannot be performed unless "All-Zone" has been selected.

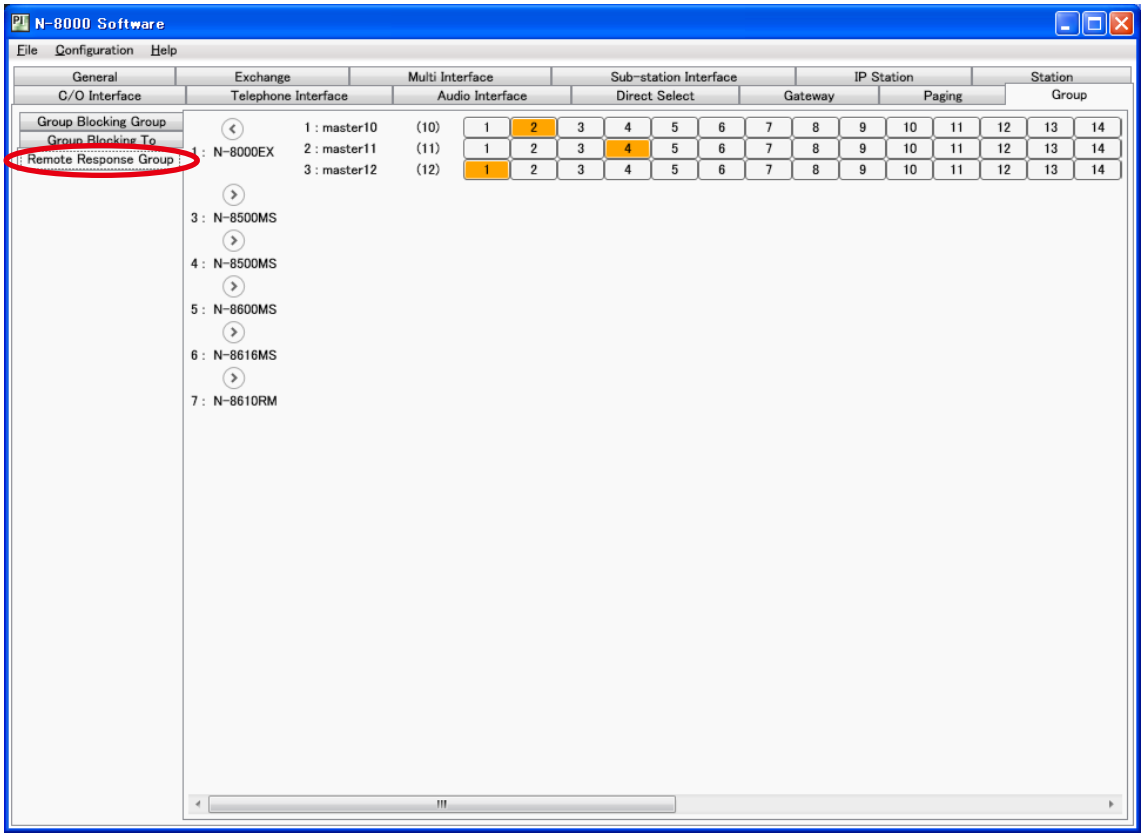
5.15.2. Remote response group settings

Setting the remote response station group permits any station programmed for this function to respond to calls to other stations within the group.
Up to 16 stations can be preset.
Also, this function is only possible when the system is set to sequential response mode.

Note
Stations connected to the N-8010EX cannot be assigned to the Remote Response Group.

[Creating new remote response group]

Step 1. Click "Remote response group" tab to display the following screen.



Step 2. Choose the stations to be configured into the group from the list.
Pressing the right arrow button for the device to be set displays the group buttons for individual stations. Stations can be selected for inclusion by clicking the button. When a selected station has already been included in the group, its corresponding button is displayed in orange.

Notes
- Up to 16 stations can be programmed per group.
- A single station cannot be assigned to more than one group.

6. WHEN SETTINGS ARE COMPLETED

6.1. Saving Setting Contents to Files

Save the setting contents to a specified location (refer to p. 5-12).

Select [File → Save] from the menu bar.

6.2. Uploading Settings

Uploads setting contents currently being edited.
Before uploading, be sure to save the settings contents to file as described above.

Select [Configuration → Upload] from the menu bar.

6.3. Downloading Settings

Reads the setting contents of equipment currently connected to the N-8000 Setting Software.

Select [Configuration → Download] from the menu bar.

The settings data for equipment currently programmed into the system will be displayed on the system setting screen.

6.4. Printing Settings

The settings in edit can be printed.

Select [File → Print] from the menu bar.

The set data of the equipment registered in the system can be printed.

[Print example]

TOA PacketIntercom N-8000 Series, Configuration Data *System name: N-8000*

[General]

Equipment Registration

Type	Equipment No.	Equipment name	Model	IP Address	Web Port	WAN IP address	WAN Web port
EX	1	EX1	N-8000EX	192.168.1.1	80		
EX	2	EX2	N-8000EX	192.168.1.2	80		
EX	3	EX3	N-8000EX	192.168.1.3	80		
IP	4	IPM1	N-8500MS	192.168.1.4	80		
IP	5	IPD1	N-8540DS	192.168.1.5	80		
MI	6	MI	N-8000MI	192.168.1.6	80		

Station Table

Station No. digits: 3

Equipment No.	Equipment name	Line No.	Type	Station No.	Station name
1	EX1	1	N-8000MS	100	sta1-1
1	EX1	2	N-8000MS	101	sta1-2
1	EX1	3	N-8000MS	102	sta1-3
1	EX1	4	N-8000MS	103	sta1-4
1	EX1	5	N-8000MS	104	sta1-5
1	EX1	6	N-8000MS	105	sta1-6
1	EX1	7	N-8000MS	106	sta1-7
1	EX1	8	N-8000MS	107	sta1-8
1	EX1	9	N-8000MS	108	sta1-9
1	EX1	10	N-8000MS	109	sta1-10
1	EX1	11	N-8000MS	110	sta1-11
1	EX1	12	N-8000MS	111	sta1-12
1	EX1	13	N-8000MS	112	sta1-13
1	EX1	14	N-8000MS	113	sta1-14
1	EX1	15	N-8000MS	114	sta1-15
1	EX1	16	N-8000MS	115	sta1-16
2	EX2	1	N-8000MS	116	sta2-1
2	EX2	2	N-8000MS	117	sta2-2
2	EX2	3	N-8000MS	118	sta2-3
2	EX2	4	N-8000MS	119	sta2-4
2	EX2	5	N-8000MS	120	sta2-5
2	EX2	6	N-8000MS	121	sta2-6
2	EX2	7	N-8000MS	122	sta2-7
2	EX2	8	N-8000MS	123	sta2-8
2	EX2	9	N-8000MS	124	sta2-9
2	EX2	10	N-8000MS	125	sta2-10
2	EX2	11	N-8000MS	126	sta2-11
2	EX2	12	N-8000MS	127	sta2-12
2	EX2	13	N-8000MS	128	sta2-13
2	EX2	14	N-8000MS	129	sta2-14
2	EX2	15	N-8000MS	130	sta2-15
2	EX2	16	N-8000MS	131	sta2-16
3	EX3	1	N-8000MS	132	sta3-1
3	EX3	2	N-8000MS	133	sta3-2
3	EX3	3	N-8000MS	134	sta3-3
3	EX3	4	N-8000MS	135	sta3-4
3	EX3	5	N-8000MS	136	sta3-5
3	EX3	6	N-8000MS	137	sta3-6
3	EX3	7	N-8000MS	138	sta3-7
3	EX3	8	N-8000MS	139	sta3-8
3	EX3	9	N-8000MS	140	sta3-9
3	EX3	10	N-8000MS	141	sta3-10
3	EX3	11	N-8000MS	142	sta3-11
3	EX3	12	N-8000MS	143	sta3-12
3	EX3	13	N-8000MS	144	sta3-13
3	EX3	14	N-8000MS	145	sta3-14
3	EX3	15	N-8000MS	146	sta3-15
3	EX3	16	N-8000MS	147	sta3-16
4	IPM1	1	N-8500MS	148	IPM1
5	IPD1	1	N-8540DS	149	IPD1

Network Communication Registration

	Equipment No.	1	2	3	4	5	6
Equipment No.	Equipment name	EX1	EX2	EX3	IPM1	IPD1	MI
1	EX1						
2	EX2	○					
3	EX3	○	○				
4	IPM1	○	○	○			
5	IPD1	○	○	○	○		
6	MI	○	○	○	○	○	

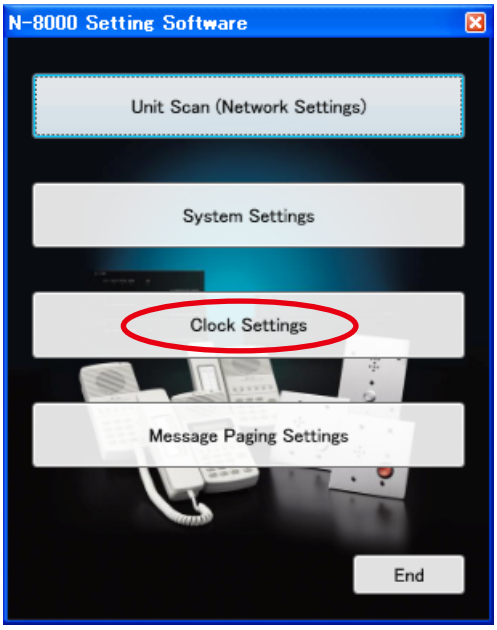
- 1 -

7. SYSTEM CLOCK SETTINGS

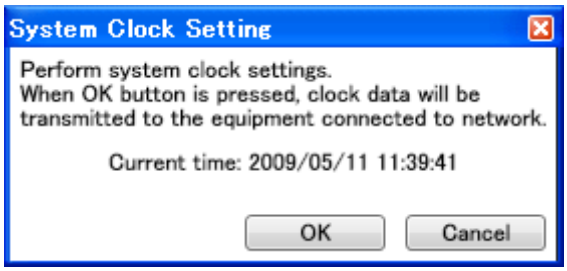
The N-8000 Setting Software program allows the clocks for all exchanges, various kinds of interface units, and IP stations connected to the system to be set. To set exchange clocks individually (for example, if there is a time difference between exchanges), use either the browser (refer to p. 6-42), the N-8000MS Multifunctional Master station, or the N-8500MS/8600MS IP Multifunctional Master station (refer to p. 7-10).

- Synchronize the system clock with the PC clock through the following procedure. Make sure that the PC clock has been set with the correct time beforehand.

Step 1. Click "Clock Settings" on the initial screen.



A clock-setting dialog is displayed, showing the PC's current time.



Step 2. Performs system clock settings.
Press "OK" to synchronize the clocks for all exchanges connected to the network with the PC clock.

8. MESSAGE PAGING SETTINGS

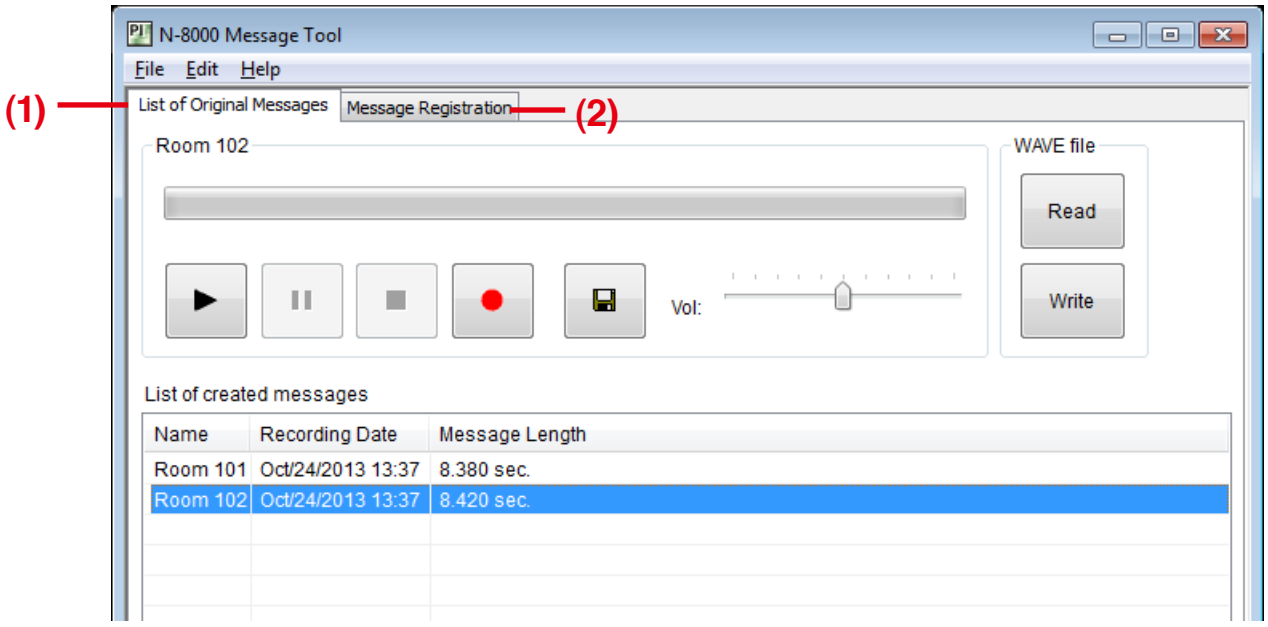
Create and set the messages to be used in the IP Master station's and IP Remote microphone station's message paging.

8.1. Display the Setting Screen

Clicking [Message Paging Settings] on the initial screen displays the Message Paging Setting screen.

[Initial screen]

[Message Paging Setting screen]

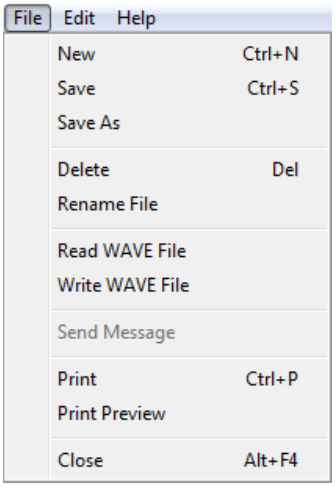


(1) List of Original Messages
Displays the list of original messages stored in the PC.
New messages can be created or the sound volume of existing messages adjusted.

(2) Message Registration
Displays the message content registered in the IP Master station and IP Remote microphone station.
The siren tone to be used in the system can be selected.
The content of the created message can be confirmed.

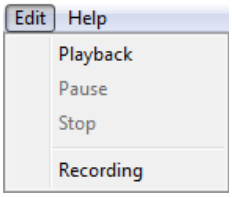
8.2. Menu

8.2.1. File



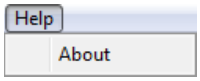
New: Creates a new message.
Save: Saves the message.
Save As: Assigns a name to the message and saves it.
Delete: Deletes the message.
Rename File: Changes the name of the message.
Read WAVE File: Creates original messages by converting WAV-format files to the original format.
Write WAVE File: Converts original format files to the WAV-format and saves them as files.
Send Message: Transfers messages stored in the PC to the IP Master station and IP Remote microphone station.
Print: Prints the list of original messages and the registered message content.
Print Preview: Displays the print preview screen.
Close: Close the Message Paging Setting Screen.

8.2.2. Edit



Playback: Plays back recorded messages.
Pause: Temporarily stops message recording, playback and other operations.
Stop: Stops message recording, playback and other operations.
Recording: Starts message recording.

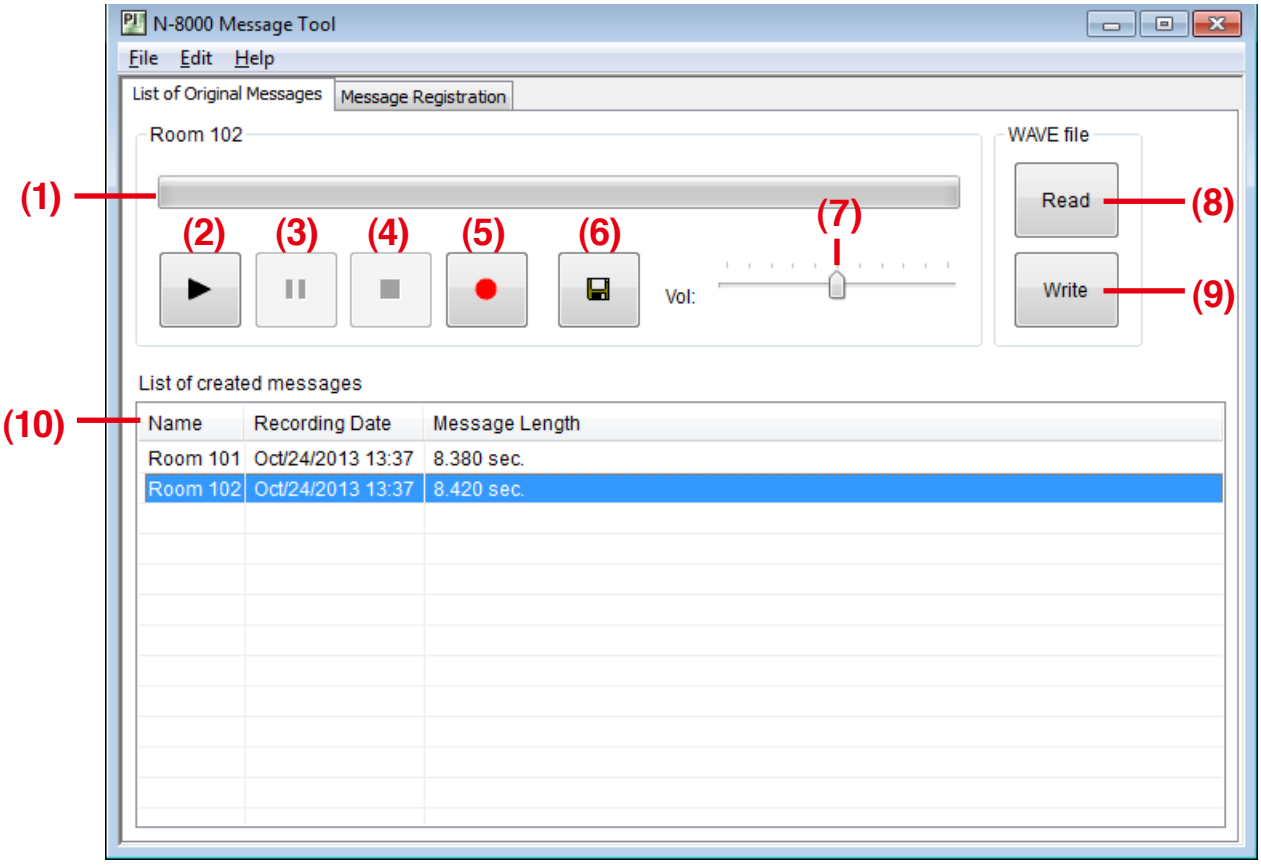
8.2.3. Help



About: Displays current software version information.

8.3. Create and Test-Listen to the Original Messages

Click the [List of Original Messages] tab on the message paging setting screen.
The list of original messages that have been created is displayed.



[Screen description]

(1) Recording/playback progress indicator
Progress bar indicates the progress of the process during recording or playback.

(2) Playback button
Plays back selected messages or recorded messages (not saved).

(3) Pause button
Temporarily stops message recording or playback of selected or recorded messages.

(4) Stop button
Stops message recording or playback.

(5) Recording button
Starts message recording.

(6) Save button
Saves recorded messages.

(7) Volume control
Adjusts the message volume level.
The center position is the standard level, with lower volume to left and higher volume to right.
Pressing the Save button after moving the knob to either the left or right from the standard level position resets the standard level to the new position and saves the message.
Note
If a message is saved while the volume control is set to the minimum position, the original message volume cannot be restored even if the volume is increased.

(8) Read button
Creates original messages by converting WAV-format files to the original format.

(9) Write button
Converts selected messages to the WAV-format to save them as files.

(10) List of created messages
Displays the name, recorded time and date, and message length of saved messages.
Files stored in the [(System name)\Message] folder located in the Data Folder are shown here.

8.3.1. Creating new messages

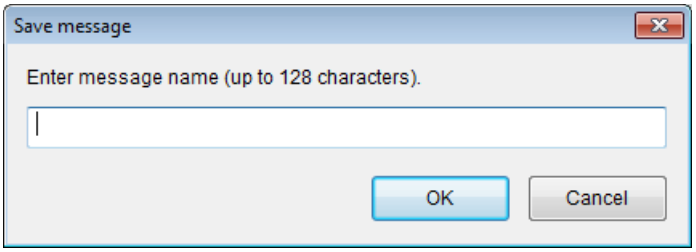
Connect the input source (microphone, external playback device, etc.) to be recorded to the PC.
The recording sound volume corresponds to the input sound volume set in the PC. Set the PC sound volume to an appropriate level.

Step 1. Select [File → New] from the menu bar.
The PC is placed in new message creation mode.
Note: This mode is already started when the program is activated.

Step 2. Press the Recording button or select [Edit → Recording] from the menu bar and begin to record the message.
Either speak into the microphone or play back the input device.
Messages of up to 20 seconds in length can be recorded. Recording automatically stops after 20 seconds. To stop recording partway through, either press the Stop button or select [Edit → Stop] from the menu bar.

Step 3. To check the recorded content, either press the Playback button or select [Edit → Playback] from the menu bar.

Step 4. Either press the Save button or select [File → Save] from the menu bar.
A dialog for entering the message name is displayed.



Step 5. Enter the message name and press the OK button.
The message name can be up to 128 characters in length.
If the save is complete, the message's file is created in the [(system name)\Message] folder located in the Data Folder.

8.3.2. Deleting created messages

Step 1. Select the desired message in the list of created messages.

Step 2. Select [File → Delete] from the menu bar or press the PC's Delete key.
The selected message is deleted.

8.3.3. Changing the names of created messages

Step 1. Select the desired message in the list of created messages.

Step 2. Select [File → Rename File] from the menu bar or click the selected message again.
The filename can then be changed.

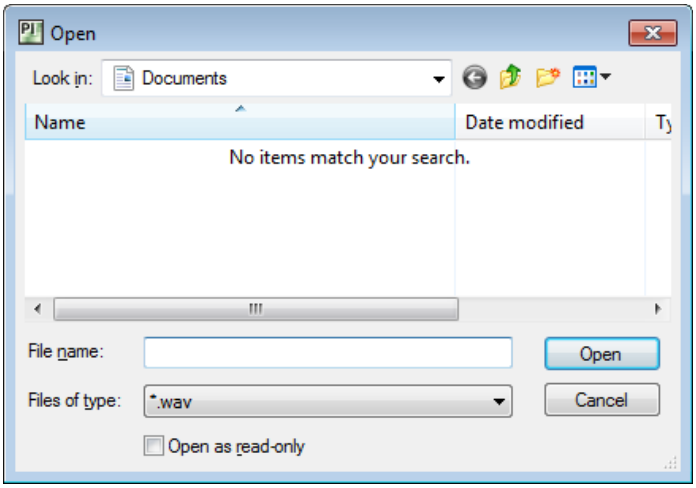
Step 3. Enter the new name.
The message name can be up to 128 characters in length.

8.3.4. Creating messages from WAV-format files

WAV-format file can be converted to original format files and saved as original messages.

Note
The compatible WAV-format file specifications are:
- 16 bits and 16 kHz sampling frequency
- Monaural

Step 1. Press the Read button or select [File → Read WAVE File] from the menu bar.
A dialog for selecting the WAV-format file is displayed.

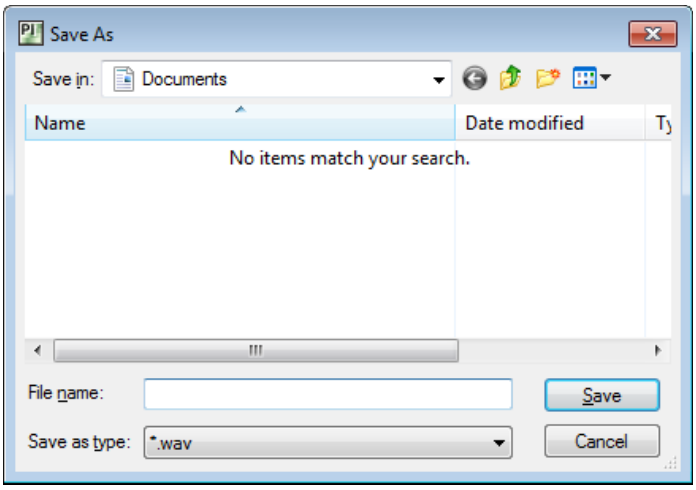


Step 2. Select the file and press the Open button.
The file is converted to the original format and saved as an original message.
After conversion is complete, the message file is saved in the [(system name)\Message] folder located in the Data Folder.

8.3.5. Creating WAV-format files from messages

WAV-format files can be created from registered original message files.

Step 1. Select the message from the list of created messages and either press the Write button or select [Edit → Write WAVE File] from the menu bar.
A file save dialog is displayed.



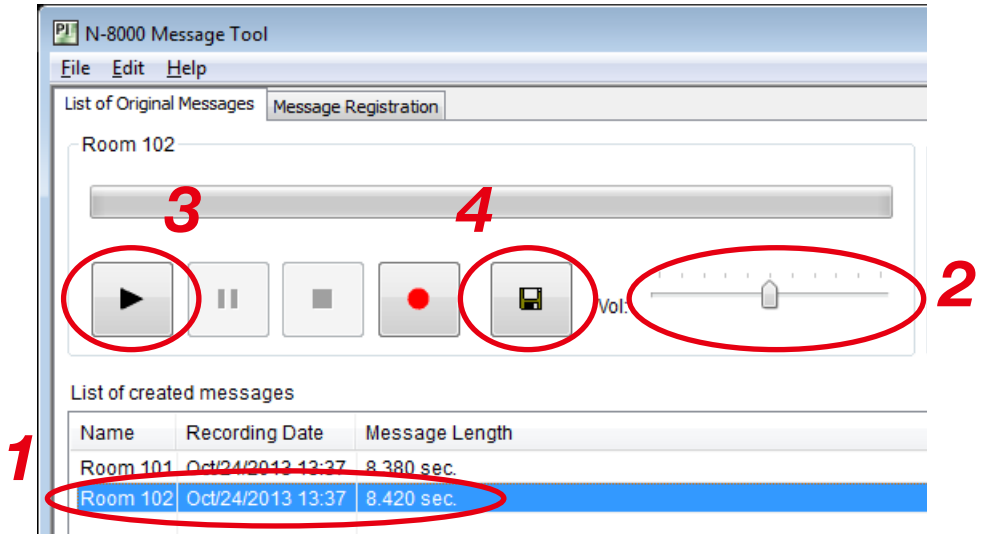
Step 2. Enter the filename to be saved, then select the destination and press the Save button.
The WAV-format file is created and saved.
The WAV-format file specifications are:
- 16 bits and 16 kHz sampling frequency
- Monaural

8.3.6. Test-listening to messages

Step 1. Select the message to listen to from the list of created messages.

Step 2. Press the Playback button or select [Edit → Playback] from the menu bar.
The message automatically stops after being played to its end.
To stop the message partway through playback, either press the Stop button or select [Edit → Stop] from the menu bar.

8.3.7. Adjusting the sound volume



Step 1. Select the message to adjust the sound volume for from the list of created messages.

Step 2. Adjust the volume using the volume control knob.

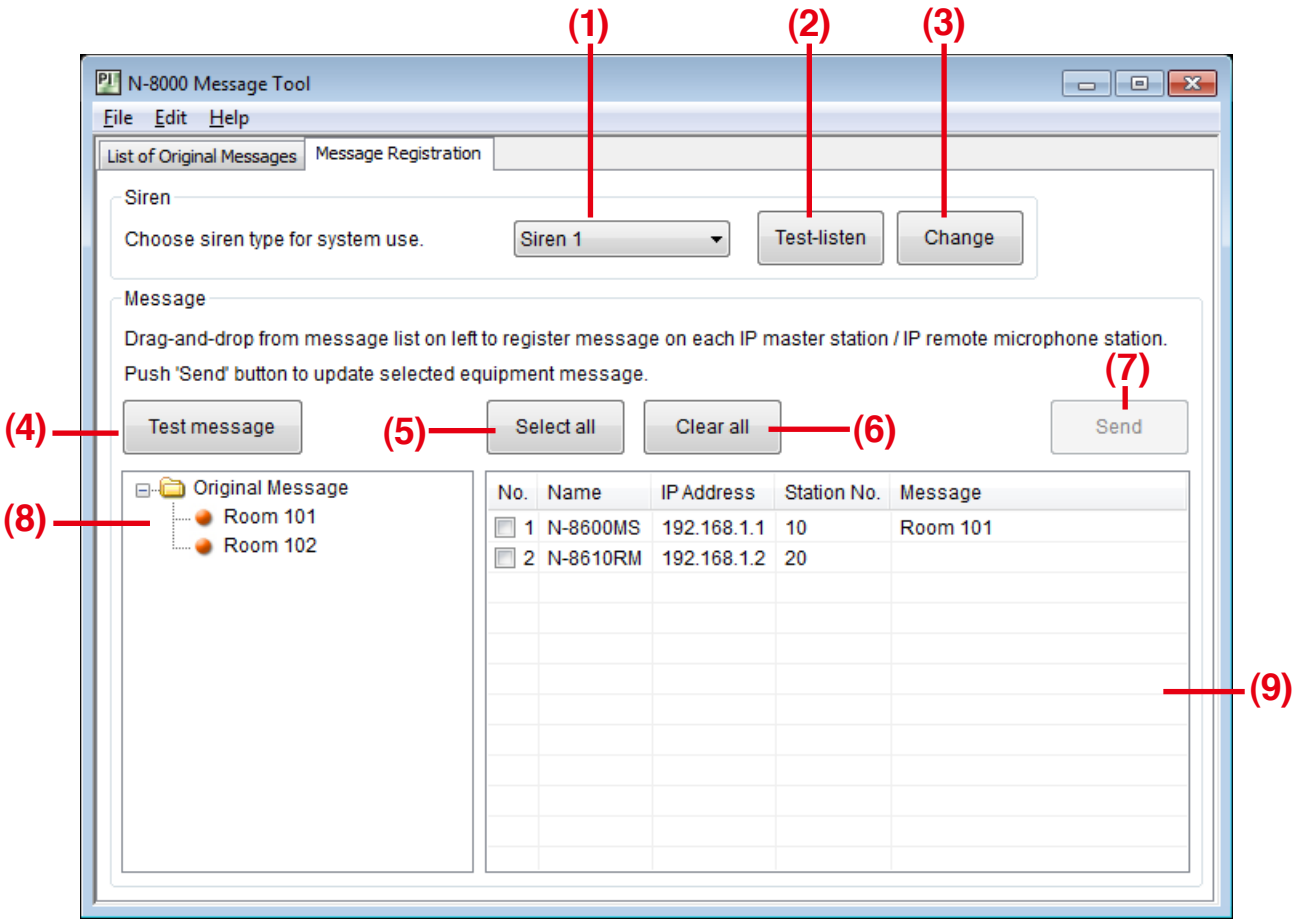
Step 3. Press the Playback button or select [Edit → Playback] from the menu bar and confirm the output volume level.

Step 4. Press the Save button or select [File → Save] from the menu bar.

Notes
- If the changed volume is not saved, the volume data is not updated.
- If the message is saved while the volume control is set to the minimum position, the original message volume cannot be restored even if the volume is increased.
- If the volume is changed and saved, the saved volume becomes the standard level (the central value of the volume adjustment range) when the message is played back the next time.

8.4. Registering Messages in the IP Master Station and IP Remote Microphone Station

Click the [Message Registration] tab on the message paging settings screen.



[Screen description]

(1) Siren tone selection
The currently selected siren tone is displayed when the N-8000 program is started. To listen to or change a tone, select the desired type of siren tone from the pull-down menu.

(2) Test-listen button
Used to test-listen to selected siren tones.

(3) Change button
Transfers a changed siren tone to all IP Master stations and IP Remote microphone stations.

(4) Test message button
Used to test-listen to selected messages.

(5) Select all button
Selects all stations.

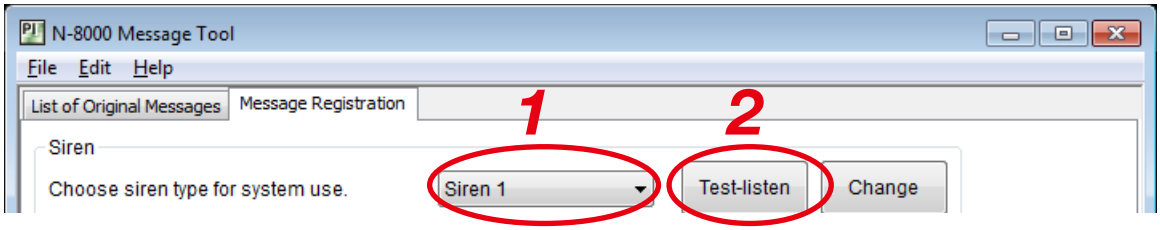
(6) Clear all button
Clears all selection of stations.

(7) Send button
Transfers selected messages to the IP Master station and IP Remote microphone station.

(8) Original message list
Displays messages stored in the Data Folder.

(9) Station list
Displays all IP Master stations and IP Remote microphone stations in the system and the messages to be transferred to these stations.
Click the checkbox to select the station.

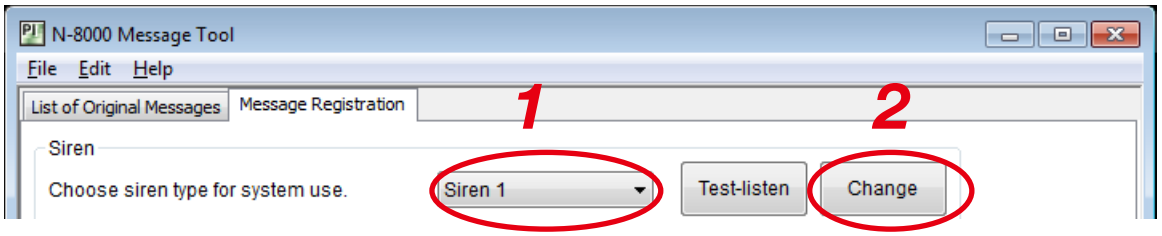
8.4.1. Test-listening to a siren tone



Step 1. Select the desired siren tone from the pull-down menu.

Step 2. Press the Test-listen button.
The selected siren tone plays and automatically stops upon reaching its end.
The test siren tone is played back on the PC together with the announcement "This is a sample."

8.4.2. Transferring a siren tone to the IP Master station and IP Remote microphone station



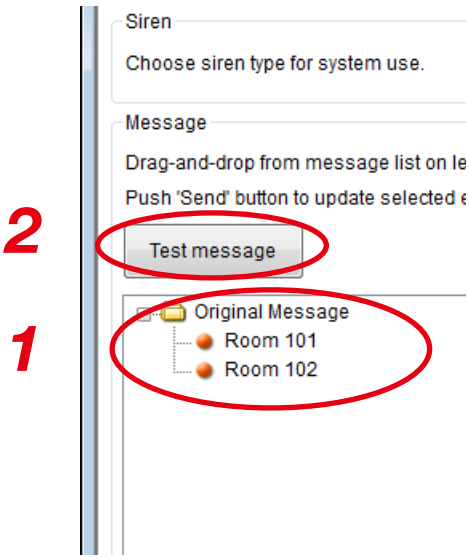
Step 1. Select the desired siren tone from the pull-down menu.

Step 2. Press the Change button.
The changed siren tone is transmitted to all IP Master stations and IP Remote microphone stations within the system.

8.4.3. Test-listening to messages

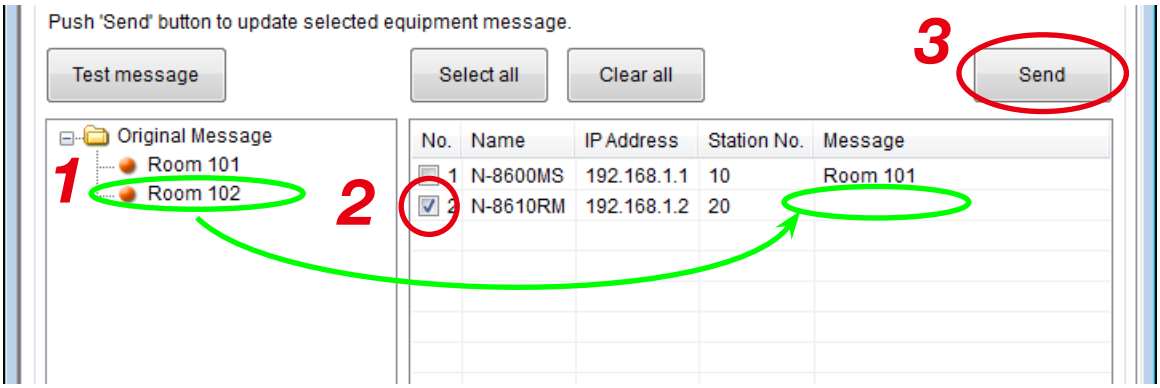
Step 1. Select the message to listen to from the message list.

Step 2. Press the Test message button.
The selected message is played, and automatically stops at its end.



8.4.4. Registering messages from the PC to the IP Master stations and IP Remote microphone stations

Step 1. Designate the message to be transferred to the IP Master stations or IP Remote microphone stations.
The message to be transferred can be selected by dragging and dropping them from the messages list to the stations list.
To do so, select and drag the message to be registered, then drop it on the IP Master station or IP Remote microphone station that the message is to be transferred to.
Repeat this operation for all IP Master stations and IP Remote microphone stations to which the message is to be transmitted.



Step 2. Mark the checkbox for the desired IP Master station and IP Remote microphone station to which the message is to be transferred.
To uncheck, click the checkbox again.

Notes
- To simultaneously mark all the checkboxes for the IP Master stations and IP Remote microphone stations displayed in the list, press the Select all button.
- To simultaneously uncheck them, press the Clear all button.

Step 3. Press the Send button or select [File → Send Message] from the menu bar.
Message data is transferred from the PC to the checked IP Master stations and IP Remote microphone stations, and the message is registered to those stations.

Chapter 6

SYSTEM SETTINGS USING THE BROWSER

This chapter describes browser network settings, and system maintenance functions.

1. OUTLINE OF SETTINGS USING BROWSER

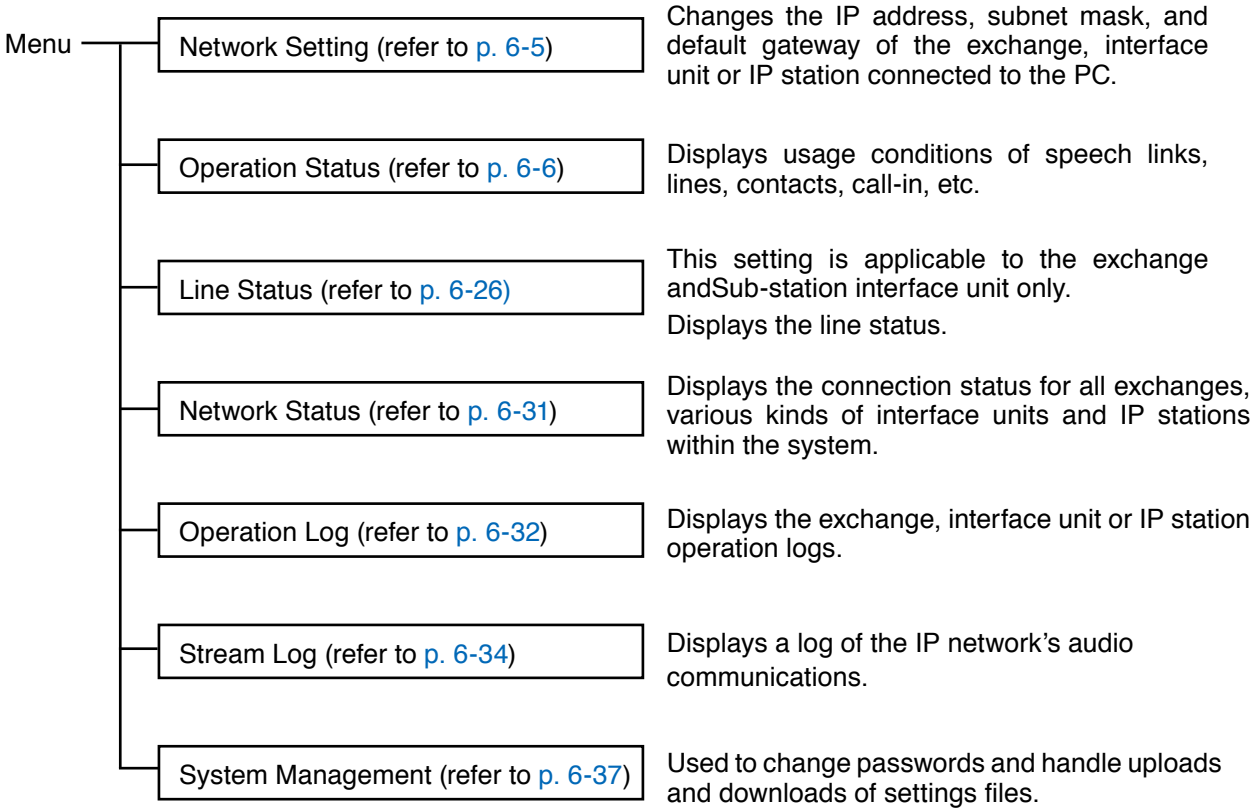
Network settings can be updated and maintenance functions controlled by connecting to all exchanges, various kinds of interface units and IP stations in the system via the PC's browser*. If an exchange, interface unit or IP station is not within range for the PC to administrate broadcast communications, use another PC to enable communications with all exchanges, various kinds of interface units and IP stations in the system.

* Recommended Windows browser: Internet Explorer 6
Internet Explorer 7
Internet Explorer 8
Internet Explorer 11 (Ver. 11.0.10240.16384)
Microsoft Edge (Ver. 20.10240.16384.0)
Firefox (Ver. 53.0.2)
Google Chrome (Ver. 58.0.3029.110)

Notes

- Not all settings can be performed via the browser. After updating the network settings, add the exchange or various kinds of interface units manually using a PC installed with the N-8000 Software, then perform the required settings. (refer to p. 4-3 and p. 5-19.)
- In the factory settings, the same IP address may be duplicated or the PC and the exchange, interface unit or IP station may not be set to the same network. When using the browser to perform network settings, either connect only one the exchange, interface unit or IP station within the same network or disconnect the equipment and the PC to be set from the network, and connect them directly using an Ethernet crossing cable.
- CAUTION: If the power supply is shut off during setting change, this may cause a system failure.
- Updated settings become valid only after the equipment is restarted. Be sure to restart the equipment if settings are changed. Conversations and paging currently in progress will be temporarily interrupted while the equipment restarts.

2. MENU ITEMS



Note

This System Management menu is used to maintain the exchanges, various kinds of interface units, or IP stations for which system and function settings have been completed by using the supplied N-8000 Setting Software.

3. DISPLAYING THE MENU SCREEN

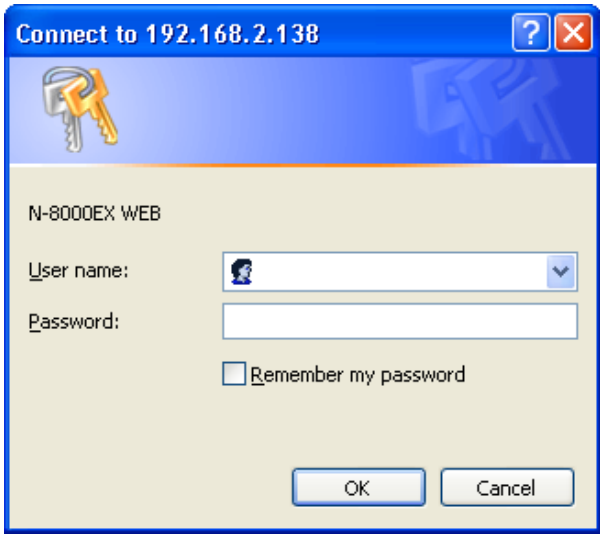
Note
Perform the PC's network setting in advance to allow the PC to communicate with all exchanges, various kinds of interface units and IP stations in the system.
The user authentication screen will not be displayed unless the PC's network setting completed.

Step 1. Start the browser and enter the URL.
- All exchanges, various kinds of interface units or IP stations in the system are shipped from the factory with the IP address set to "192.168.1.1" and the Web server port number set to "80." When the Web server port number is "80," the port number description after the colon (:) can be omitted.

URL	Example
http://IP address:Web server port number/index-e.htm	http://192.168.1.1/index-e.htm

The user authentication screen appears.

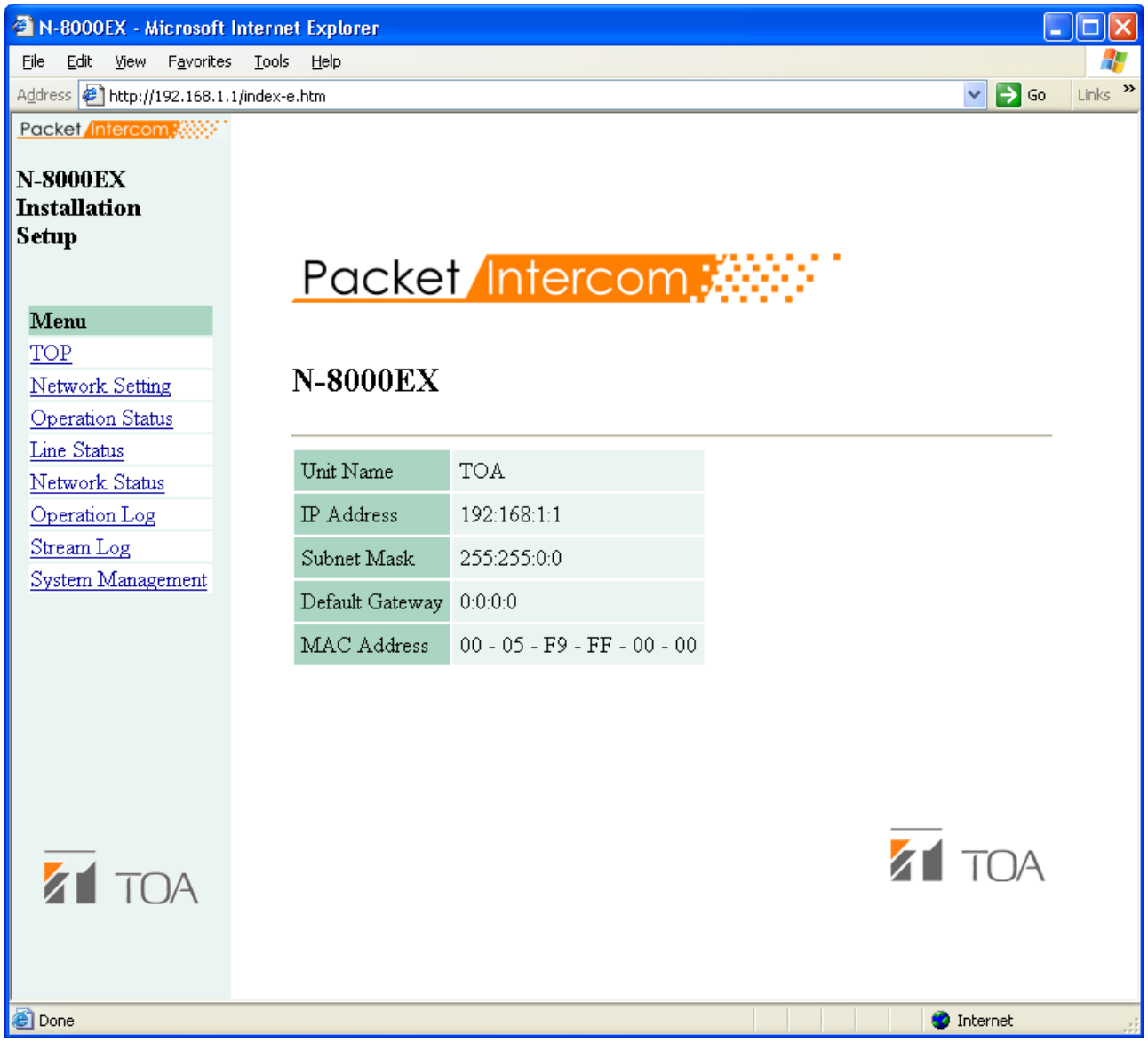
Notes
- The screen below is an example for the N-8000EX.
- This screen will look slightly different depending on the browser being used.



Step 2. Enter the user name (case-sensitive) and the password, then press the "OK" button.
Enter the user name programmed to the exchange, interface unit or IP station.

The system name is factory-preset to "N-8000" and the password to "guest." Refer to p. 6-39 for information on how to change the system name and password.

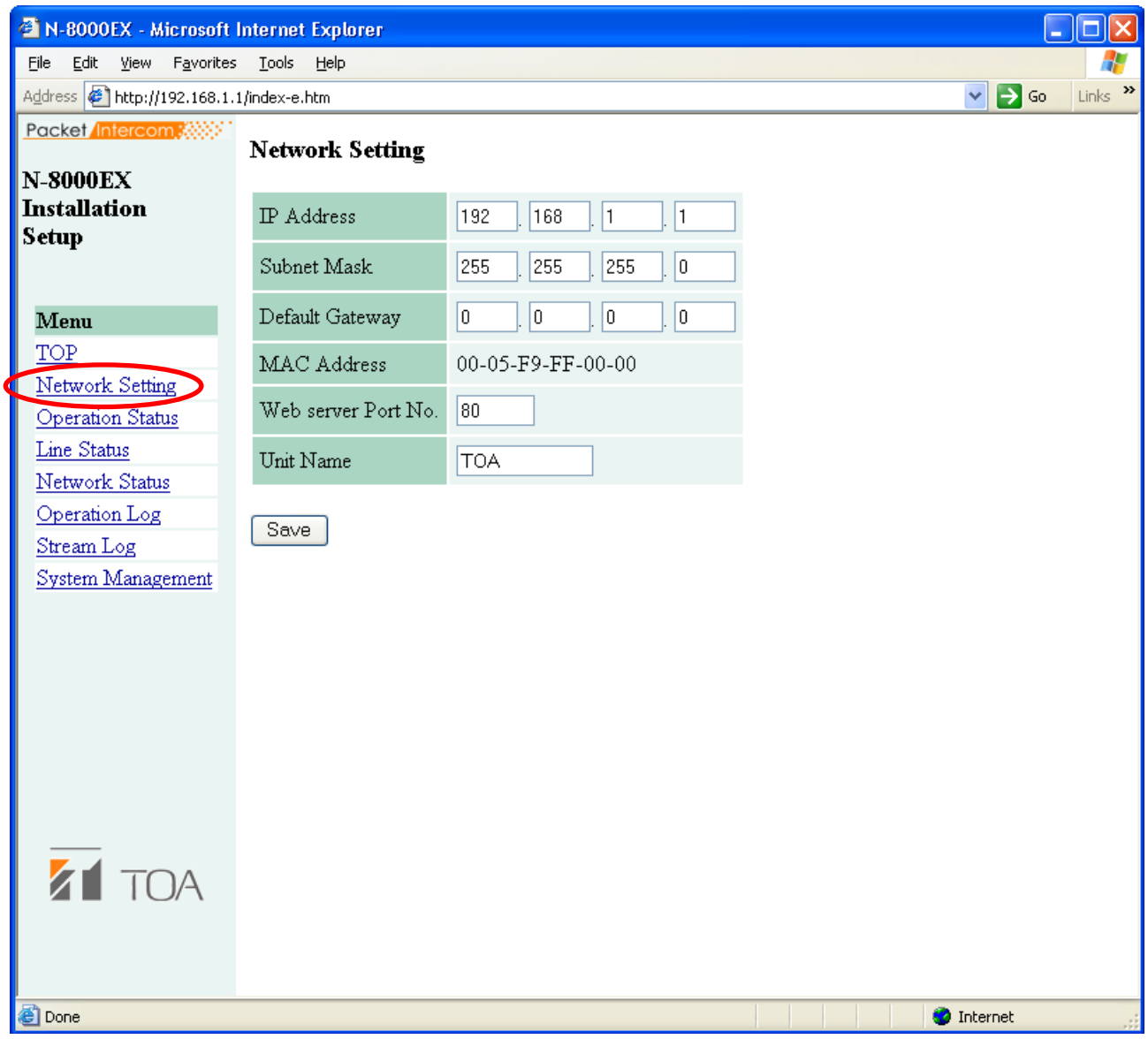
The setting menu screen is displayed once you have entered the correct user name and the password.
The screen below is an example for the N-8000EX.



Note
Use the menu located on the left of the screen to display each setting screen. These screens will not be displayed properly using the browser's "Back" or "Forward" buttons.

4. NETWORK SETTING

Click "Network Setting" on the menu on the left of the screen.
The screen below is an example for the N-8000EX.



(1) IP Address
Enter the IP address of the exchange, interface unit or IP station.
(factory-preset: 192.168.1.1)

(2) Subnet Mask
Set the subnet mask. (factory-preset: 255.255.255.0)

(3) Default Gateway
Set this gateway if using equipment outside the assigned subnet. (factory-preset: 0.0.0.0)

(4) Web server Port No.
Enter the Web server port No.
The valid range is from 1 to 65535. (factory-preset: 80)

(5) Unit Name
Enter the name of equipment up to 8 characters long.

(6) Save button

Write set data into the settings file in the equipment.

Notes

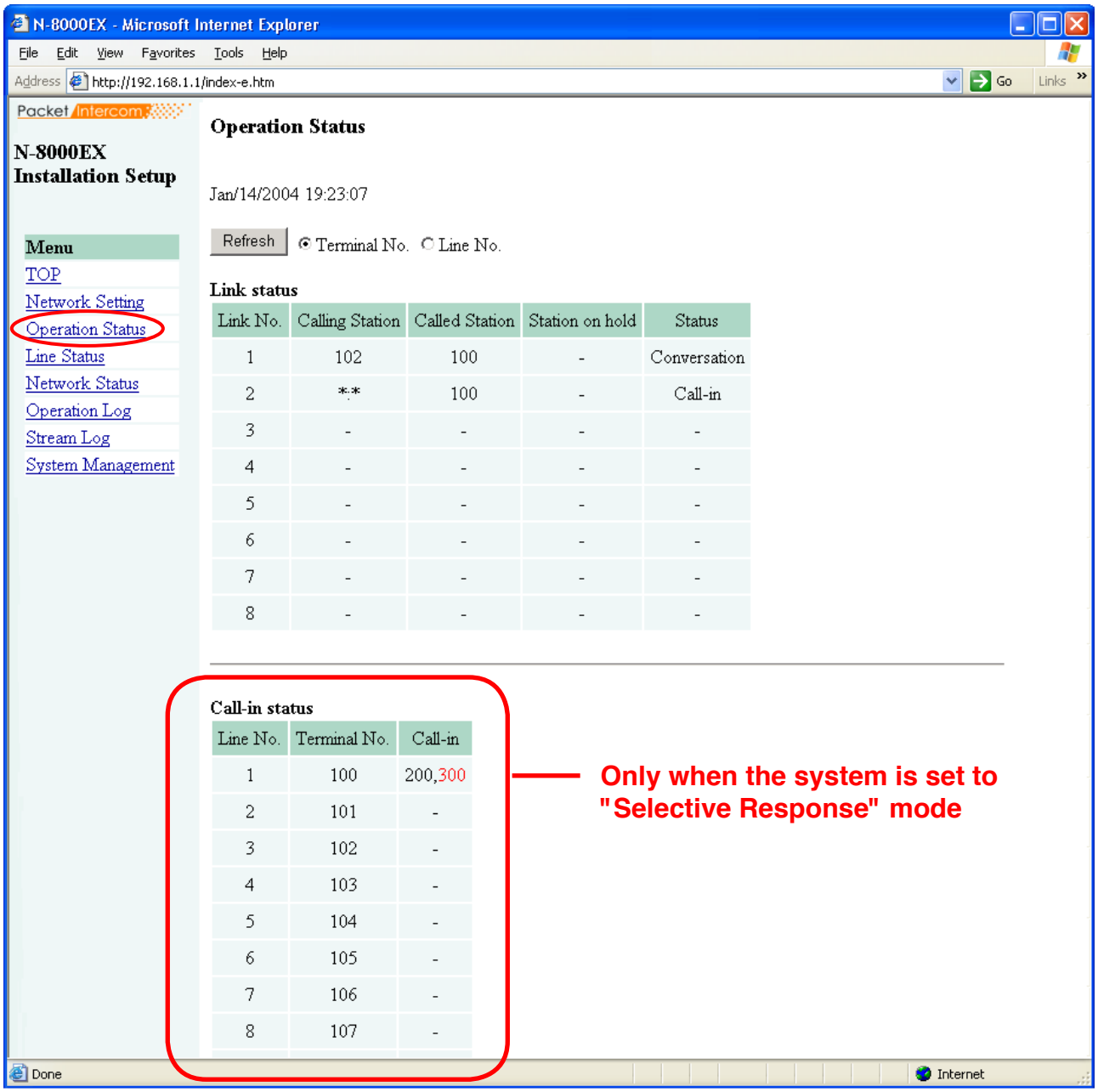
- The status indicator located on the equipment remains lit during the write process. Do not switch off or restart the power or remove the LAN cable while the light is on.
- Changed network settings are not immediately updated, and the new settings take effect only after the exchange, interface unit or IP station has been restarted. Restart the exchange, interface unit or IP station by pressing the restart button that appears at the upper right of the screen whenever settings have been changed.

5. OPERATION STATUS DISPLAY

Click Operation Status on the menu on the left side of the screen.

5.1. N-8000EX/8010EX

The screen below is an example for the N-8000EX.



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and call-in*.

* Call-in status refers to one station being called by others when the N-8000 system's call response mode is set to "Selective Response."

(2) Line No. and Terminal No. buttons
Used to display line numbers or station numbers for each station.

[Link status]

Displays the exchange's current link status. Pressing the Update button updates this data.

(1) Link No.
Speech path numbers.

(2) Calling Station
Displays the number of the calling station.

(3) Called Station
Displays the number of the called station.

(4) Station on hold
Displays the number of the station on hold.

(5) Status
Displays the operating status of the speech path.

[Call-in status]

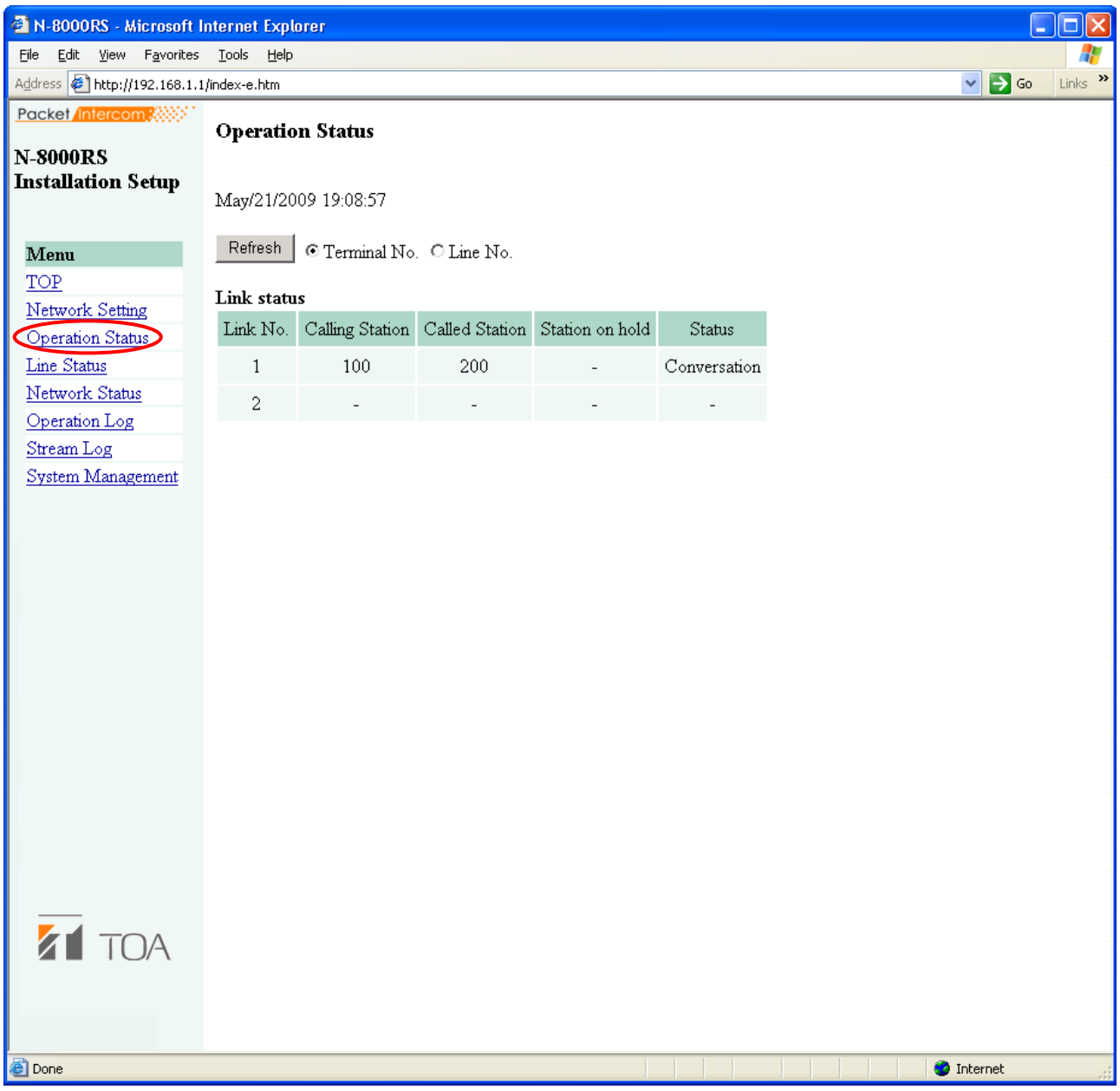
Displays the Call-in status currently being received by the exchange.

(1) Terminal No.
Displays the connected station number.

(2) Call-in (Only when the system is set to "Selective Response" mode)
Displays all the station numbers making calls to each station connected to the exchange.
Emergency calls are displayed in red.
Note
The call-in status is not displayed in systems set for sequential-answer priority.

5.2. N-8000RS/8010RS

The screen below is an example for the N-8000RS.
Note
Only 1 link is displayed in the N-8010RS.



[Operation buttons]

(1) Refresh
Updates status data for speech path and line.

(2) Line No. and Terminal No. buttons
Used to display line numbers or station numbers for each station.

[Link status]

Displays the Sub station interface unit's current link status. Pressing the Refresh button updates this data.

(1) Link No.
Speech path numbers.

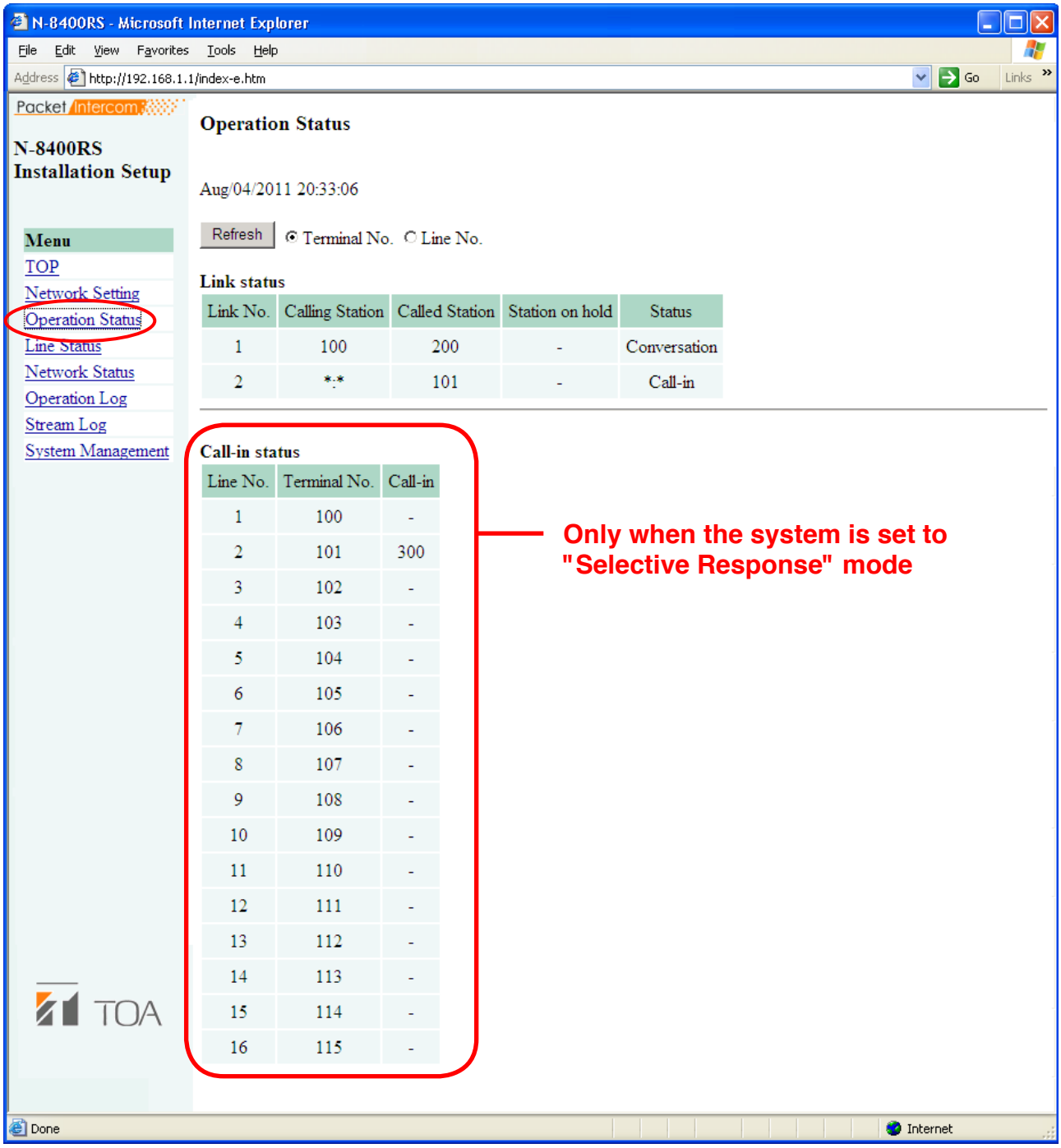
(2) Calling Station
Displays the number of the calling station.

(3) Called Station
Displays the number of the called station.

(4) Station on hold
Displays the number of the station on hold.

(5) Status
Displays the operating status of the speech path.

5.3. N-8400RS



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and call-in*.

* Call-in status refers to one station being called by others when the N-8000 system's call response mode is set to "Selective Response."

(2) Terminal No. and Line No. buttons
Used to display line numbers or station numbers for each station.

[Link status]

Displays the N-8400RS's current link status. Pressing the Refresh button updates this data.

(1) Link No.
Speech path numbers.

(2) Calling Station
Displays the number of the calling station.

(3) Called Station
Displays the number of the called station.

(4) Station on hold
Displays the number of the station on hold.

(5) Status
Displays the operating status of the speech path.

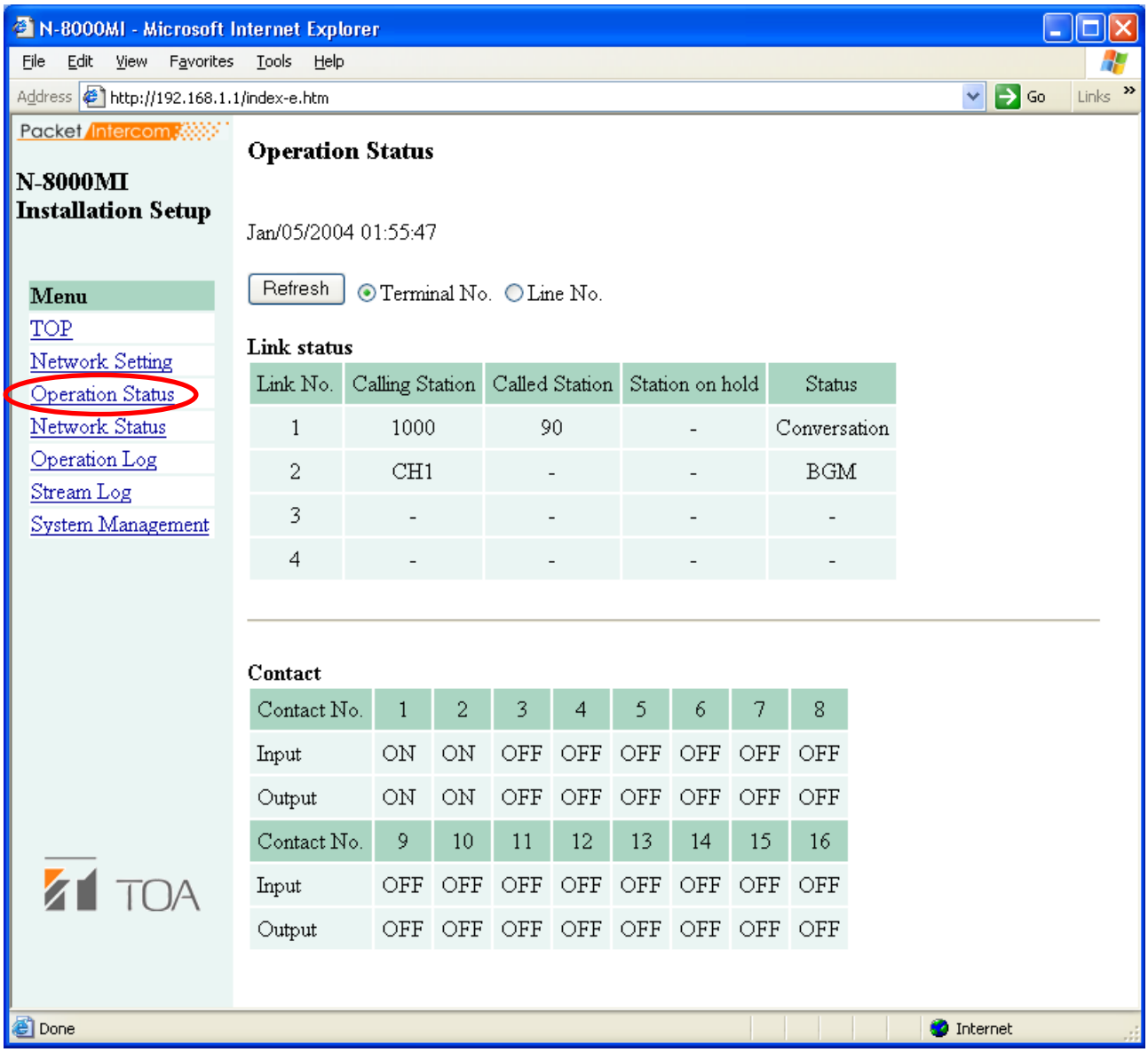
[Call-in status]

Displays the Call-in status currently being received by the N-8400RS.

(1) Terminal No.
Displays the connected station number.

(2) Call-in (Only when the system is set to "Selective Response" mode)
Displays all the station numbers making calls to each station connected to the N-8400RS.
Emergency calls are displayed in red.
Note
The call-in status is not displayed in systems set for sequential-answer priority.

5.4. N-8000MI



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and contact.

(2) Terminal No. and Line No. buttons
Used to display line numbers or station numbers for each station.

[Link status]

Displays the Multi interface unit's current link status. Pressing the Refresh button updates data.

(1) Link No.
Speech path numbers.

(2) Calling Station
Displays the number of the calling station.

(3) Called Station
Displays the number of the called station.

(4) Station on hold
Displays the number of the station on hold.

(5) Status
Displays the operating status of the speech path.

[Contact]

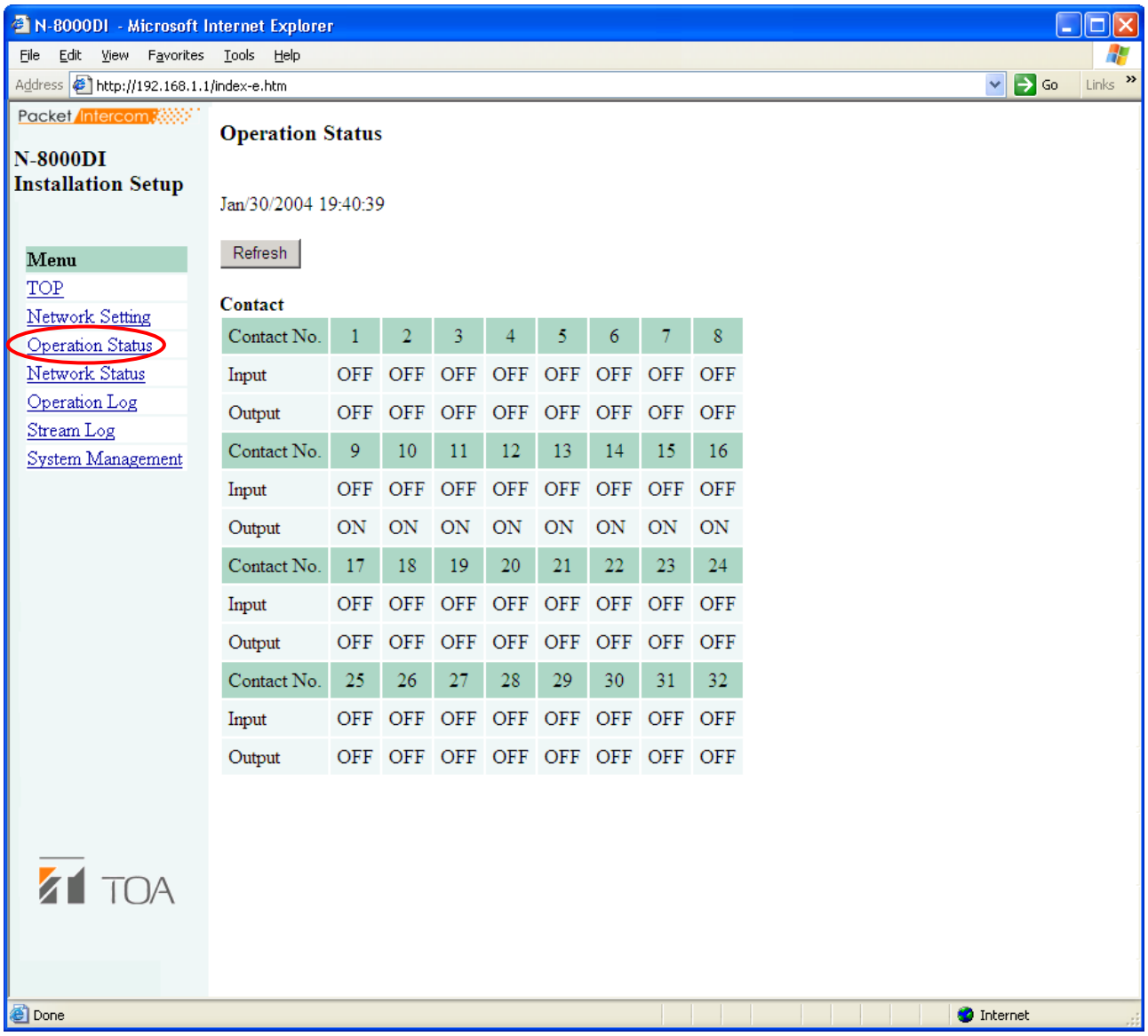
Displays the Multi interface unit's current contact status. Pressing the Refresh button updates data.

(1) Contact No.
Multi interface unit's contact input and output terminal numbers.

(2) Input
Current status of the contact input terminal is displayed.
Indicator abbreviations are as follows:
ON: Make, OFF: Break

(3) Output
Current status of the contact output terminal is displayed.
Indicator abbreviations are as follows:
ON: Make, OFF: Break

5.5. N-8000DI



[Operation buttons]

(1) Refresh
Updates status data for contact.

[Contact]

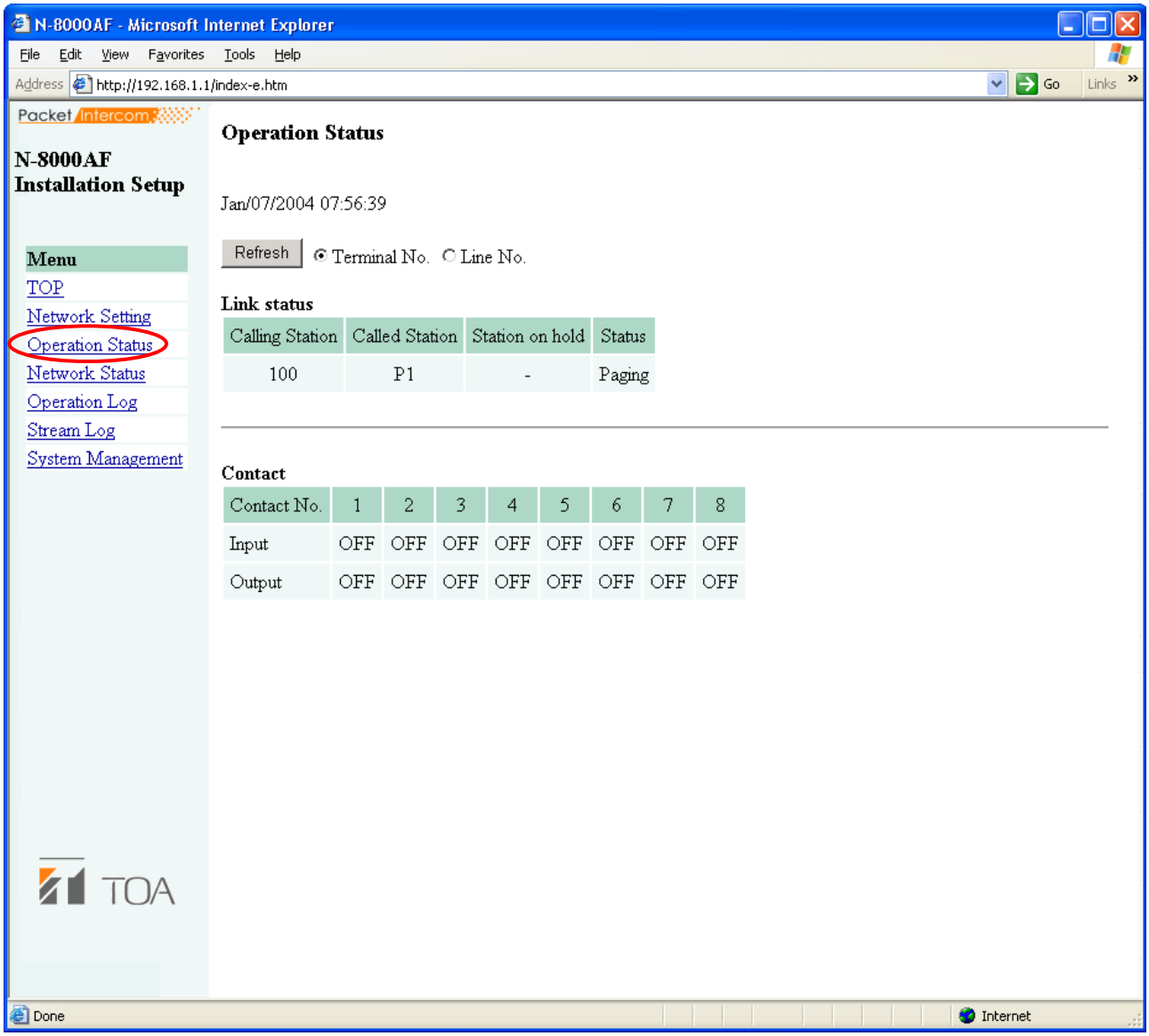
Displays the Direct select unit's current contact status. Pressing the Refresh button updates data.

(1) Contact No.
Direct select unit's contact input and output terminal numbers.

(2) Input
Current status of the contact input terminal is displayed.
Indicator abbreviations are as follows:
ON: Make, OFF: Break

(3) Output
Current status of the contact output terminal is displayed.
Indicator abbreviations are as follows:
ON: Make, OFF: Break

5.6. N-8000AF



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and contact.

(2) Terminal No. and Line No. buttons
Used to display line numbers or station numbers for each station.

[Link status]

Displays the Audio interface unit's current link status. Pressing the Update button updates this data.

(1) Calling Station
Displays the number of the calling station.

(2) Called Station
Displays the number of the called station.

(3) Station on hold
Displays the number of the station on hold.

(4) Status
Displays the operating status of the speech path.

[Contact]

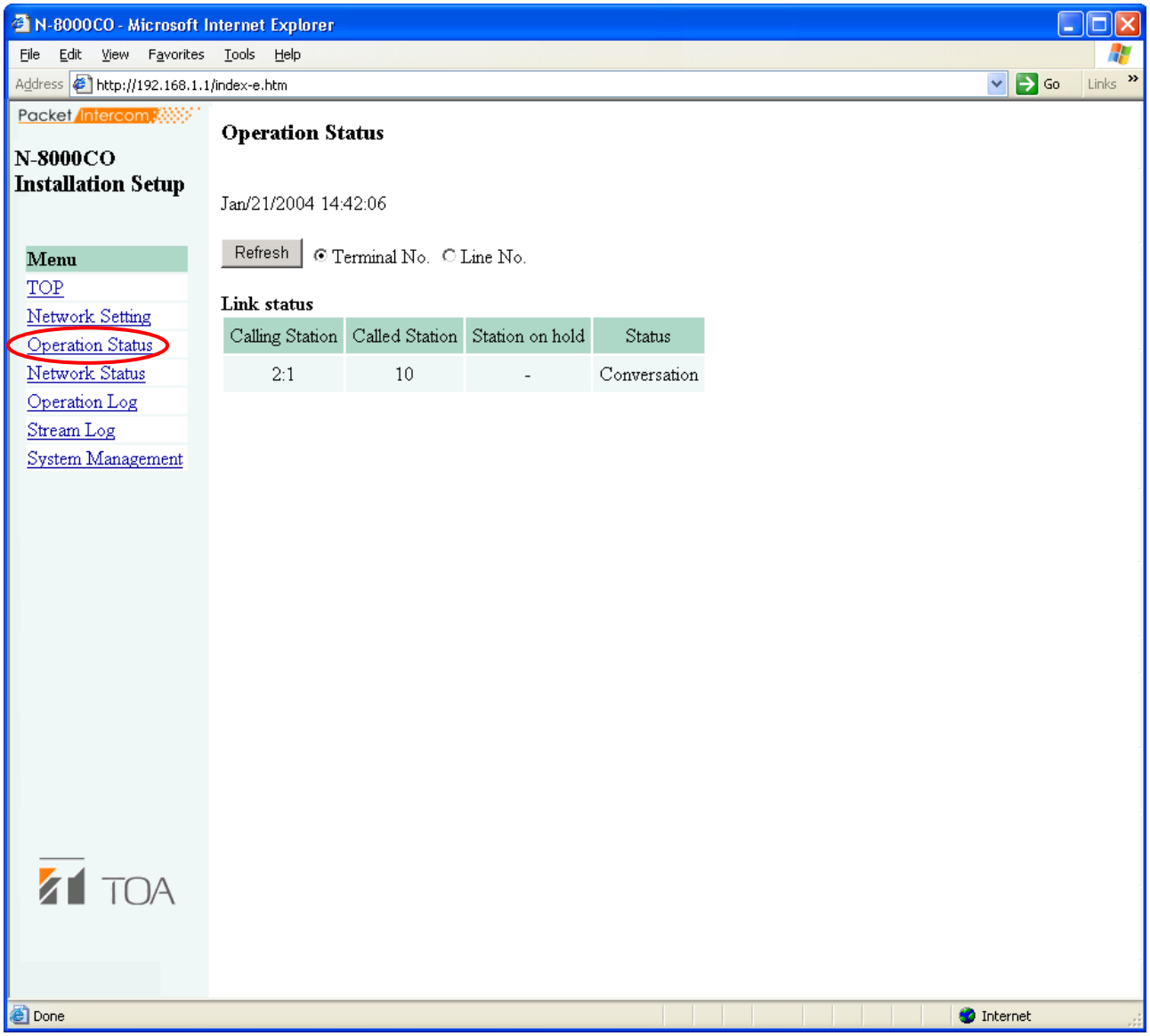
Displays the Audio interface unit's current contact status. Pressing the Refresh button updates data.

(1) Contact No.
Audio interface unit's contact input and output terminal numbers.

(2) Input
Current status of the contact input terminal is displayed.
Indicator abbreviations are as follows:
ON: Make, OFF: Break

(3) Output
Current status of the contact output terminal is displayed.
Indicator abbreviations are as follows:
ON: Make, OFF: Break

5.7. N-8000CO



[Operation buttons]

(1) Refresh
Updates status data for speech path and line.

(2) Terminal No. and Line No. buttons
Used to display line numbers or station numbers for each station.

[Link status]

Displays the C/O interface unit's current link status. Pressing the Refresh button updates this data.

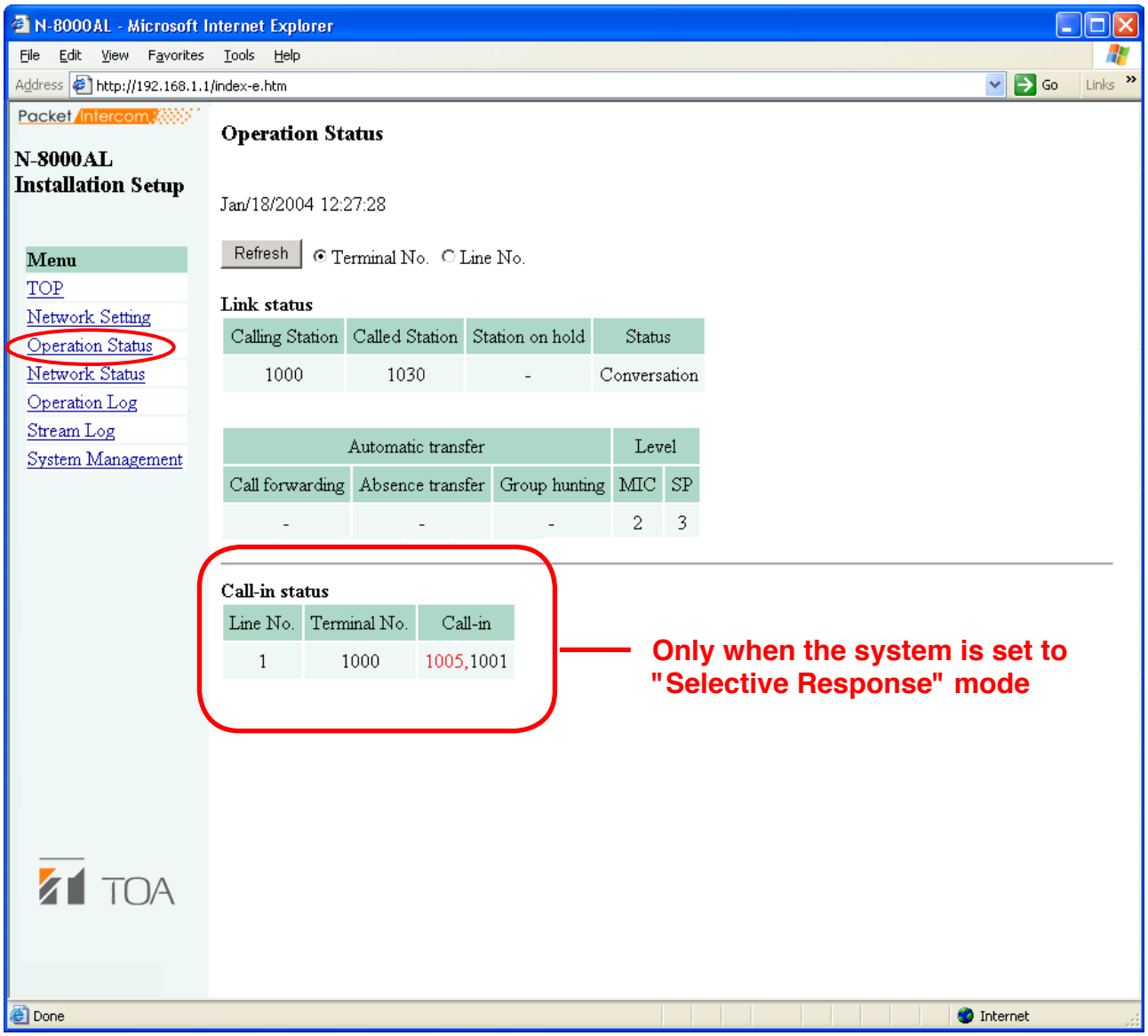
(1) Calling Station
Displays the number of the calling station.

(2) Called Station
Displays the number of the called station.

(3) Station on hold
Displays the number of the station on hold.

(4) Status
Displays the operating status of the speech path.

5.8. N-8000AL



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and call-in*.

* Call-in status refers to one station being called by others when the N-8000 system's call response mode is set to "Selective Response."

(2) Line No. and Terminal No. buttons
Used to display line numbers or station numbers for each station.

[Link status]

Displays the Telephone interface unit's current link status. Pressing the Refresh button updates this data.

(1) Calling Station
Displays the number of the calling station.

(2) Called Station
Displays the number of the called station.

(3) Station on hold
Displays the number of the station on hold.

(4) Status
Displays the operating status of the speech path.

(5) Automatic transfer
Displays the station number to which calls to the Telephone interface unit are to be automatically transferred.

(6) Level
Displays sound volume set for the Telephone interface unit's.
Indicator abbreviations are as follows:

MIC: Microphone sensitivity
SP: Speaker output volume

[Call-in status]

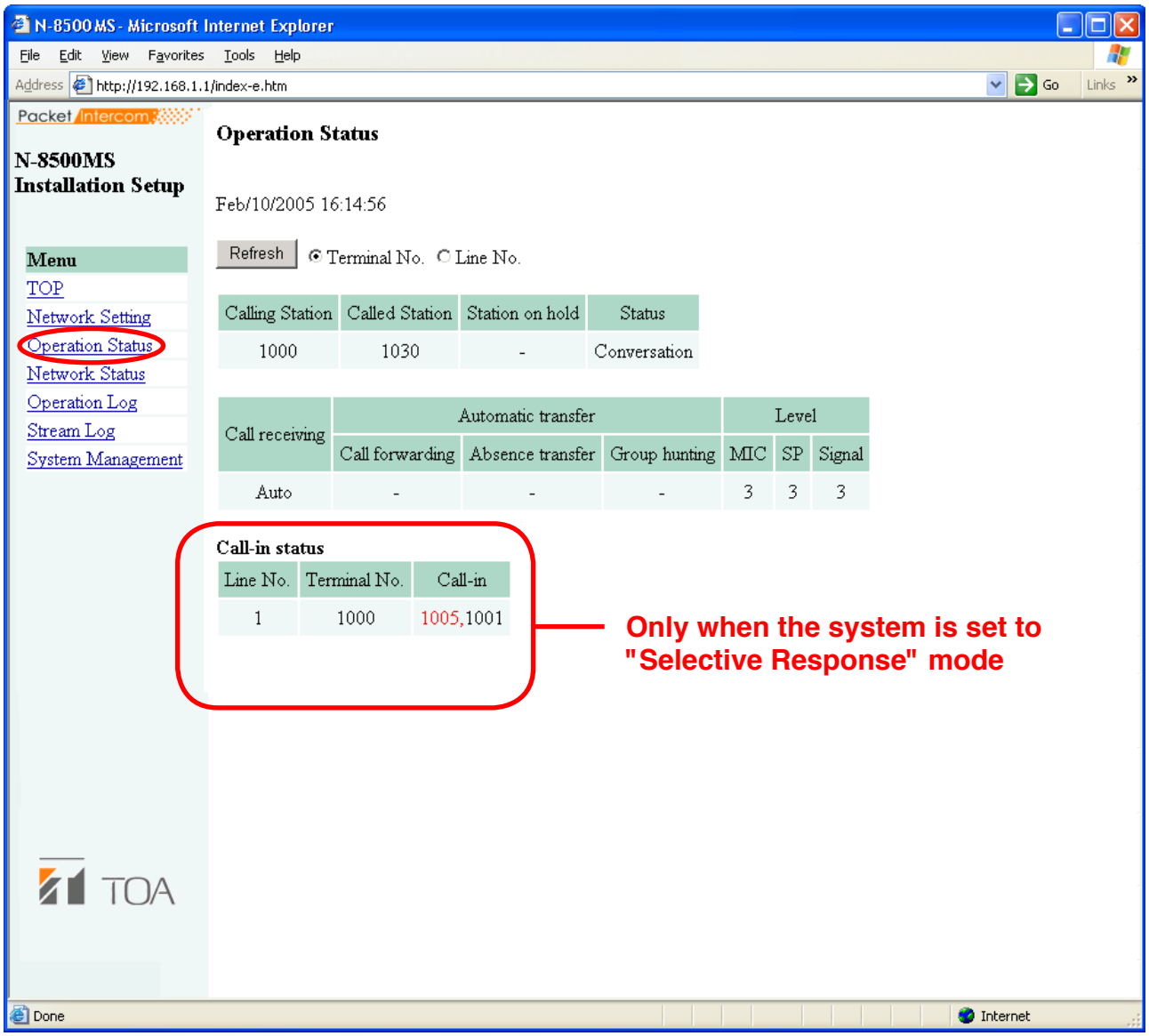
Displays the Call-in status currently being received by the Telephone interface unit.

(1) Terminal No.
Displays the connected station number.

(2) Call-in (Only when the system is set to "Selective Response" mode)
Displays all the station numbers making calls to the Telephone interface unit.
Emergency calls are displayed in red.
Note
The call-in status is not displayed in systems set for sequential-answer priority.

5.9. N-8500MS/8510MS

The screen below is an example for the N-8500MS.



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and call-in*.

* Call-in status refers to one station being called by others when the N-8000 system's call response mode is set to "Selective Response."

(2) Terminal No. and Line No. buttons
Used to display line number or station number.

[Operation status]

Displays the IP master station's current status of speech path and line. Pressing the Refresh button updates data.

(1) Calling Station
Displays the number of the calling station.

(2) Called Station
Displays the number of the called station.

(3) Station on hold
Displays the number of the station on hold.

(4) Status
Displays the operating status of the speech path.

(5) Call receiving
Displays the call tone mode of the IP master station.

(6) Automatic transfer
Displays the station number to which calls to the IP master station are to be automatically transferred.

(7) Level
Displays sound volume set for the IP master station. Indicator abbreviations are as follows:

MIC: Microphone sensitivity
SP: Speaker output volume
Signal: Call tone volume

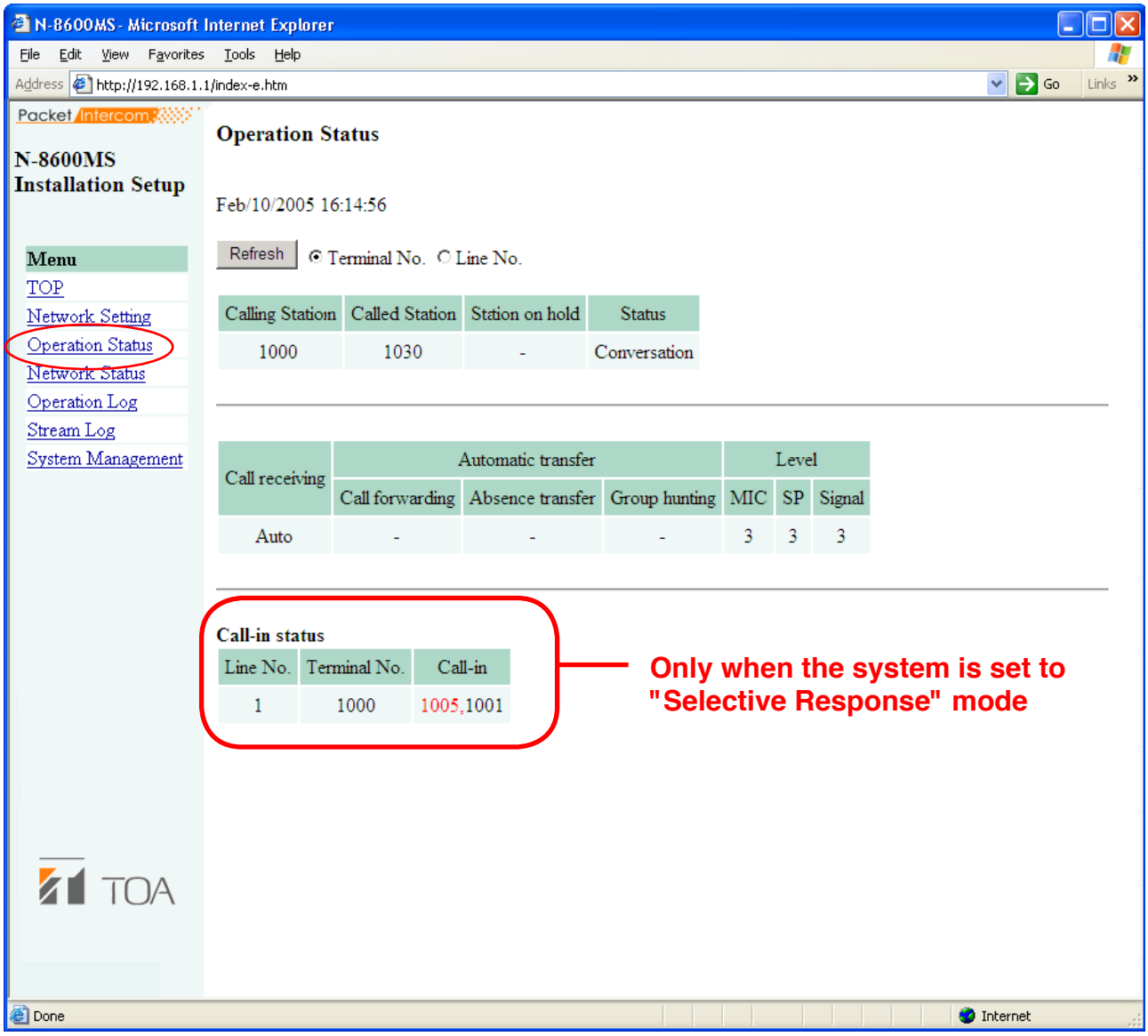
[Call-in status]

Displays the call-in status currently being received by the IP master station.

(1) Terminal No.
Displays the connected station number.

(2) Call-in (Only when the system is set to "Selective Response" mode)
Displays all the station numbers making calls to the IP master station.
Emergency calls are displayed in red.
Note
The call-in status is not displayed in systems set for sequential-answer priority.

5.10. N-8600MS



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and call-in*.

* Call-in status refers to one station being called by others when the N-8000 system's call response mode is set to "Selective Response."

(2) Terminal No. and Line No. buttons
Used to display line number or station number.

[Operation status]

Displays the IP master station's current status of speech path and line. Pressing the Refresh button updates data.

(1) Calling Station
Displays the number of the calling station.

(2) Called Station
Displays the number of the called station.

(3) Station on hold
Displays the number of the station on hold.

(4) Status
Displays the operating status of the speech path.

(5) Call receiving
Displays the call tone mode of the IP master station.

(6) Automatic transfer
Displays the station number to which calls to the IP master station are to be automatically transferred.

(7) Level
Displays sound volume set for the IP master station. Indicator abbreviations are as follows:

MIC: Microphone sensitivity
SP: Speaker output volume
Signal: Call tone volume

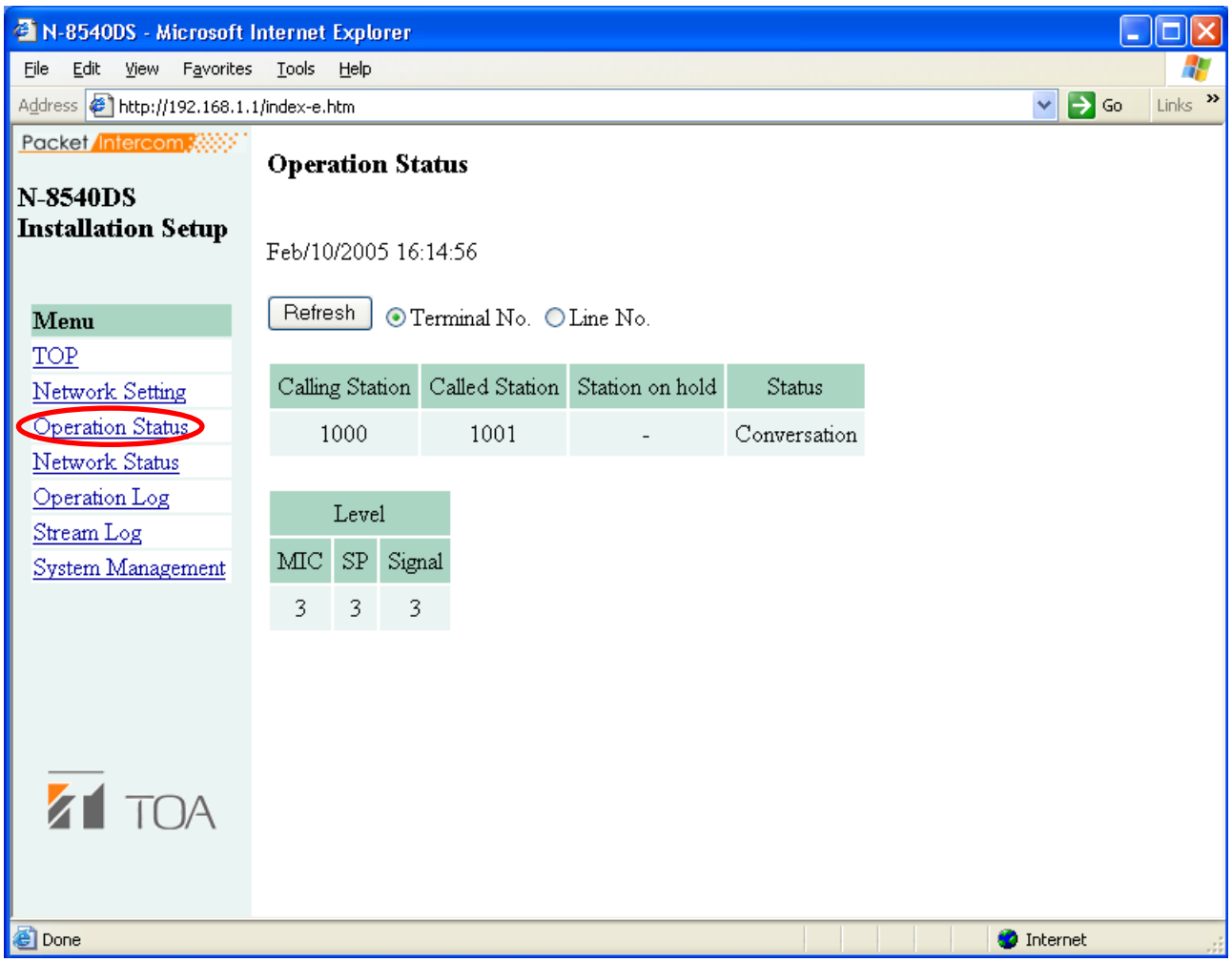
[Call-in status]

Displays the call-in status currently being received by the IP master station.

(1) Terminal No.
Displays the IP master station number.

(2) Call-in (Only when the system is set to "Selective Response" mode)
Displays all the station numbers making calls to the IP master station.
Emergency calls are displayed in red.
Note
The call-in status is not displayed in systems set for sequential-answer priority.

5.11. N-8540DS



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and contact.

(2) Terminal No. and Line No. buttons
Used to display line number or station number.

[Operation status]

Displays the IP door station's current status of speech path and line. Pressing the Refresh button updates data.

(1) Calling Station
Displays the number of the calling station.

(2) Called Station
Displays the number of the called station.

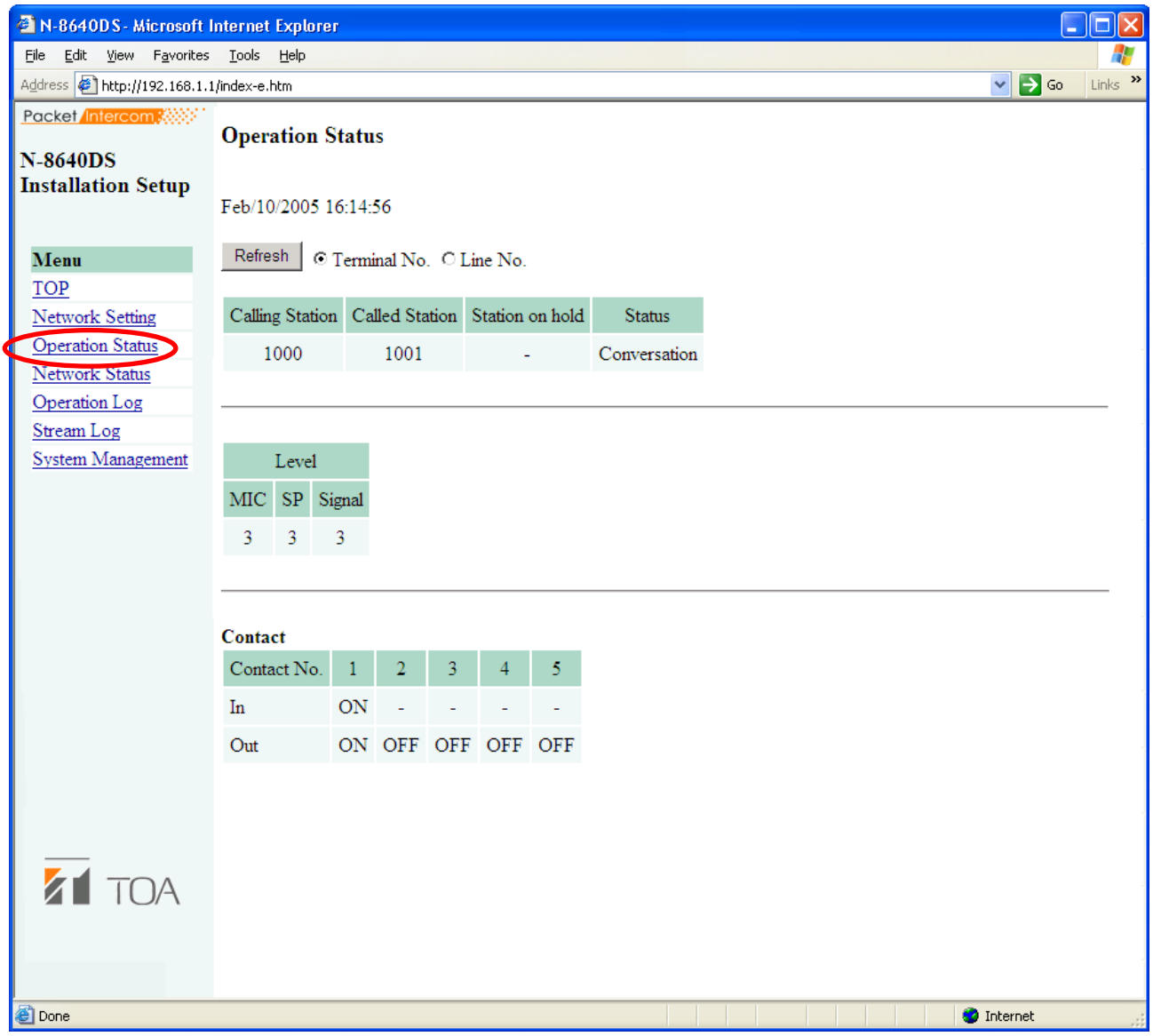
(3) Station on hold
Displays the number of the station on hold.

(4) Status
Displays the operating status of the speech path.

(5) Level
Displays sound volume set for the IP door station. Indicator abbreviations are as follows:
MIC: Microphone sensitivity
SP: Speaker output volume
Signal: Call tone volume

5.12. N-8640DS/8650DS

The screen below is an example for the N-8640DS.



[Operation buttons]

(1) Refresh
Updates status data for speech path, line, and contact.

(2) Terminal No. and Line No. buttons
Used to display line number or station number.

[Operation status]

Displays the IP door station's current status of speech path and line. Pressing the Refresh button updates data.

(1) Calling Station
Displays the number of the calling station.

(2) Called Station
Displays the number of the called station.

(3) Station on hold
Displays the number of the station on hold.

(4) Status
Displays the operating status of the speech path.

(5) Level
Displays sound volume set for the IP door station. Indicator abbreviations are as follows:
MIC: Microphone sensitivity
SP: Speaker output volume
Signal: Call tone volume

[Contact]

Displays the IP door station's current contact status. Pressing the Refresh button updates data.

(1) Contact No.
IP door station's contact input and output terminal numbers.

(2) Input
Current status of the contact input terminal is displayed.
Indicator abbreviations are as follows:
ON: Make, OFF: Break
Note
The Contact input is assigned to the Contact No. 1 only.
The "–" indications are displayed for Contact Nos. 2 to 5.

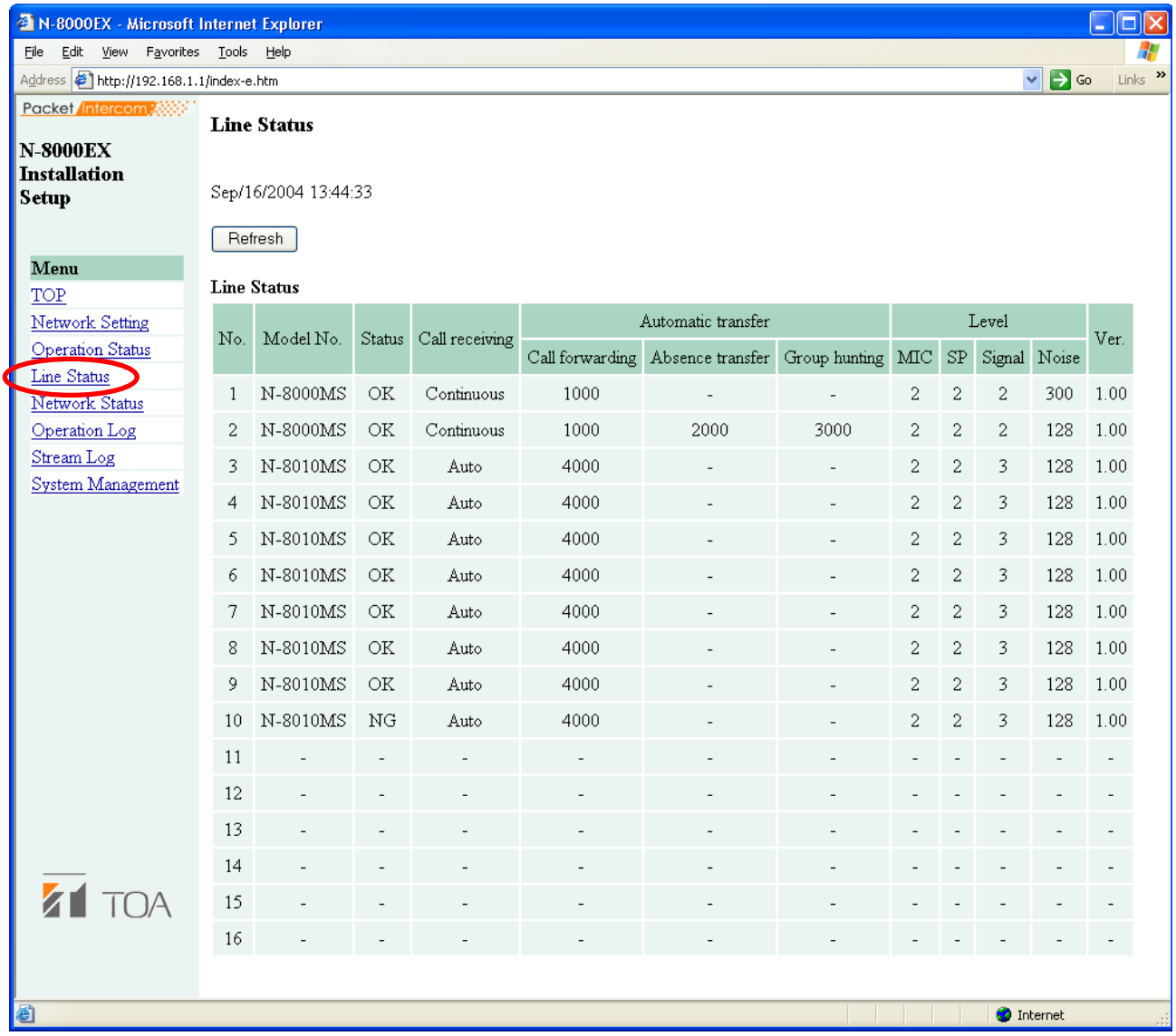
(3) Output
Current status of the contact output terminal is displayed.
Indicator abbreviations are as follows:
ON: make, OFF: break

6. LINE STATUS INDICATION (only for Exchange and Sub-station interface unit)

6.1. N-8000EX/8010EX

Click "Line Status" on the menu on the left side of the screen.
Displays information on line status and connected stations.

The screen below is an example for the N-8000EX.



No.	Model No.	Status	Call receiving	Automatic transfer			Level				Ver.
				Call forwarding	Absence transfer	Group hunting	MIC	SP	Signal	Noise	
1	N-8000MS	OK	Continuous	1000	-	-	2	2	2	300	1.00
2	N-8000MS	OK	Continuous	1000	2000	3000	2	2	2	128	1.00
3	N-8010MS	OK	Auto	4000	-	-	2	2	3	128	1.00
4	N-8010MS	OK	Auto	4000	-	-	2	2	3	128	1.00
5	N-8010MS	OK	Auto	4000	-	-	2	2	3	128	1.00
6	N-8010MS	OK	Auto	4000	-	-	2	2	3	128	1.00
7	N-8010MS	OK	Auto	4000	-	-	2	2	3	128	1.00
8	N-8010MS	OK	Auto	4000	-	-	2	2	3	128	1.00
9	N-8010MS	OK	Auto	4000	-	-	2	2	3	128	1.00
10	N-8010MS	NG	Auto	4000	-	-	2	2	3	128	1.00
11	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-

[Operation buttons]

(1) Refresh
Updates status data for line, and station to the latest data.

[Line Status]

Displays the operation statuses of the stations currently connected to the exchange.
For the idle line, the symbols of "–" are displayed in all columns.

(1) No.
Line numbers

(2) Model No.
Displays the model number of the connected station.

(3) Status
Displays line status.

(4) Call receiving
Displays the call tone mode of the connected station.

(5) Automatic transfer
Displays the station number to which calls to the connected station are to be automatically transferred.

(6) Level
Displays sound volume set for the connected station. "Noise" is a measured ambient noise value. Indicator abbreviations are as follows:

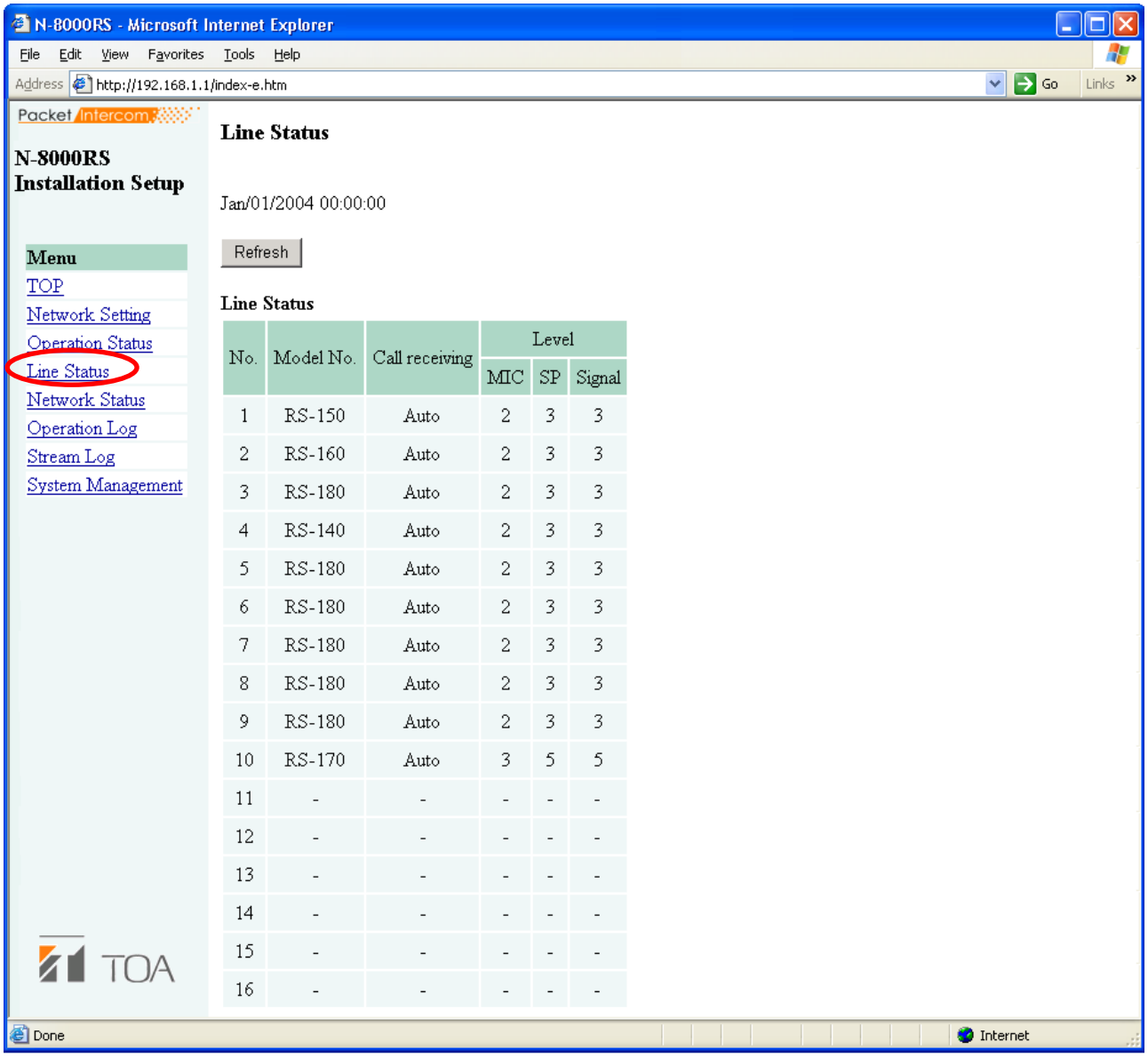
MIC: Microphone sensitivity
SP: Speaker output volume
Signal: Call tone volume
Noise: Noise level

(7) Ver.
Indicates the connected station's firmware version number.

6.2. N-8000RS/8010RS

Click "Line Status" on the menu on the left side of the screen.
Displays information on line status and set stations.

The screen below is an example for the N-8000RS.



No.	Model No.	Call receiving	Level		
			MIC	SP	Signal
1	RS-150	Auto	2	3	3
2	RS-160	Auto	2	3	3
3	RS-180	Auto	2	3	3
4	RS-140	Auto	2	3	3
5	RS-180	Auto	2	3	3
6	RS-180	Auto	2	3	3
7	RS-180	Auto	2	3	3
8	RS-180	Auto	2	3	3
9	RS-180	Auto	2	3	3
10	RS-170	Auto	3	5	5
11	-	-	-	-	-
12	-	-	-	-	-
13	-	-	-	-	-
14	-	-	-	-	-
15	-	-	-	-	-
16	-	-	-	-	-

[Operation buttons]

(1) Refresh
Updates status data for line and set station to the latest data.
Note
For the N-8000RS and N-8010RS interface units, the current line connection status cannot be displayed.

[Line Status]

Displays the setting contents of all the stations set to the Sub-station interface unit.
The symbols "–" displayed in a row indicate that nothing is set for the line.

(1) No.
Line numbers

(2) Model No.
Displays the model number of the set station.

(3) Call receiving
Displays the call tone mode of the set station.

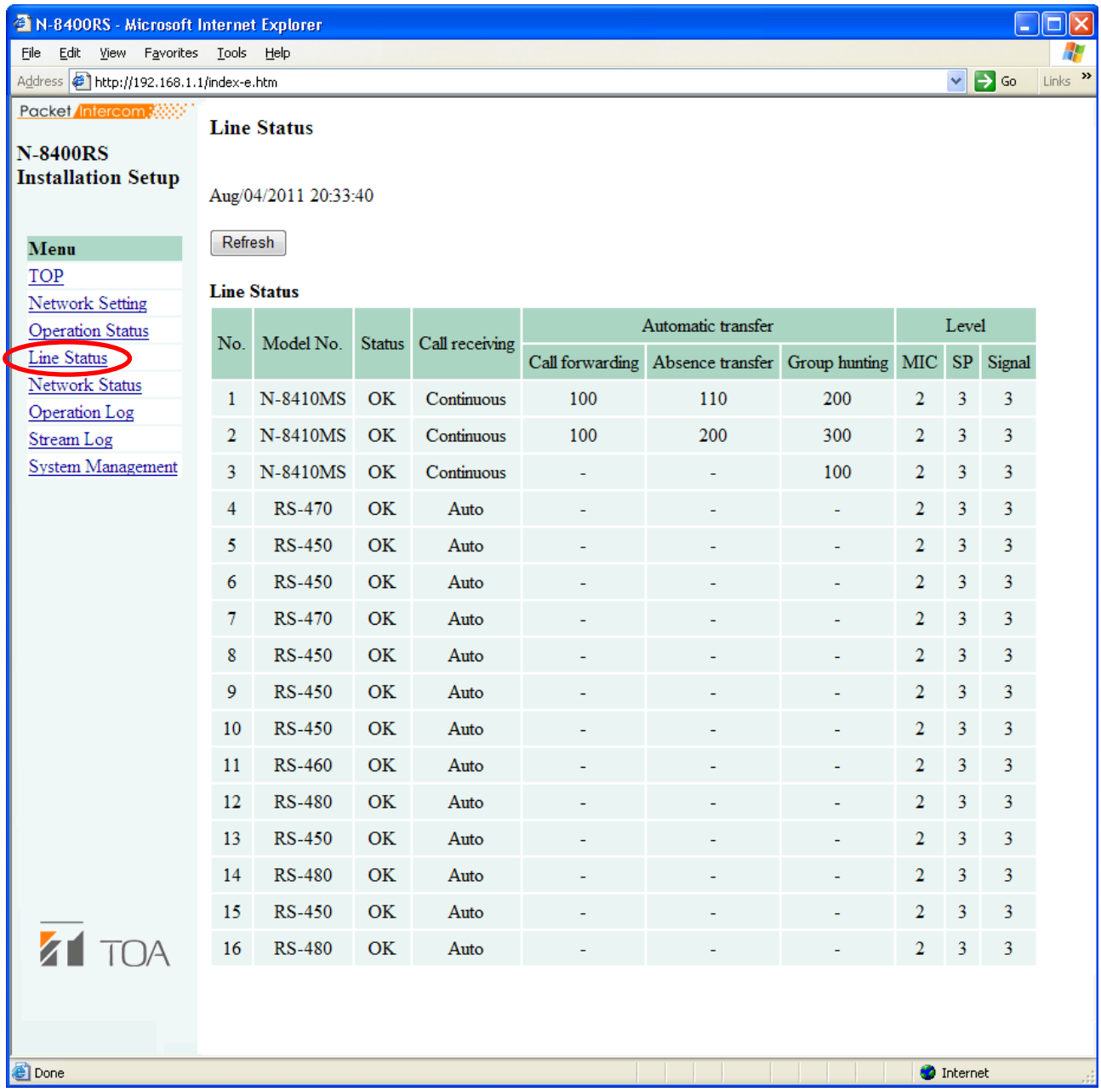
(4) Level

Displays sound volume set for the Sub station interface unit. Indicator abbreviations are as follows:

MIC: Microphone sensitivity
SP: Speaker output volume
Signal: Call tone volume

6.3. N-8400RS

Click "Line Status" on the menu on the left side of the screen.
Displays information on line status and connected stations.



No.	Model No.	Status	Call receiving	Automatic transfer			Level		
				Call forwarding	Absence transfer	Group hunting	MIC	SP	Signal
1	N-8410MS	OK	Continuous	100	110	200	2	3	3
2	N-8410MS	OK	Continuous	100	200	300	2	3	3
3	N-8410MS	OK	Continuous	-	-	100	2	3	3
4	RS-470	OK	Auto	-	-	-	2	3	3
5	RS-450	OK	Auto	-	-	-	2	3	3
6	RS-450	OK	Auto	-	-	-	2	3	3
7	RS-470	OK	Auto	-	-	-	2	3	3
8	RS-450	OK	Auto	-	-	-	2	3	3
9	RS-450	OK	Auto	-	-	-	2	3	3
10	RS-450	OK	Auto	-	-	-	2	3	3
11	RS-460	OK	Auto	-	-	-	2	3	3
12	RS-480	OK	Auto	-	-	-	2	3	3
13	RS-450	OK	Auto	-	-	-	2	3	3
14	RS-480	OK	Auto	-	-	-	2	3	3
15	RS-450	OK	Auto	-	-	-	2	3	3
16	RS-480	OK	Auto	-	-	-	2	3	3

[Operation buttons]

(1) Refresh

Updates status data for line and station to the latest data.

[Line Status]

Displays the setting contents of all the stations connected to the N-8400RS.
The symbols "–" displayed in a row indicate that no connection is made to the line.

(1) No.
Line numbers

(2) Model No.
Displays the model number of the connected station.

(3) Status
Displays line status.

(4) Call receiving
Displays the call tone mode of the connected station.

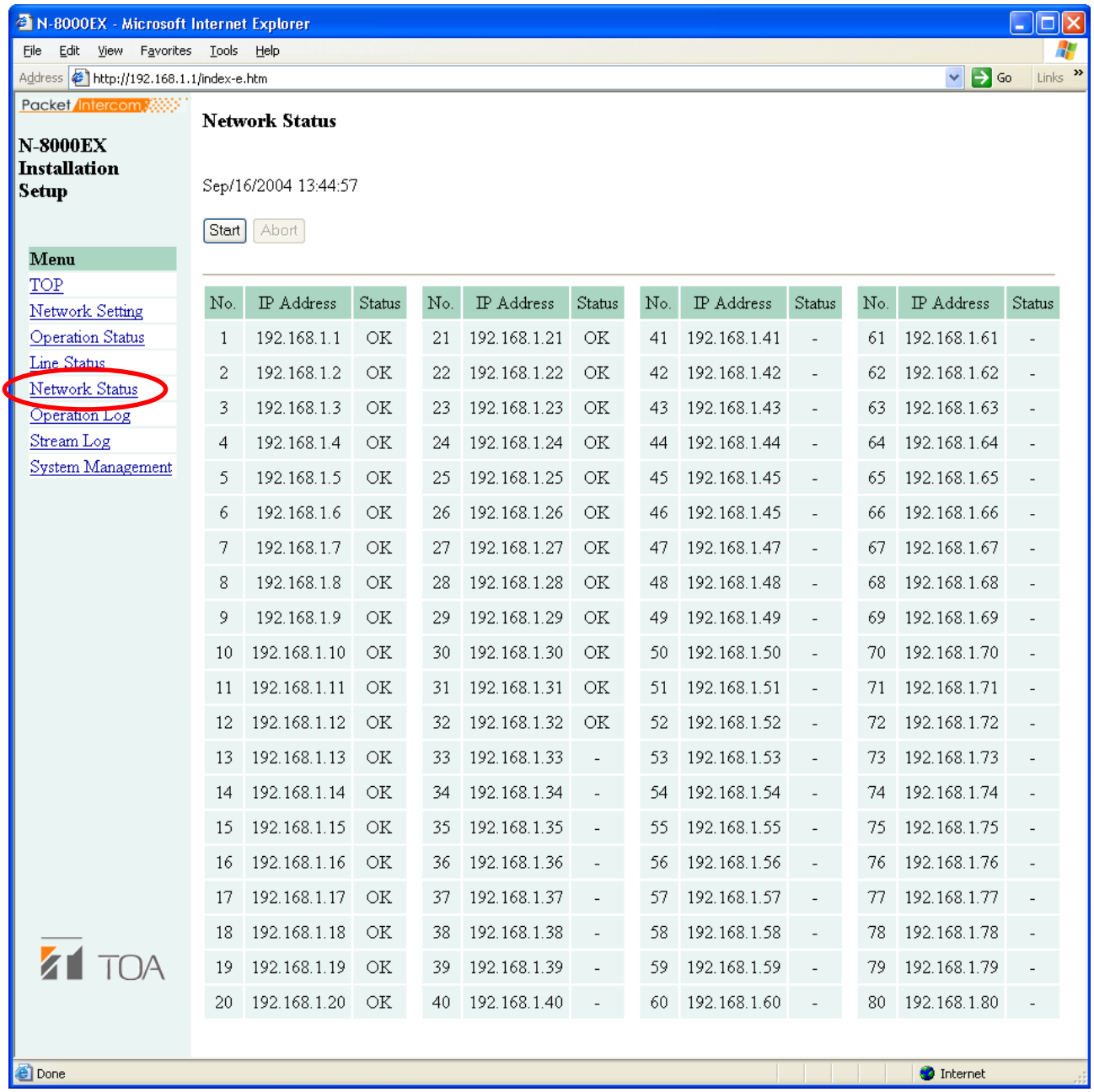
(5) Automatic transfer
Displays the number of station to be automatically transferred to from the connected station.

(6) Level
Displays sound volume set for the connected station. Indicator abbreviations are as follows:

MIC: Microphone sensitivity
SP: Speaker output volume
Signal: Call tone volume

7. NETWORK STATUS INDICATION

Click "Network Status" on the menu on the left side of the screen.
Connections between all exchanges, various kinds of interface units and IP stations and networks within the system can be confirmed. Connection status data is updated every two seconds, and if network connections are not achieved within ten seconds, the equipment is assumed to not be connected to the network.
The screen below is an example for the N-8000EX.



No.	IP Address	Status	No.	IP Address	Status	No.	IP Address	Status	No.	IP Address	Status
1	192.168.1.1	OK	21	192.168.1.21	OK	41	192.168.1.41	-	61	192.168.1.61	-
2	192.168.1.2	OK	22	192.168.1.22	OK	42	192.168.1.42	-	62	192.168.1.62	-
3	192.168.1.3	OK	23	192.168.1.23	OK	43	192.168.1.43	-	63	192.168.1.63	-
4	192.168.1.4	OK	24	192.168.1.24	OK	44	192.168.1.44	-	64	192.168.1.64	-
5	192.168.1.5	OK	25	192.168.1.25	OK	45	192.168.1.45	-	65	192.168.1.65	-
6	192.168.1.6	OK	26	192.168.1.26	OK	46	192.168.1.45	-	66	192.168.1.66	-
7	192.168.1.7	OK	27	192.168.1.27	OK	47	192.168.1.47	-	67	192.168.1.67	-
8	192.168.1.8	OK	28	192.168.1.28	OK	48	192.168.1.48	-	68	192.168.1.68	-
9	192.168.1.9	OK	29	192.168.1.29	OK	49	192.168.1.49	-	69	192.168.1.69	-
10	192.168.1.10	OK	30	192.168.1.30	OK	50	192.168.1.50	-	70	192.168.1.70	-
11	192.168.1.11	OK	31	192.168.1.31	OK	51	192.168.1.51	-	71	192.168.1.71	-
12	192.168.1.12	OK	32	192.168.1.32	OK	52	192.168.1.52	-	72	192.168.1.72	-
13	192.168.1.13	OK	33	192.168.1.33	-	53	192.168.1.53	-	73	192.168.1.73	-
14	192.168.1.14	OK	34	192.168.1.34	-	54	192.168.1.54	-	74	192.168.1.74	-
15	192.168.1.15	OK	35	192.168.1.35	-	55	192.168.1.55	-	75	192.168.1.75	-
16	192.168.1.16	OK	36	192.168.1.36	-	56	192.168.1.56	-	76	192.168.1.76	-
17	192.168.1.17	OK	37	192.168.1.37	-	57	192.168.1.57	-	77	192.168.1.77	-
18	192.168.1.18	OK	38	192.168.1.38	-	58	192.168.1.58	-	78	192.168.1.78	-
19	192.168.1.19	OK	39	192.168.1.39	-	59	192.168.1.59	-	79	192.168.1.79	-
20	192.168.1.20	OK	40	192.168.1.40	-	60	192.168.1.60	-	80	192.168.1.80	-

[Operation buttons]

(1) Start
Starts network connection verification.

(2) Abort
Aborts the network connection verification in progress.

[Network status setting]

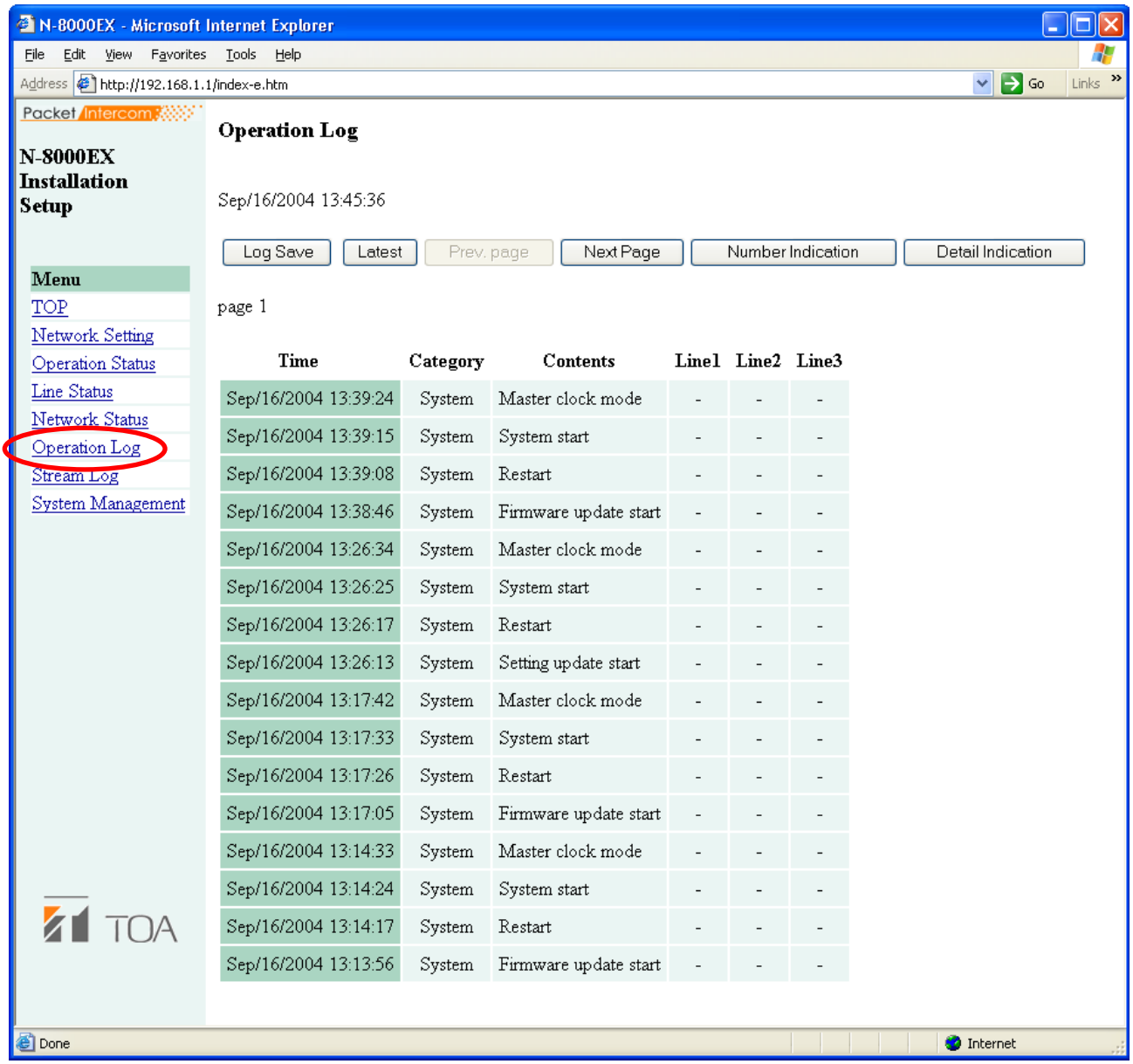
(1) No.
Equipment number of the exchange, various kinds of interface units or IP station.

(2) IP Address
IP address of the exchange, various kinds of interface units or IP station.

(3) Status
"OK" is displayed when the unit connection is established.
"NG" is displayed when the unit connection is not established.
The symbol of "–" is displayed during connection confirmation.

8. OPERATION LOG

Click "Operation Log" on the menu on the left side of the screen.
The operation log displays the equipment's operating records. Up to 1,000 events can be stored.
The screen below is an example for the N-8000EX.



[Operation buttons]

(1) Log Save button
Saves operation logs to a PC.

(2) Latest button
Updates operation logs.

(3) Prev. Page button
Returns the display to the previous page.

(4) Next Page button
Advances the display to the next page.

(5) Number Indication button
Switches the station display in the line column between "station number" and "line number." The display alternates between station and line numbers whenever this button is pressed.

(6) Detail Indication button
Adds any relevant error logs to the operation log display. The display alternates between operation logs and operation logs containing error logs each time this button is pressed.

[Log items]

(1) Time
Indicates the time that the event occurred.

(2) Category
Indicates the type of log.

Exchange Processing:	Line control data
System:	System data
Remote:	Control from PC

(3) Contents
Indicates event contents. Errors are indicated in red.

(4) Line 1, Line 2 and Line 3
Indicates the line on which an event occurred. Station and IP address numbers are displayed.

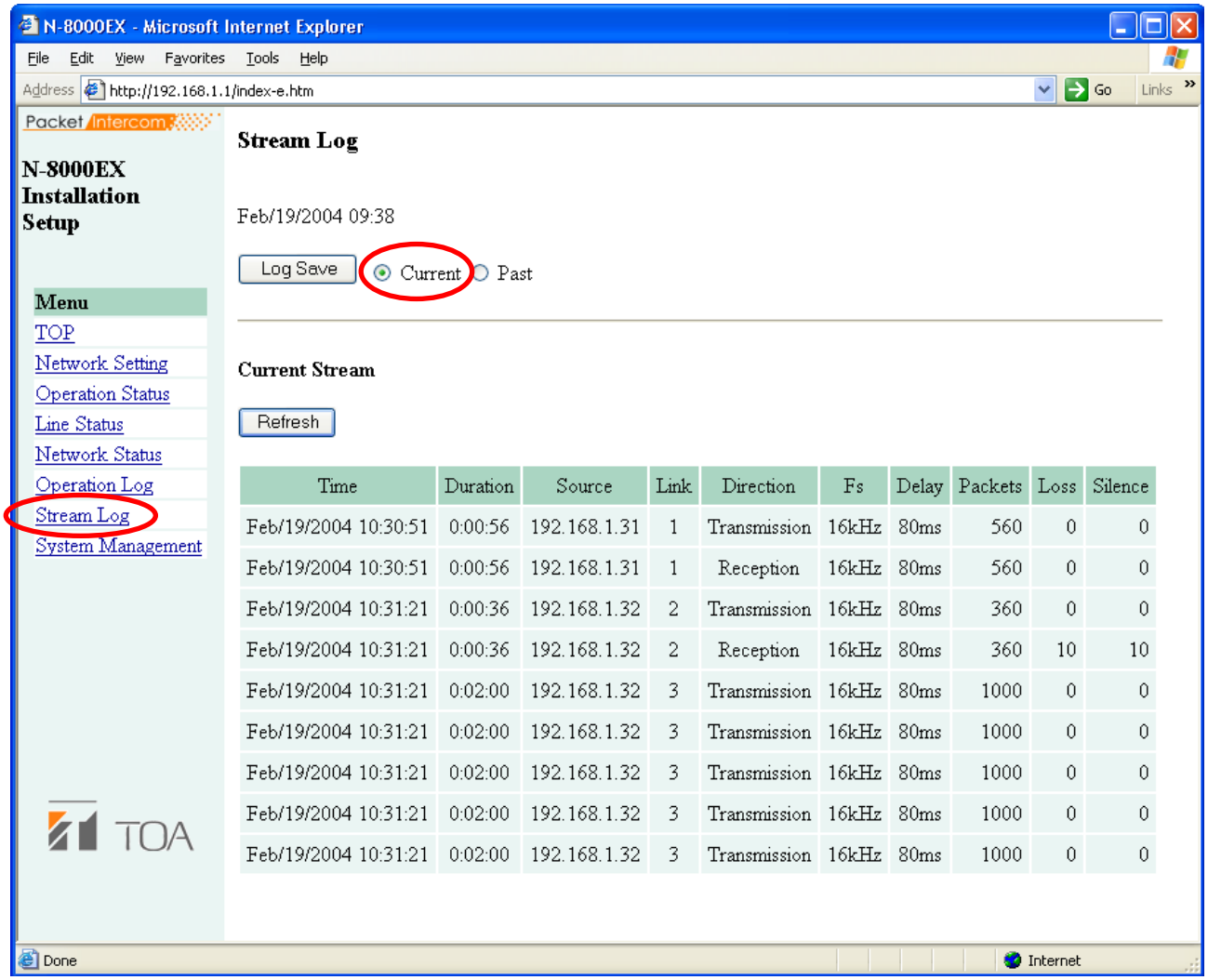
Note
If the indication "Firmware failed. Please contact our sales office." is displayed, the system is suffering a problem and could fail. In such cases, please contact TOA immediately.

9. STREAM LOG

Click "Stream Log" on the menu on the left side of the screen.
The stream log is a history of voice communications (both conversations and paging) carried over the IP network. Displays can be switched between current and past histories. Up to 1,000 events can be stored.

[Current stream screen]

The screen below is an example for the N-8000EX.



[Operation buttons]

(1) Log Save button
Saves stream logs to a PC.

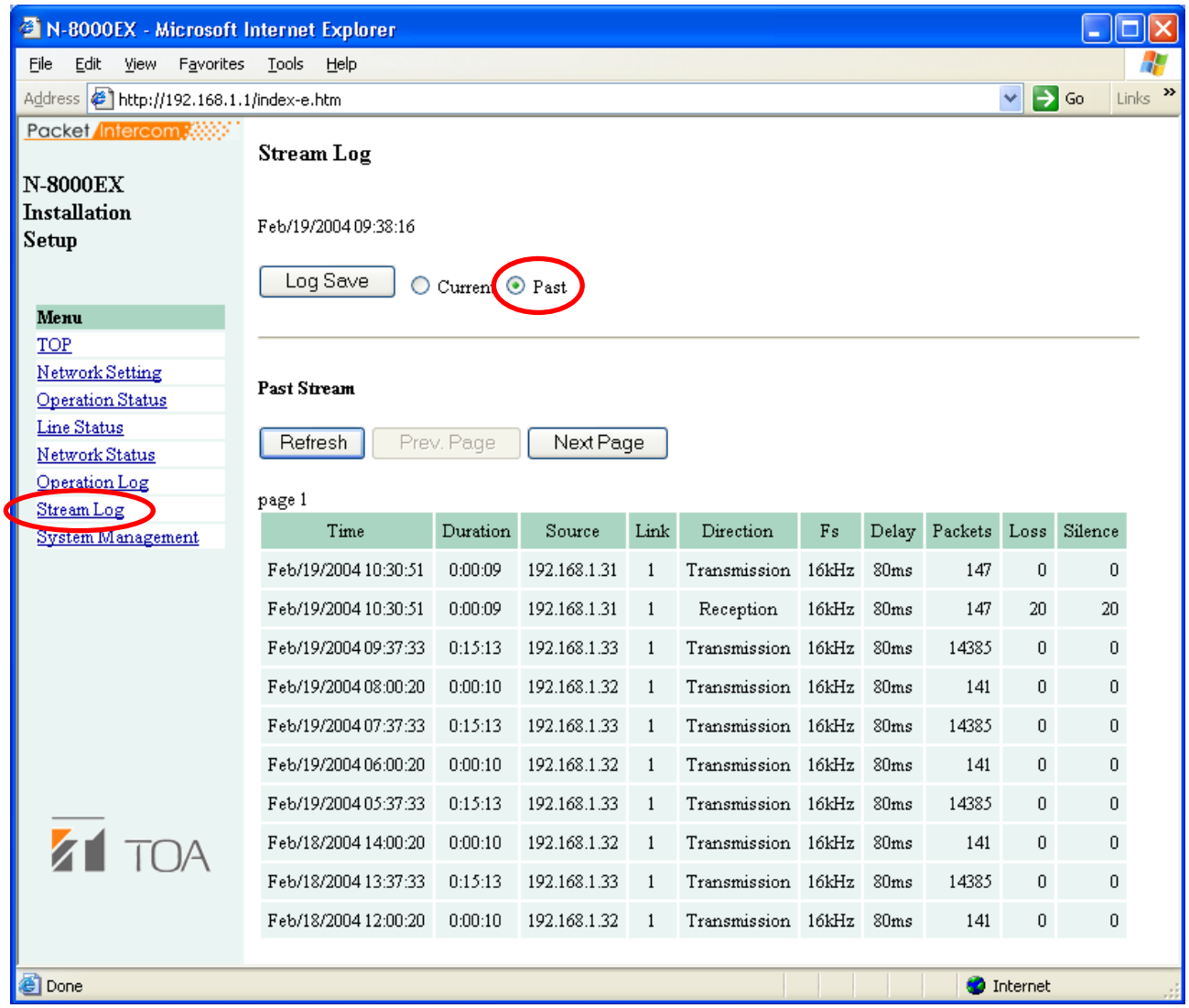
(2) Current button and Past button
The Current button displays the current stream log; the Past button displays finished stream logs.

[Current stream operation buttons]

(1) Refresh button
Updates stream logs.

[Past stream screen]

The screen below is an example for the N-8000EX.



[Past stream operation buttons]

(1) Refresh
Displays the last sixteen finished streams.

(2) Prev. Page button
Returns the display to the previous page.

(3) Next Page button
Advances the display to the next page.

[Log items] (common to current and past stream logs)

(1) Time
Time the stream began.

(2) Duration
Duration of the communication stream.

(3) Source
IP address of the exchange the station is connected to.

(4) Link
Speech path number.

(5) Direction
Sending or receiving.

(6) Fs
Sampling frequency, either 8 kHz or 16 kHz.

(7) Delay
Time between voice input and output.

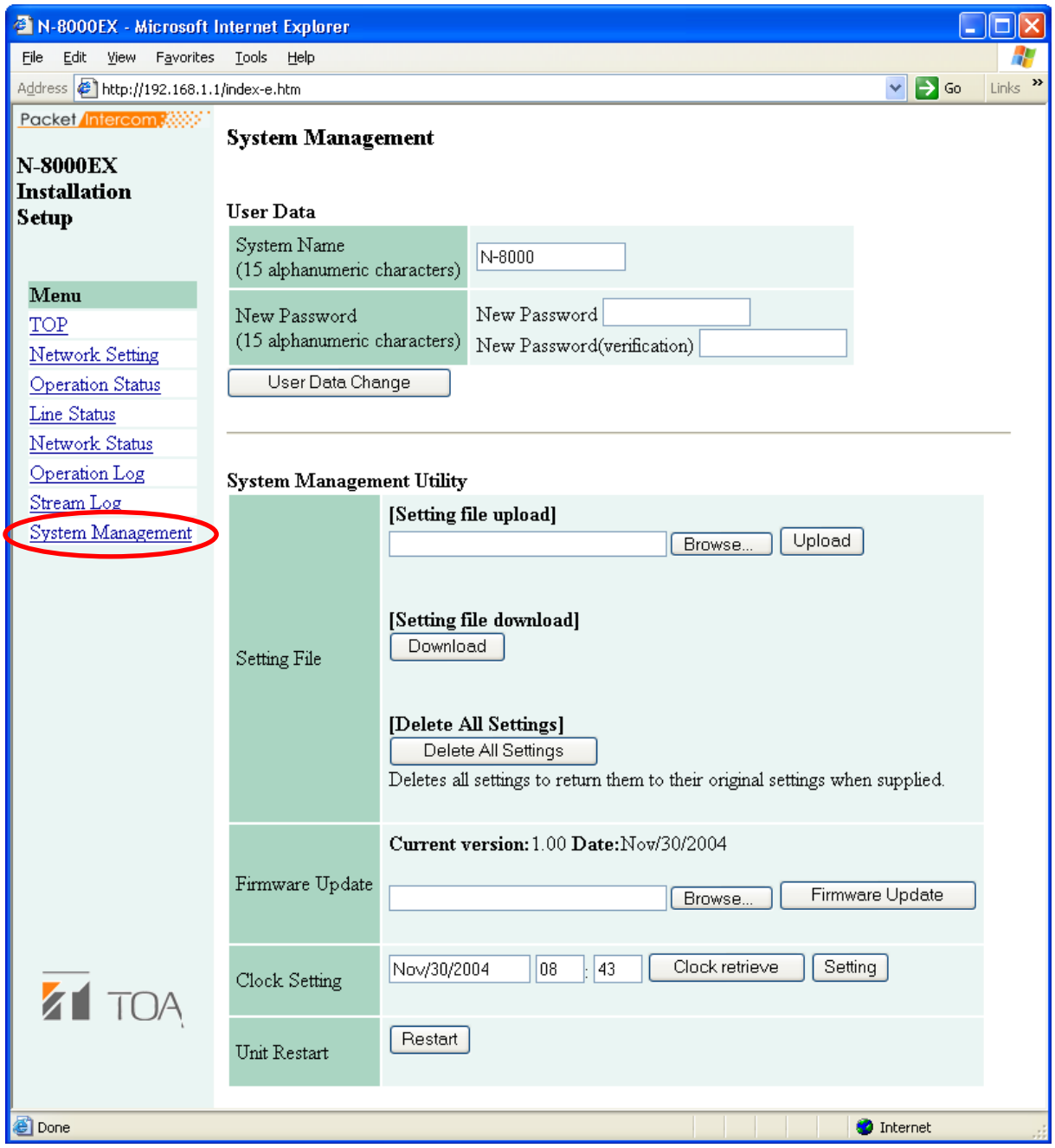
(8) Packets
Number of packets transmitted or successfully received.

(9) Loss
Number of packets lost due to network failures, which is counted at the receiving end only.

(10) Silence
When voice output is reproduced as silence due to packet loss or late packet arrival (due to high network traffic), the number of packets in which silence data is embedded is counted at the receiving end.

10. SYSTEM MANAGEMENT

Click "System Management" on the menu on the left side of the screen.
The screen below is an example for the N-8000EX.



[User Data]

The system name and password can be changed (refer to p. 6-39).

(1) System Name
Displays the user name entered on the user authentication screen when the browser was started (refer to p. 6-3).

(2) New Password
Enter a new password.

(3) New Password (verification)
Enter the same password again for verification.

(4) User Data Change button
Pressing this button registers the newly changed user data.

[System Management Utility]

(1) Upload button
Used to write backed-up settings files into the exchange, interface unit or IP station connected to the PC. (refer to p. 6-39).

(2) Browse button
A file selection dialog appears.

(3) Download button
Saves the equipment's settings data (files) to the PC (refer to p. 6-40).

(4) Delete All Settings button
Deletes all settings and returns the exchange to its initial factory settings shown below.

IP address: 192.168.1.1
System name: N-8000
Password: guest
Confirm other settings online using the N-8000 software.

(5) Firmware Update button
Updates firmware (refer to p. 6-41).
Use the latest version of firmware, which is released on the following our web site.

Tips
• Download the latest version of firmware from our site http://www.toa-products.com/international/.
• The current version is displayed above the Firmware Update button.

(6) Clock retrieve button
Pressing this button displays the date and time of the connected PC's clock (refer to p. 6-42).

(7) Setting button
Used to set the equipment's clock (refer to p. 6-42).

(8) Restart button
Restarts the equipment.

Note
Never restart the equipment while changing settings files or performing a firmware update.

10.1. Changing System Names and Passwords

When adding the exchange, interface unit or IP station, or initializing the exchange, interface unit or IP station settings, the system name and password can be changed remotely using the browser even from locations where the system settings PC is not available.

- Set the same system name and password as previously set using the N-8000 software. The N-8000 software cannot be used for centralized administration if different passwords have been used within the same system.

Step 1. Enter a new system name in "System Name box."
Enter a new system name up to fifteen characters long.
This name is case-sensitive.
The following symbols cannot be used.
: ; / \ | , * ? " < >

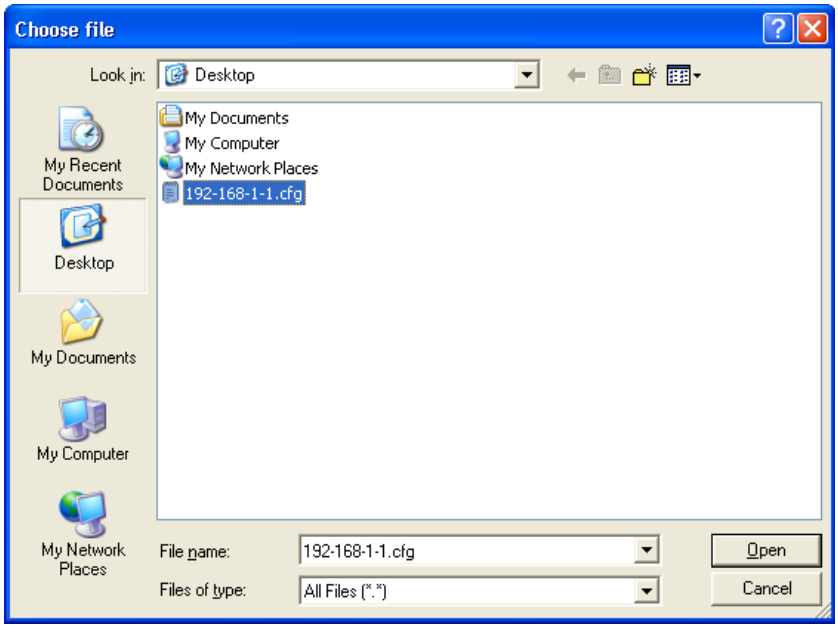
Step 2. Enter a new password in the "New Password" box.
Enter a new password up to fifteen characters long.
This password is case-sensitive.
The following symbols cannot be used.
: ; / \ | , * ? " < >

Step 3. Enter a new password that has been entered in step 2 in "New Password (verification)" box for verification.

Step 4. Press User Data Change button.
Note
The status indicator located on the exchange, interface unit or IP station remains lit during update.
Do not switch off or restart the power or remove the LAN cable.

10.2. Uploading Setting File

Step 1. Press "Browse..." button to display "File Selection" dialog.



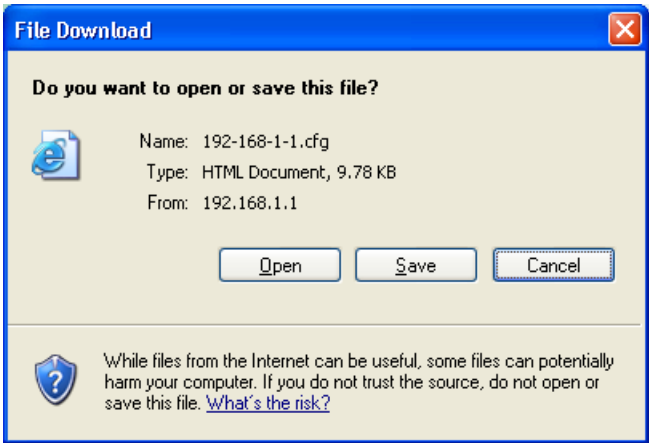
Step 2. Select "Backup file (extension cfg)", then press "Open" button.

Step 3. Press "Upload" button.

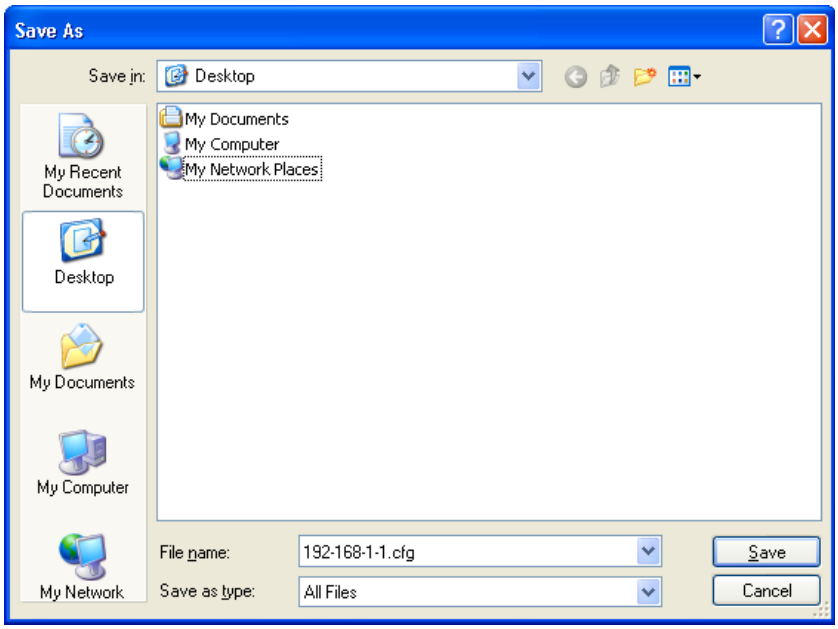
Note
The status indicator located on the exchange, interface unit or IP station remains lit during update.
Do not switch off or restart the power or remove the LAN cable.

10.3. Downloading Setting File

Step 1. Press "Download" button to display "File Download" dialog.



Step 2. Press "Save" button to display the dialog.



Step 3. Select saving location, then enter file name.

Tip

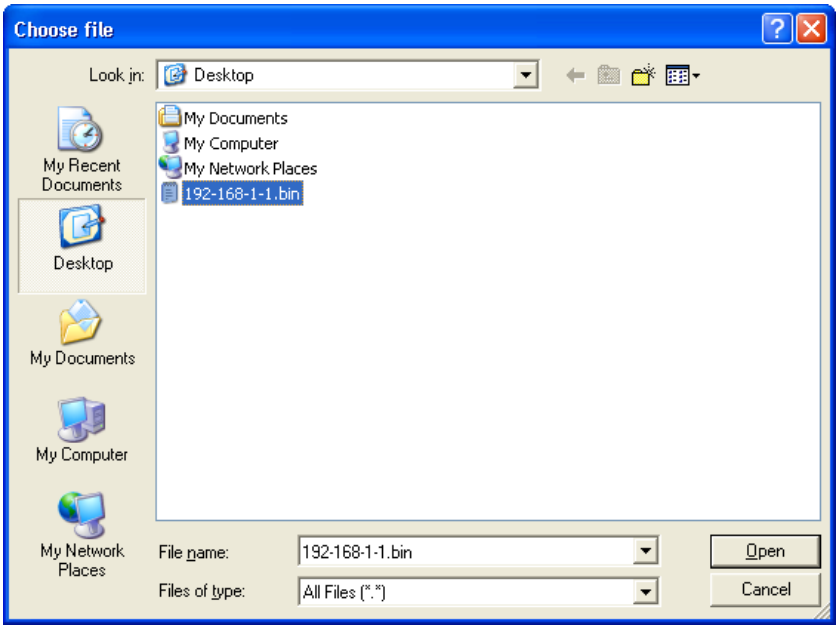
The default name is [IP address] .cfg.

Step 4. Select "All Files" in the file type box, then press "Save" button.

10.4. Updating Firmware

Note
Updating the firmware may erase the set data (the settings reverts to the factory default settings) depending on the updated contents.
Before update, be sure to save the current setting file to the PC first.
After update completion, perform network settings, and change the system name and password, then upload the stored setting file using the N-8000 Software program. Review the settings and correct them if changed.

Step 1. Press "Browse..." button to display "Choose file" dialog.



Step 2. Select the firmware (extension bin), then press "Open" button.
Use the latest version of firmware, which is released on the following our web site.

Tips
- Download the latest version of firmware from our products data site http://www.toa-products.com/international/.
- The current firmware version can be confirmed on the browser's system management screen.

Step 3. Press "Firmware update" button to start firmware updating.

Note
The status indicator located on the exchange, interface unit or IP station remains lit during update.
Do not switch off or restart the power or remove the LAN cable.

10.5. Clock Settings

If there is a time difference between the exchange, interface unit or IP station system connected to the system, each exchange's time can be adjusted individually. When the red indication "Clock not set." is displayed in the "Clock setting" box, this indicates that the clock has never been set in the past or the power has long been turned off. In such cases, perform clock settings.

Clock adjustment using the Clock Retrieve button
The date and time of the exchange, interface unit or IP station can be adjusted to those of the PC.

Step 1. Press "Clock retrieve" button.

Step 2. Press "Setting" button.

Clock adjustment using a PC
Permits the time to be entered. It is impossible to change the date with this method.

Step 1. Move the cursor to the "hours" and "minutes" cells and enter the time in 24-hour formats.

Step 2. Press "Setting" button.

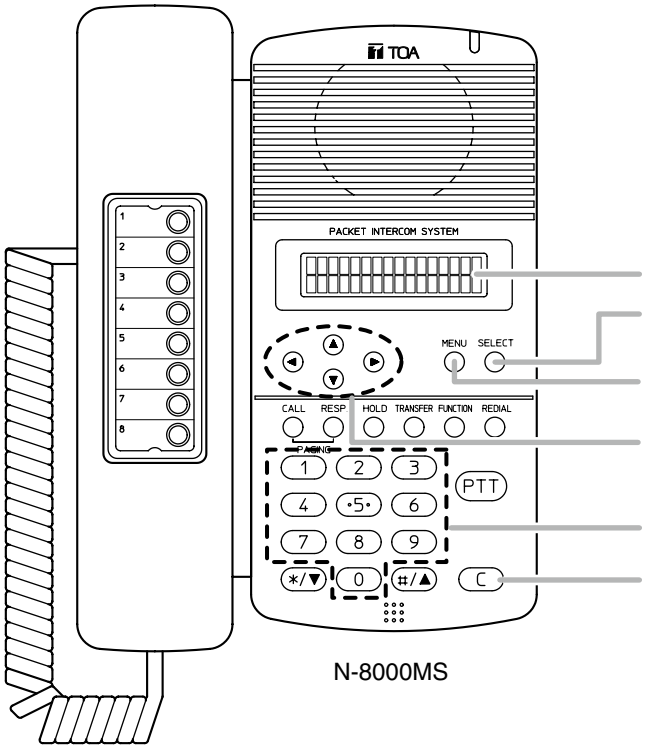
Chapter 7

MULTIFUNCTIONAL STATION MENU SCREEN OPERATION (N-8000MS/8500MS/8600MS only)

This chapter describes the settings and displays available using the menu screen of the Multi-Functional Station and IP Multi-Functional Station.

1. KEYS USED FOR MENU SCREEN OPERATION

The following keys are used to operate the menu screen of the N-8000MS Multifunctional Master Station and the N-8500MS/8600MS IP Multifunctional Master Station.



N-8000MS

Liquid crystal display: Displays the menu screen.

Selection key: Used for item selection and input value set.

Menu key: Used for changing either setting or normal modes.

Arrow keys: Used for moving the arrow (cursor).

Dial keys: Used to enter figures.

Clear key: Used to delete a last single character shown on the display.

This figure represents the N-8000MS.

2. MENU ITEMS

- 1. Auto-dialing programming (refer to p. 2-11) — Programs the contents into the Auto Dial key.
- 2. Line monitor (refer to p. 7-4) — Monitors the Line connection status of the Exchange.
- 3. Updating log file (refer to p. 7-5) — Updates the operation log files of the Exchange or N-8500MS/8600MS.
- 4. Volume (refer to p. 7-5) — Sound volume set for the N-8500MS/8600MS can be confirmed. (N-8500MS/8600MS only)
- 5. LCD backlight (refer to p. 7-6) — Sets ON/OFF of the N-8600MS's LCD backlight. (N-8600MS only)
- 0. Maintenance (refer to p. 7-7)
  - 1. Network settings (refer to p. 7-8) — Changes the IP address, subnet mask, or default gateway of the Exchange or N-8500MS/8600MS.
  - 2. The line attribute setting (refer to p. 7-9) — Sets the station number of the station to be connected to the Exchange and IP station.
  - 3. Clock settings (refer to p. 7-10) — Sets the system clock.
  - 4. System reset (refer to p. 7-11) — Restarts the system. When network settings have been changed, it is necessary to restart the Exchange or N-8500MS/8600MS.

3. MONITORING LINE STATUS

Causes the station's LCD to display the connection status for all sixteen lines associated with the exchange to which the N-8000MS is connected.
The N-8500MS/8600MS does not have the monitoring function.

Step 1. Press the Menu key to place the display in setting mode.


```
→1:Auto-dialing
 2:Line monitor
```

Step 2. Use the down arrow key or the [2] key to move the cursor to "2: Line monitor."

```
 1:Auto-dialing
→2:Line monitor
```

Step 3. Press the Select key to display the connection status for all sixteen lines. Lines are listed in order from left to right as Line 1, Line 2, and so on up to Line 16.


```
 2:Line monitor
OOOXOOOXXOOFFOOO
```

Display symbol	Contents	Details
O	Connected (Normal)	Station is connected to the line and communications are being performed correctly between the exchange and station.
X	Unconnected	Station is not connected to the line or a wire is broken.
F	Connected (Abnormal)	Station is connected to the line, but communications are not being performed correctly.

"No Information" is displayed on the N-8500MS/8600MS's LCD.

Step 4. Press the Menu key to return the display to its normal standby mode.


```
10:08 AM
      2000
```

4. UPDATING LOG FILES

Update the file that stores the operation logs for the exchange or N-8500MS/8600MS*.
Use this function when some malfunction has made it impossible to view the operation log via a PC (refer to p. 6-32, Browser Operation Log Display). Follow the procedures below to update the log file at the station, then restart the exchange or N-8500MS/8600MS.

* Exchange when the station performing update is N-8000MS, and the N-8500MS/8600MS itself when it is the N-8500MS/8600MS.

Step 1. Press the Menu key to place the display in setting mode.


```
→1:Auto-dialing
 2:Line monitor
```

Step 2. Use the down arrow key or the [3] key to move the cursor to "3: Log file."

```
 2:Line monitor
→3:Log file
```

Step 3. Press the Select key to update the log file of the exchange to which the station is connected or N-8500MS/8600MS.
Note
The status indicator located on the exchange's front panel or N-8500MS/8600MS remains lit during the update process. Do not restart the system or turn off the power while this light is on.


```
 3:Log file
 Updated
```

Step 4. Press the Menu key to return the display to its normal standby mode.


```
10:08 AM
        2000
```

5. CONFIRMING THE SET SOUND VOLUME (N-8500MS/8600MS only)

The microphone sensitivity and speaker output volume set for the N-8500MS/8600MS can be confirmed.

Step 1. Press the Menu key to place the display in setting mode.


```
→1:Auto-dialing
 2:Line monitor
```

Step 2. Use the down arrow key or the [4] key to move the cursor to "4: Volume."

```
 3:Log file
→4:Volume
```

Step 3. Press the Select key.
Both set levels for microphone sensitivity (MIC) and speaker output (SP) are displayed.
The MIC level is indicated in 3 steps from 1 (min.) to 3 (max.), and the SP level in 5 steps from 1 (min.) to 5 (max.).


```
 4:Volume
 MIC:2 SP:3
```

Step 4. Press the Menu key to return the display to its normal standby mode.


```
10:08 AM
        2000
```

6. SETTING THE LCD BACKLIGHT (N-8600MS only)

ON/OFF of the N-8600MS's LCD backlight can be set.

Step 1. Press the Menu key to place the display in setting mode.


```
→1:Auto-dialing
 2:Line monitor
```

Step 2. Use the down arrow key or the [5] key to move the cursor to "5: LCD BACKLIGHT."

```
 4:Volume
→5:LCD BACKLIGHT
```

Step 3. Press the Select key.
The current setting is indicated with the cursor.


```
 5:LCD BACKLIGHT
→ON OFF AUTO
```

Step 4. Press the left or right arrow key to move the cursor to "ON," "OFF," or "AUTO."
Shown below are the setting contents.

- ON: Always ON (Default factory setting)
- OFF: Always OFF
- AUTO: OFF in standby mode, ON during use, OFF 5 seconds after being placed in standby mode after use.

```
 5:LCD BACKLIGHT
ON→OFF AUTO
```

Step 5. Press the Select key.
The setting changes to the one indicated with the cursor.


```
 5:LCD BACKLIGHT
ON→OFF AUTO
```

Step 6. Press the Menu key to return the display to its normal standby mode.

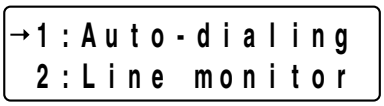

```
10:08 AM
        2000
```

7. SYSTEM SETTINGS

Only a portion of system setting items can be set at the Multifunctional Station.

7.1. Entering Maintenance Screen

Step 1. Press the Menu key to place the display in setting mode.

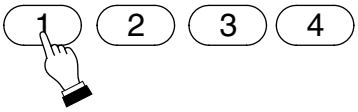


Step 2. Use the up or down arrow keys or the [0] key to move the cursor to "0: Maintenance."

Step 3. Press the Select key to display the password entry screen.

Step 4. Enter 4-digit-password by pressing dial keys, then press the Select key.
The default factory setting is 0000. It can be changed using the N-8000 Setting Software. (Refer to p. 5-27.)

[Example]



After password has been entered correctly, system setting screen is displayed.

7.2. Network Settings

It is possible to change the IP address, subnet mask, and default gateway of the exchange or N-8500MS/8600MS*.

* Exchange when the station performing setting is N-8000MS, and the N-8500MS/8600MS itself when it is the N-8500MS/8600MS.

Step 1. Using the up or down arrow keys or the [1] key on the maintenance screen, move the cursor to "1: Network set."

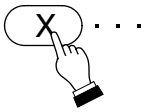
```
→1:Network set
 2:LineAttribute
```

Step 2. Press the Select key to display the IP address of the exchange to which the station is connected or of the N-8500MS/8600MS.


```
IP Address
→192.168.001.128
```

Step 3. Using the dial keys, enter the desired IP address, then press the Select key. When not changing the IP address, press the Select key only.
The subnet mask of the exchange or N-8500MS/8600MS is displayed.

- The periods (.) within the IP address need not be entered. Enter numerals consecutively.
- If a number separated by a period is a single or double digit number, add the prefix [0] or [00] to make them 3-digit numbers. For example, enter the IP address "192.168.5.64" as "192168005064."

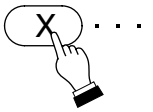



```
IP Address
→192.168.005.064
```


```
Subnet mask
→255.255.255.000
```

Step 4. Using the dial keys, enter the desired subnet mask, then press the Select key. When not changing the subnet mask, press the Select key only.
The default gateway of the exchange or N-8500MS /8600MS is displayed.

Note
For entering figures, follow the same process as **Step 3**.

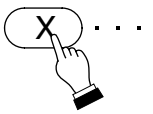



```
Subnet mask
→255.255.000.000
```


```
Default gateway
→192.168.001.254
```

Step 5. Using the dial keys, enter the desired default gateway, then press the Select key. When not changing the default gateway, press the Select key only.
The screen reverts to the system setting item selection display, completing the change in network settings.

Note
For entering figures, follow the same process as **Step 3**.




```
Dafault gateway
→192.168.254.001
```


```
→1:Network set
 2:LineAttribute
```

Step 6. Press the Menu key to return the display to its normal standby mode.


```
10:08 AM
        2000
```

Note
Network settings are not immediately updated, but must be made effective by restarting the exchange or N-8500MS/8600MS.
To restart the exchange, press the Reset key located on the front panel of the exchange or use the exchange reset screen (refer to p. 7-11).
To restart the N-8500MS/8600MS, use the exchange reset screen (refer to p. 7-11).

7.3. Station Number Settings

It is possible to set the station number for all stations and IP stations.

Step 1. Using the up or down arrow keys or the [2] key on the maintenance screen, move the cursor to "2: Line Attribute."

```
 1:Network set
→2:LineAttribute
```

Step 2. Press the Select key to display the line attribute setting screen.


```
Line attribute
→ExchangeNo.:
```

Step 3. Enter the equipment number (001 to 192) of the Exchange or IP station to be set with the dial keys (3-digit number), then press the Select key.


```
Line attribute
→ExchangeNo.:024
```

Step 4. Enter the line number (01 – 16) of the line to be set with the dial keys (2-digit number), then press the Select key.
For IP stations, select the line number 01.


```
EX024:→LINE01
 No programming
```


```
EX024:LINE01
→No programming
```

Step 5. Use the arrow keys or dial key to select the type of station connected to the designated line, then press the Select key.
The types of stations selectable at this point are as follows.

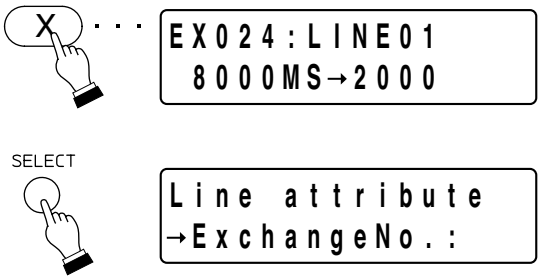
```
EX024:LINE01
→Multifunction
```

Dial key	Indication	Type of stations	Corresponding model
0	No programming	—	None
1	8000MS	Multifunctional master station, IP Multifunctional master station	N-8000MS/8500MS /8600MS
2	8010MS	Standard master station, IP standard master station, Telephone	N-8010MS/8410MS/8510MS /8000AL
3	8011MS	Hands-free master station	N-8011MS
4	8020MS	Industrial-use master station	N-8020MS
5	8031MS	Flush-mount master station	N-8031MS/8033MS
6	8050DS	Door station, IP door station, Substation	N-8050DS/8540DS/8640DS /8650DS, RS-140/142/143/144/150/160 /170/180/450/460/470/480

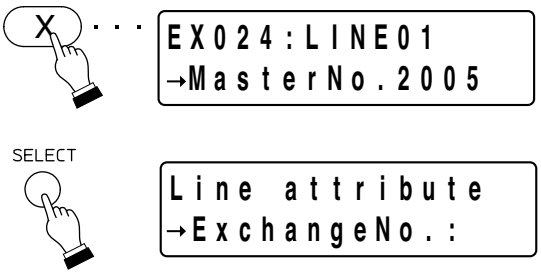
Selecting "No programming" only completes the registration and reverts the screen back to **Step2**, permitting the next Exchange number to be entered for the line attribute setting.

```
Line attribute
→ExchangeNo.:
```

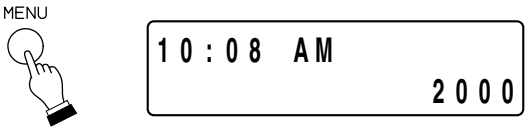
Step 6. Enter the station number (00-999999) of the designated line using the dial keys, then press the Select key.
Only if "8050DS" has been selected, the designated master station number setting screen appears. Proceed to **Step 7**.
When other items are selected, the registration is completed and the screen reverts to **Step2**, permitting the next Exchange number to be entered for the line attribute setting.



Step 7. (Door station, IP door station, and substation only)
Enter the designated master station number (00-999999) using the dial keys, then press the Select key.
The registration is completed and the screen reverts to **Step2**, permitting the next Exchange number to be entered for the line attribute setting.



Step 8. Press the Menu key to return the display to its normal standby mode.



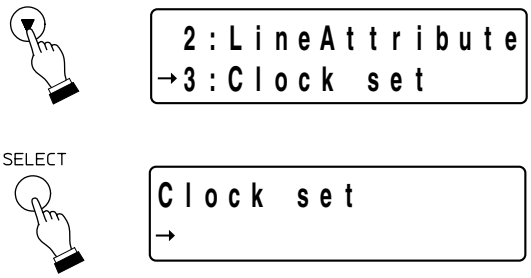
7.4. System Clock Settings

The clock of the exchange or N-8500MS/8600MS* can be set as needed. This function is useful if there are time differences among exchanges connected to the system.

* Exchange when the station performing setting is N-8000MS, and the N-8500MS/8600MS itself when it is the N-8500MS/8600MS.

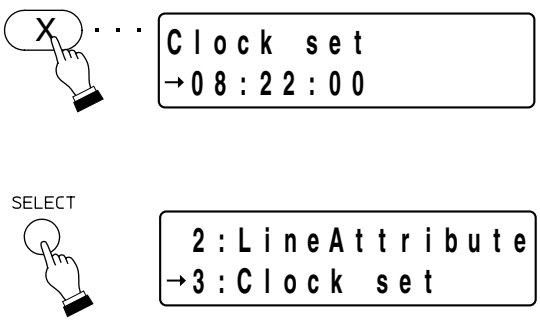
Step 1. Using the up or down arrow keys or the [3] key on the maintenance screen, move the cursor to "3: Clock set."

Step 2. Press the Select key to display the clock setting screen.

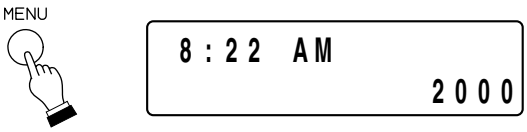


Step 3. Use the dial keys to enter the time to be set for the exchange or N-8500MS/8600MS in two-digit sets in the order Hours:Minutes:Seconds.
- Enter the time in 24-hour format.
- Colons (:) need not be entered.

Step 4. Press the Select key to revert the screen to **Step 1**.



Step 5. Press the Menu key to return the screen to ordinary standby mode with the updated time displayed.



7.5. Restarting the Equipment

Restart the exchange or N-8500MS/8600MS* when network settings have been changed.
The exchange can be restarted at the Multifunctional Station even without pressing "Reset" key located on the exchange's front panel.

* Exchange when the station performing restart is N-8000MS, and the N-8500MS/8600MS itself when it is the N-8500MS/8600MS.

Note
Before restarting the exchange, ensure that no paging, conversation, or firmware update is in progress.

Step 1. Using the up or down arrow keys or the [4] key on the maintenance screen, move the cursor to "4:Reset EX."

```
 3:Clock setting
→4:Reset EX
```

Step 2. Press the Select key to display verification screen.


```
Reset EX. OK?
 Yes→No
```

Step 3. Pressing the left or right arrow keys, move the cursor to "Yes."

```
Reset EX. OK?
→Yes No
```

Step 4. Press the Select key to revert the screen to Step 1, then the Exchange or N-8500MS/8600MS restarts.
Dialing operations are refused during restarting.
When restart has been completed, the display returns to its normal standby mode.


```
 3:Clock setting
→4:Reset EX
```

```
 8:22 AM
        2000
```

Chapter 8

APPENDIX

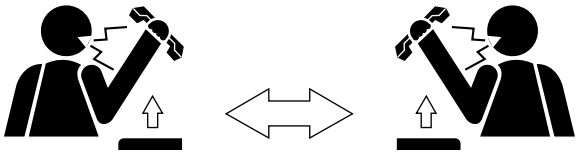
1. FULL DUPLEX AND HALF DUPLEX CONVERSATIONS

1.1. Speech Method

The Packet Intercom system uses 5 types of methods for conversations between stations.
For conditions in which these speech methods are used, refer to the table on p. 8-5.

1.1.1. Full duplex conversation between handset stations

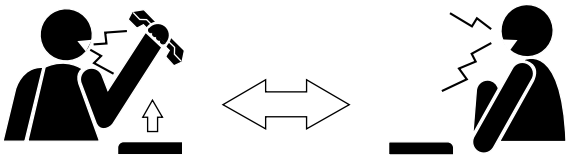
This method is the same as that used for an ordinary subscribed telephone.
Simultaneous two-way conversations are possible between both parties.
(Refer to p. 8-5, "Full duplex.")



Full duplex conversation

1.1.2. Full duplex conversation using an echo canceller

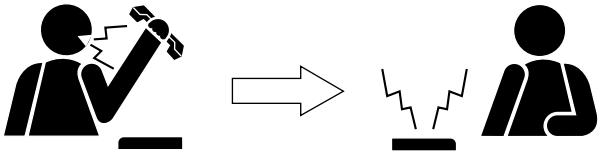
An echo canceller realizes simultaneous two-way conversations between both parties.
(Refer to p. 8-5, "AEC.")
The echo canceller is a circuit to prevent echo or feedback that possibly occurs when sound from the built-in speaker enters the microphone.



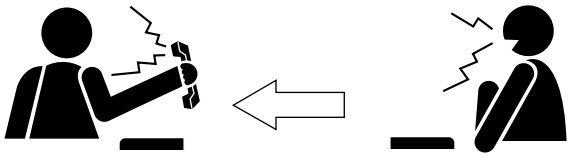
Full duplex conversation

1.1.3. Half duplex conversation using a voice switch

This is one-way conversation from a speaking station to a listening station.
When a party speaks after the other party's speech has ended, the speech transmission direction is reversed, allowing two-way alternate conversations.
Note that speech overlapped during speech will not change the transmission direction.
(Refer to p. 8-5, "VS.")



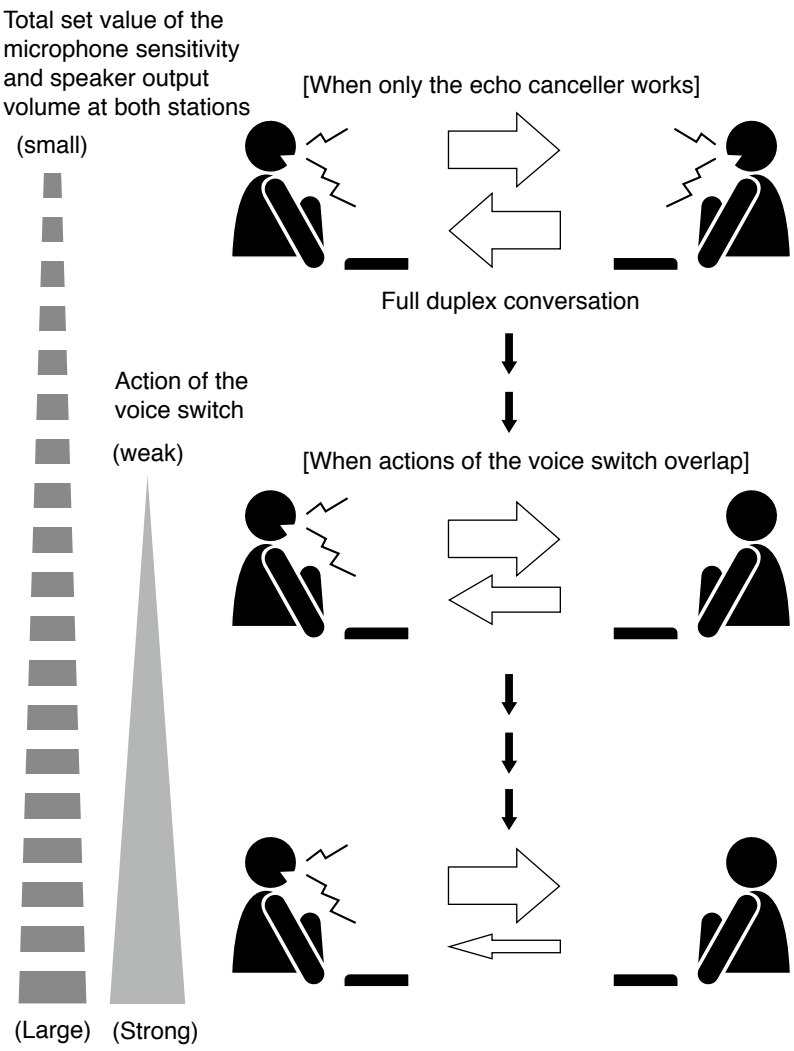
One-way conversation



One-way conversation

1.1.4. Full duplex conversation using echo canceller and voice switch

This is a speech method using the echo canceller (see the previous page) in combination with the voice switch. In this method, the echo canceller works continuously. Actions by way of the voice switch overlap with those by way of the echo canceller. The voice switch works to reduce the other party's voice level.
A strong action of the voice switch makes the attenuation level large (when its level is "0", only the echo canceller works), while a weak action of the voice switch makes the attenuation level small.
The strength of voice switch action depends on the total set value of the microphone sensitivity and speaker output volume at both stations.
As the value is small, the action of voice switch becomes weak and as the value is large, the action becomes strong.
Such operations allow the other party's voice not to be cut, realizing nearly full duplex conversation between stations. However, depending on the settings of microphone sensitivity and speaker output volume, the other party's voice may not almost be heard.
(Refer to p. 8-5, "AEC + VS.")

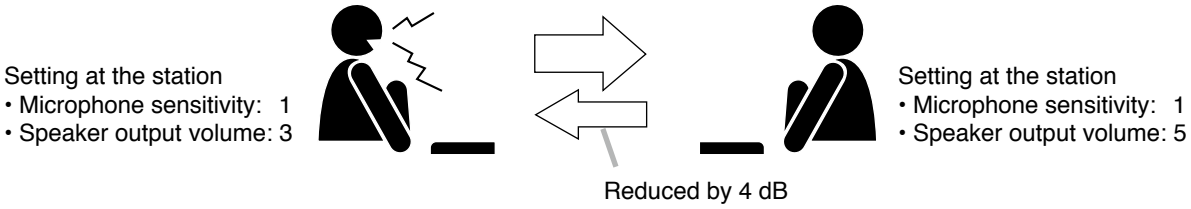


Notes

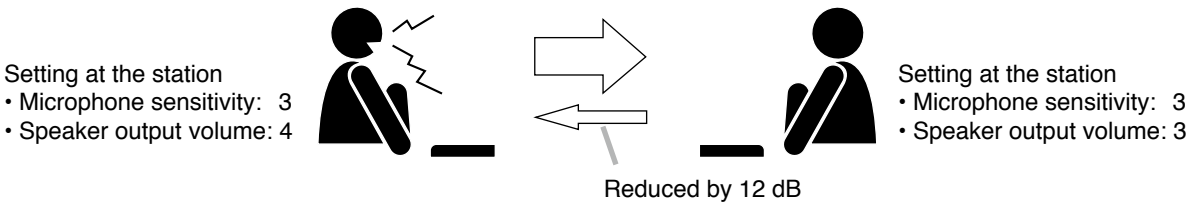
- The echo canceller works continuously.
- A smaller white arrow indicating the direction of voice shows a smaller volume level of voice.

[Setting example]

(Example 1: When the total set value at both stations is “10.”)

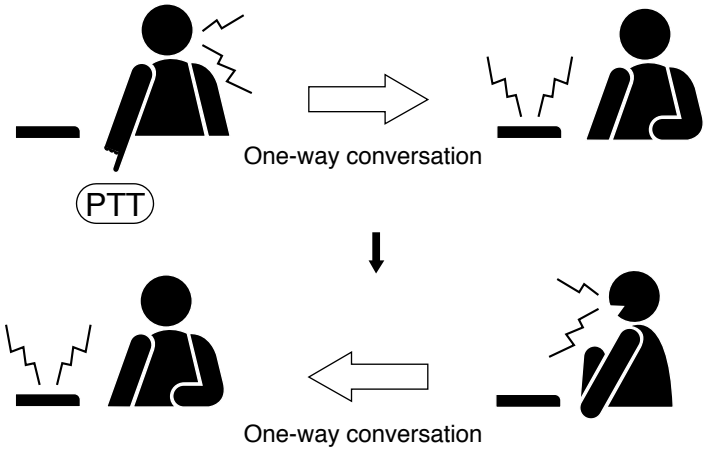


(Example 2: When the total set value at both stations is “13.”)



1.1.5. Half duplex conversation by way of PTT operation

When the PTT key is pressed, this permits one-way conversation from the key-operated station. Releasing the PTT key enables one-way conversation from the other party.
When the PTT keys at both stations are pressed simultaneously, the last key-operated station takes precedence.
(Refer to p. 8-5, "PTT Conversation.")



1.2. A Difference of Speech Method Depending on Usage Conditions of the Station

Packet Intercom system permits hands-free full duplex conversation. However, operations of an echo canceller or a voice switch could change depending on the stations to be used, conversation partner, or each station's usage condition (handset or hands-free conversation), resulting in half duplex conversation.
Effective use of hands-free conversation function requires some consideration of settings and operations. (Refer to next item.)
Speech methods related to station usage conditions are given in a table below. Use this table as a guide for selecting appropriate stations and their speech method.

Called station \ Calling station		Master Station, IP master station (N-86xxMS)		IP remote microphone station	Door Station, IP door station (N-86xxDS)	IP master station (N-85xxMS), Analog master station		IP door station (N-8540DS)	Substation
		Handset	Hands-free			Handset	Hands-free		
Master station, IP master station (N-86xxMS)	Handset	Full duplex	AEC PTT conver.	AEC PTT conver.	AEC PTT conver.	Full duplex	VS PTT conver.	VS PTT conver.	VS PTT conver.
	Hands-free	AEC PTT conver.	AEC + VS PTT conver.	AEC + VS PTT conver.	AEC + VS PTT conver.	AEC PTT conver.	VS PTT conver.	VS PTT conver.	x (Conver. impossible)
IP remote microphone station		AEC PTT conver.	AEC + VS PTT conver.	AEC + VS PTT conver.	AEC + VS PTT conver.	AEC PTT conver.	VS PTT conver.	VS PTT conver.	x (Conver. impossible)
Door Station, IP door station (N-86xxDS)		AEC	AEC + VS PTT conver.	AEC + VS PTT conver.	x (Conver. impossible)	AEC PTT conver.	VS PTT conver.	x (Conver. impossible)	x (Conver. impossible)
IP master station (N-85xxMS), Analog master station	Handset	Full duplex	AEC PTT conver.	AEC PTT conver.	AEC	Full duplex	VS PTT conver.	VS PTT conver.	VS PTT conver.
	Hands-free	VS PTT conver.	VS PTT conver.	VS PTT conver.	VS PTT conver.	VS PTT conver.	VS PTT conver.	VS PTT conver.	x (Conver. impossible)
IP door station (N-8540DS)		VS PTT conver.	VS PTT conver.	VS PTT conver.	x (Conver. impossible)	VS PTT conver.	VS PTT conver.	x (Conver. impossible)	x (Conver. impossible)
Substation		VS PTT conver.	x (Conver. impossible)	x (Conver. impossible)	x (Conver. impossible)	VS PTT conver.	x (Conver. impossible)	x (Conver. impossible)	x (Conver. impossible)

PTT conver. = PTT Conversation
Conver. = Conversation

[Explanations of terms used in the table]

- Calling station: Represents the station that makes calls and its usage conditions.
- Called station: Represents the station that receives calls and its usage conditions.
- AEC: An abbreviation of "Automatic Echo Canceller." Represents the state that the echo canceller works. Full duplex conversation is always possible.
- VS: An abbreviation of "Voice Switch." Represents the state that the voice switch works. Half duplex conversation is possible.
- AEC + VS: Represents the state that both echo canceller and voice switch work simultaneously depending on the settings of microphone sensitivity and speaker output volume of the station.
- PTT conversation: Pressing the PTT key of the master station, IP master station, or IP remote microphone station enables half duplex conversation.
- Full duplex: Full duplex conversation is always possible between the handset stations.
- Conversation impossible: Conversation between the door stations, between the substations, and between the door station and the substation is impossible.

Notes

- Models corresponding to stations are given below.
  - · Master station: N-8000MS, N-8010MS, N-8011MS, N-8020MS, N-8031MS, N-8033MS
  - · Door station: N-8050DS
  - · IP master station: N-8500MS, N-8510MS, N-8600MS
  - · IP Remote microphone station: N-8610RM
  - · IP door station: N-8540DS, N-8640DS, N-8650DS
  - · Analog master station: N-8410MS
- In conversation with substations, handset conversation is required for the master station and IP master. In this case, the type of conversation method is half-duplex conversation.
- In conversation between both analog master stations connected to the same Sub-station interface unit, half duplex conversation is made between the stations when both are engaged in hands-free conversation, but full duplex conversation when engaged in other conversation mode.
- When the N-8000CO outside line interface is connected, conversations between outside line telephones and intercom stations are half-duplex using the voice switch if the station is in hands-free mode, and full-duplex if the station is in handset mode.
- Operation of the analog telephone connected to the N-8000AL is the same as for the master station handset.

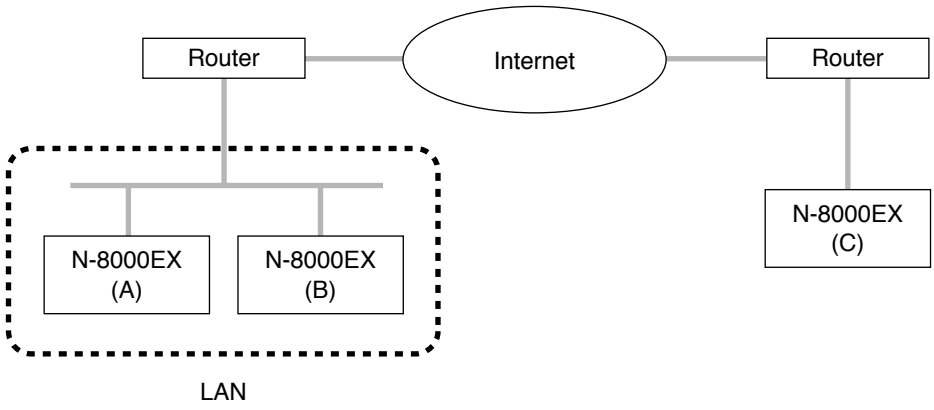
1.3. What If You Failed to Make Conversation Properly

- If the voice switches of the master and door stations do not flip properly, adjust the microphone sensitivity and speaker output volume of the stations. (For the master station, refer to p. 2-5, 5-65 and 5-80, and for the door station, refer to p. 5-65 and 5-80.)
- Though IP stations are so designed to always ensure optimum hands-free conversation automatically, adjust the microphone sensitivity and speaker output volume of the stations if voice switches do not flip smoothly. (Refer to p. 2-5, p. 2-98, and 5-65.)
- Press the PTT key to establish conversations if one-way conversation from the station in higher ambient noise area occurs during hands-free conversation between stations or when acoustic echo is generated during conversation.

2. BASIC KNOWLEDGE ABOUT NETWORKS

2.1. IP Networks and Address

The IP networks that the Exchanges, various kinds of interface units and IP stations can use include Local Area Networks (LAN) used in small-scale area, such as within or on the premises of a company, and the Internet, which covers a wide area over remote distances.



LANs differ from the Internet in the IP address to be used.

Local IP address (private IP address):
This address is used and can be freely set within the LAN.

Global IP address:
This is the only one address that is used to access the Internet.
To use the Exchanges, various kinds of interface units and IP stations through the Internet, a fixed global IP address must be acquired and assigned to each unit. When using the router, set the global IP address to it.

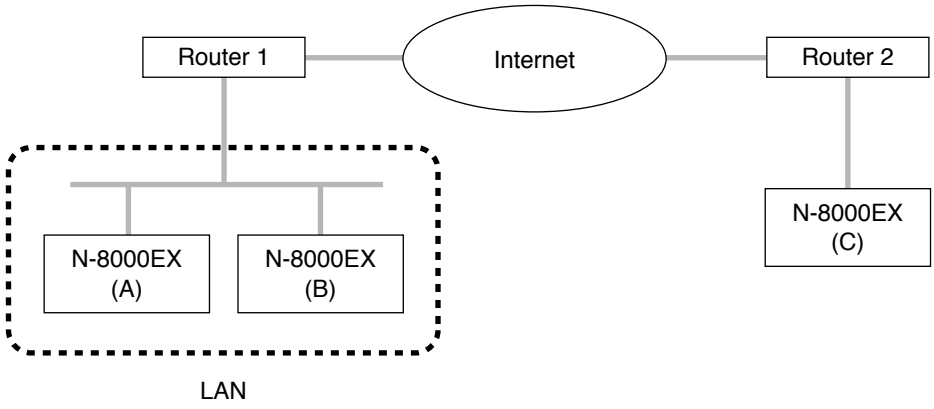
When a connection is made from Unit B to Unit A in the above figure, the local address can be used. However, when a connection is made from Unit C to Unit A, the global IP address must be used.

The fixed global IP address must be assigned to the units connected via the Internet.
Consult with a network administrator or ISP (Internet service provider) for the acquisition of a fixed global IP address.

Note
The Internet is not guaranteed quality. Packet loss may result if the network is congested, possibly causing voice communications to be interrupted or noise to be generated.

2.2. Network Address Port Translation (NAPT, IP Masquerade) and N-8000 Setting Software Program

Because the Internet cannot be accessed using the local IP address, the local IP address must be converted into global IP address by means of Network Address Port Translation (NAPT, IP Masquerade).



Connection can be made from Unit C to Unit A using the global IP address. The global IP address used for the connection is converted into the local address for Unit A by Router 1.

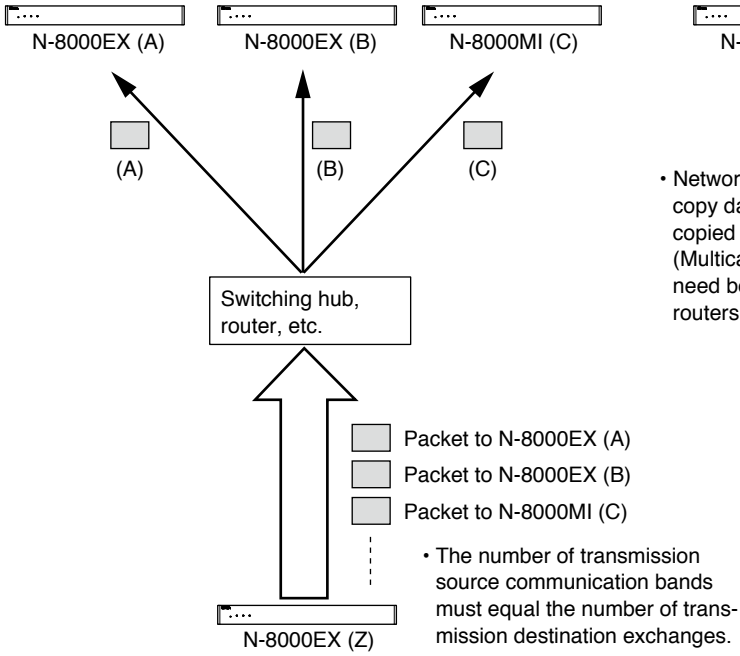
The N-8000 Setting Software program is designed for full compatibility with the NAPT (IP Masquerade).
When performing settings for the equipment connected by means of NAPT (IP Masquerade), tick the "NAPT compatible" item displayed by pressing on the "Network setting tab" of the Exchange, any kind of interface unit, or IP station, and enter the router's IP address and Port No.
(Refer to p. 5-31, 5-39, 5-51, 5-59, 5-86, 5-94, 5-103, 5-112, and p. 5-119.)

2.3. Unicast vs. Multicast Communications

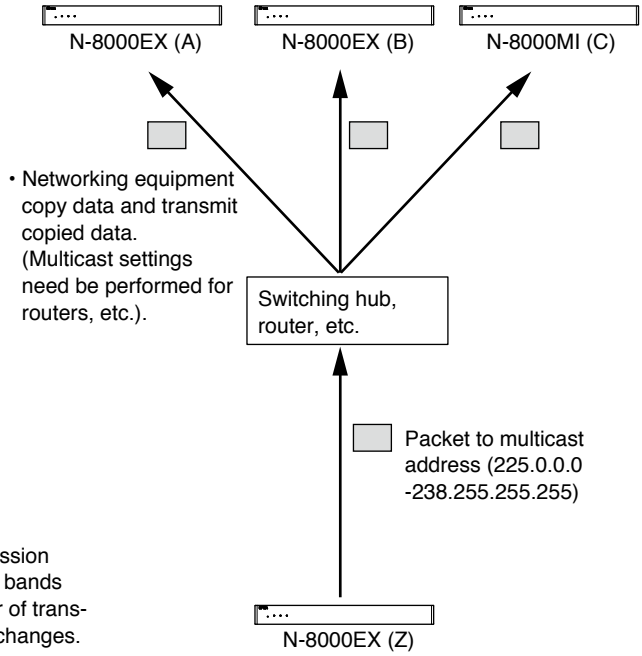
When making paging calls via multiple exchanges, various kinds of interface units, or IP stations connected to a network, either "unicast" or "multicast" may be selected as the communication method. For unicast communications, separate data packets are created and sent individually to each destination IP address. For multicast communications, however, a single data packet is transmitted to a special IP address, which offers the advantage of allowing the communication band to be compressed. Note, however, that multicast communications require routers and other networking equipment connected to the network (excluding non-intelligent hubs and switches) that support appropriate protocols like the Internet Group Management Protocol (IGMP) to enable packet transmission to special multicast addresses. The valid multicast address range for the N-8000 System is from 225.0.0.0 to 238.255.255.255. (Some multicast addresses cannot be used. Refer to p. 5-25.)

- Consult your network administrator regarding the details of setting the multicast address, including confirming whether or not such communications are possible.
  To use the unicast method, the number of transmission source communication bands must equal the number of transmission destination exchanges, various kinds of interface units, or IP stations.

[Unicast]



[Multicast]



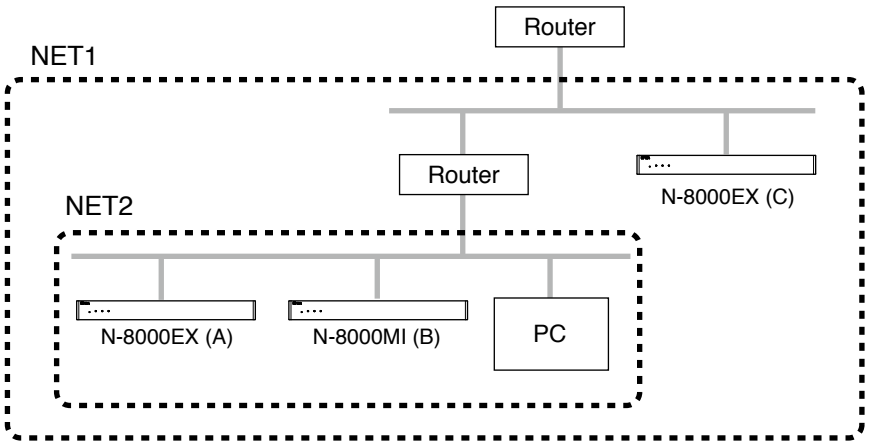
2.4. Network Paging Restrictions

When performing unicast or multicast paging via a network, the numbers of paging destinations are restricted as follows.

• Multicast Paging:	Up to 191 destinations
• Unicast Paging:	Up to 16 destinations for the exchanges, IP stations, and N- 8000MI, and up to 8 destinations for various kinds of interface units.
• Multicast/Unicast Combined paging:	Up to 191 destinations combined. However, Unicast paging is limited to up to 15 destinations for the exchanges, IP stations, and N-8000MI, and up to 7 destinations for various kinds of interface units.

2.5. Unit Scan and Broadcast Communications Domains

The broadcast communications method is utilized to detect equipment (exchange, any kind of interface unit, or IP station) connected to a network. Therefore, only equipment within the network's multicasting range will be detected. This range is called the "broadcast domain." The broadcast address used for detection is 255.255.255.255. Normally, a broadcast packet does not reach beyond a router, even within a local area network.

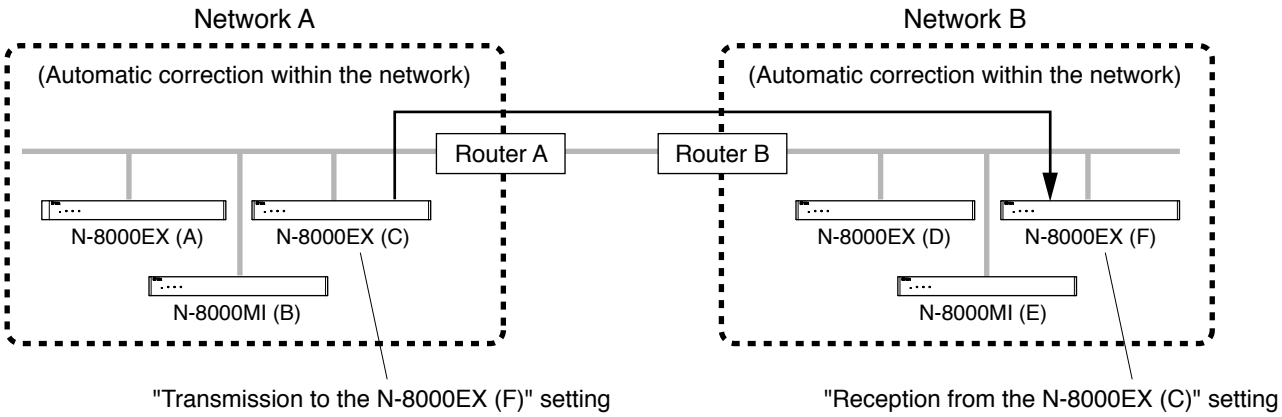


In the above figure, NET 1 represents a network, while NET 2 is the valid broadcasting range. In this example, if the PC performs equipment detection, it will not be able to detect Equipment C despite its location within the same local area network.

Consult your network administrator regarding the valid broadcast range.

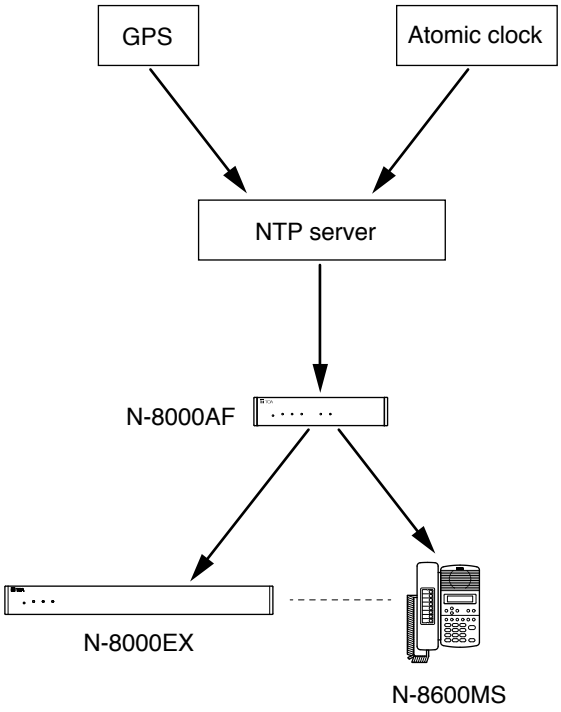
2.6. Sampling Frequency Correction (N-8000EX/8010EX/8000MI only)

This function is used to correct and synchronize the operating clocks for all exchanges and multi interface units on the system to the same value. Failure to synchronize operating clocks in this way may result in word dropout during broadcasts over two minutes.
By default, automatic correction is enabled for equipment within the above broadcast domain. To correct sampling frequencies between equipment connected to different networks divided by a router or other equipment (for example "Network A" and "Network B"), first correct the sampling frequency setting for one of the exchanges or multi interface units connected to Network A, and designate the IP address of one of the exchanges or multi interface units connected to Network B as a corrected data transmission destination, then perform the correction data receiving setting for that Network B exchange. When Router B is using NAT, designate the global IP address of Router B as a corrected data transmission destination.
The number of destinations to which correction data can be transferred to is limited to 16 total for unicast and multicast combined.



2.7. NTP (Network Time Protocol)

NTP is a networking protocol for distributing accurate current time information over a TCP/IP network. Normally it uses UDP port 123 to communicate between server and client.
The N-8000AF set to the NTP Client receives the time information in communication with NTP Server and synchronizes the current time.



3. IF TROUBLE OCCURS:

Symptom	Potential Cause/Place to Inspect	Remedy
The exchange or any kind of interface unit does not operate.	Power and cables may not be connected correctly.	Connect the power source and cables properly.
	All indicators located on the equipment's front panel may be out.	Make sure the power is turned on.
	Check to see if the equipment's front panel Status indicator remains lit or if flashes repeatedly three times at one-second intervals.	Refer to "Indicator Status & Troubleshooting" on p. 8-14.
The IP station does not operate.	Power and cables may not be connected correctly.	Connect the power source and cables properly.
	Check to see if the Status indicator remains lit or if flashes repeatedly three times at one-second intervals.	Refer to "Indicator Status & Troubleshooting" on p. 8-14.
The N-8000 Setting Software fails to recognize the exchange, any kind of interface unit, or IP station. (Includes the case when network setting is available)	The PC on which the N-8000 Setting Software is installed may not be connected or set correctly.	Set and connect the PC's IP address,subnet mask, and default gateway correctly.
	The equipment's IP address, subnet mask, default gateway, or port number may not be set correctly.	Set the equipment's IP address, subnet mask, default gateway, and port number correctly. (See p. 5-16, p. 6-5.)
	If connected to another network via a router, the router may not be connected correctly.	Confirm with your network administrator that the router is connected correctly.
The browser setting screen fails to display correctly. (Includes the case when network setting is available)	The PC used for exchange data settings via browser may not be connected correctly to the network, or the browser may not be set correctly.	Perform settings or connections correctly. (See p. 6-2.)
	The browser is set to the option "Via a proxy."	The screen may not be correctly displayed if "Via a proxy" is selected for the browser. Consult your network administrator to find work-around measures.
The exchange, any kind of interface unit, or IP station does not operate correctly. (operations such as station calls or paging via other exchange cannot be performed.)	Equipment may not be registered correctly.	Select the correct model number on the Equipment registration screen (p. 5-20).

Symptom	Potential Cause/Place to Inspect	Remedy
No voice is output or the sound is distorted.	The exchange or any kind of interface unit may not be connected correctly to the amplifiers and/or speakers.	Connect the amplifiers and/or speakers correctly.
	The amplifier's audio input volume control may not be adjusted correctly.	Adjust the audio input volume control correctly.
	The amplifier's audio input level selector switch may not be set correctly.	Set the audio input level selector switch correctly.
	Voice and sound settings may not be performed correctly.	Perform the "Broadcast Specification" setting correctly. (See p. 5-33, 5-41, 5-53, 5-61, 5-88, 5-96, 5-105.)
	Microphone's audio level of the partner station may be extremely low. Partner's microphone (handset) may not be connected correctly or opening of the partner's microphone for hands-free use may be blocked. Check to see if the indication "Input audio error" is displayed in the operation log of the exchange or "DSP silent fault" is displayed in the operation log of the IP station. Check the contents of log. (See p. 6-34.)	Connect the partner's station handset correctly or remove obstacles that block the opening of the partner's station microphone for hands-free use.
Voice signals include intermittent noise or break up.	The network may be congested. Check the contents of log. (See p. 6-34.)	When the network is congested, consult with the network administrator.
No sound is output from the station speaker.	Station's internal speaker (handset) may not be connected correctly.	Connect the handset correctly.
No sound is output from the station's internal or external speaker. (N-8000MS/8020MS/ 8500MS/8600MS only).	The speaker selector switch may not be set correctly.	Set the speaker selector switch located on the station's bottom surface to the speaker type you want to use.
The exchange generates excessive heat.	Check to see if the exchange's front panel-mounted Status indicator flashes continuously.	The exchange may be malfunctioning. Contact your nearest TOA sales office immediately.
The system temporarily stops operating but is restored after a few seconds.	Check to see if the indication "Firmware failed. Please contact our sales office." is displayed in the operation log.	A problem has occurred and the system has been reset. Nonetheless, since there is a chance that the system may fail again, please contact your nearest TOA sales office immediately.

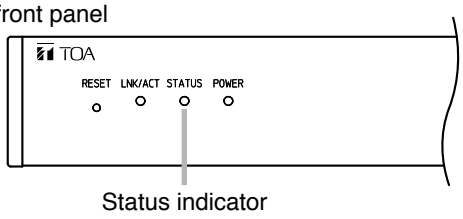
Symptom	Potential Cause/Place to Inspect	Remedy
The LNK/ACT indicator does not illuminate for exchange or any kind of interface unit. The FD indicator does not illuminate for IP station.	The LAN cable may not be connected correctly. Check to see if the switching hub is connected to an appropriate port with the correct type of cable.	Connect the LAN cable correctly.
	The switching hub may not be turned on.	Turn on the switching hub.
Station does not operate.	The cable may not be connected correctly.	Connect the cable correctly.
A password has been forgotten.	____	Contact your nearest TOA dealer.

4. INDICATOR STATUS & TROUBLESHOOTING

[Exchange and various kinds of interface units]

The following table shows the Status indicator mode, its corresponding equipment condition or symptom, and any measures to be taken in the event of system failure.

Exchange and various kinds of interface units front panel

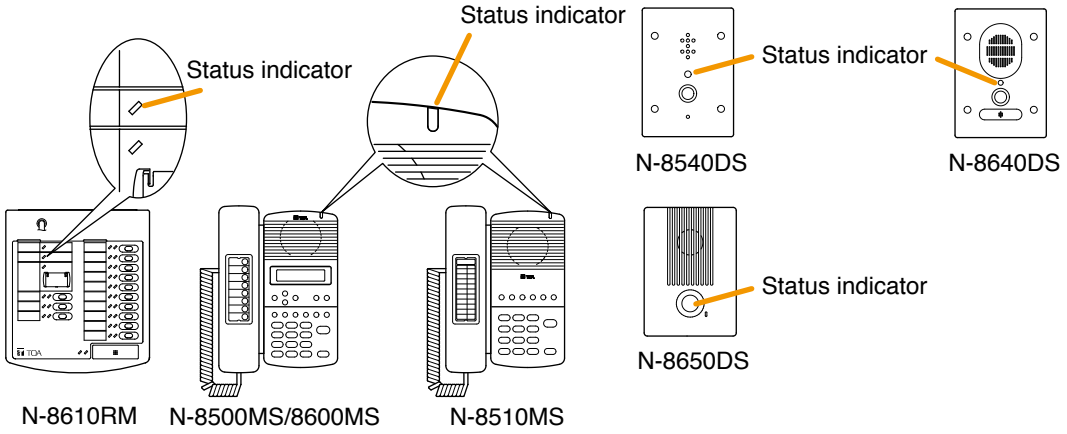


Status Indicator	Equipment Condition	Action to Take
OFF	Normal operation or power OFF	——
Rapid flashing* (in a cycle of 200 ms)	Failure of fan	Contact your nearest TOA dealer.
Flashes three times in a row (in a cycle of 200 ms) at one-second intervals.	Failure	Contact your nearest TOA dealer.
Lights for a few seconds repeatedly at certain intervals.	Accessing flash memory (normal operation).	Never turn off the power or press the Reset key until the indicator extinguishes completely.
Remains lit (for long hours).	Failure	Contact your nearest TOA dealer.
Flashes slowly (in a cycle of 4 s)	Operation in progress in a mode not usually used.	Press the Reset key to return to normal operation mode.

* Applicable to the N-8000EX/8010EX/8000RS/8010RS/8400RS only

[IP station]

Station status can be confirmed by checking the status indicator while the station is in normal standby mode. Take appropriate measures according to the equipment condition referring to the table below.



Status Indicator	Equipment Condition	Action to Take
OFF	Normal operation or power OFF	——
Flashes three times in a row (in a cycle of 200 ms) at one-second intervals.	Failure	Contact your nearest TOA dealer.
Lights for a few seconds repeatedly at certain intervals.	Accessing flash memory (normal operation).	Never turn off the power nor restart the station until the indicator extinguishes completely.
Flashes slowly (in a cycle of 4 s)	Operation in progress in a mode not usually used.	Restart the station to return to normal operation mode.

5. SPECIFICATIONS

5.1. N-8000EX IP Intercom Exchange

Power Source	CE version: 230 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	50 W (at rated), 75 W (max.)
Interface Section for Station	
Number of Lines	16 lines
Number of Speech Links	Internal: 1/External: 2
Type of Speech Path	Space sharing/Time Space sharing
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	0 dB* or less
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)
Speech Method	Simultaneous conversation by way of echo canceller (Hands-free), Simultaneous conversation by way of echo canceller or Half-duplex conversation by way of voice switch (Handset), PTT conversation
Connector	Dedicated connector
Wiring Method	1 set of twisted pair cable
Feeding Voltage/Current	48 V DC, Max. 70 mA
Paging Output	
Audio	2 channels, Max. 0 dB*, 600 Ω, balanced
Control	2 channels, relay contact output, contact capacity: 24 V DC/0.5 A
Connector	Removable terminal block
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 16), Multicast (max. 191)
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator
Others	Firmware update function, System date hold function, Reset key (front panel), Forced air cooling, Time of day hold facility
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0 to 40 °C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	420 (w) x 44.3 (h) x 356 (d) mm
Weight	4.1 kg

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Removable terminal plug (4 pins) 2
Mini-clamp connector (2 pins) 20
Plastic foot 4
Machine screw M4 x 20 4
Rack mounting bracket 2
Tapping screw 3 x 8 8
Rack mounting screw with plain washer 4
Wall mounting bracket 2
Wood screw 3.5 x 20 4

5.2. N-8010EX IP Intercom Exchange

Power Source	CE version: 230 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	50 W (at rated), 75 W (max.)
Interface Section for Station	
Number of Lines	16 lines
Number of Speech Links	Internal: 4/External: 8
Type of Speech Path	Space sharing/Time Space sharing
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	0 dB* or less
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)
Speech Method	Simultaneous conversation by way of echo canceller (Hands-free), Simultaneous conversation by way of echo canceller or Half-duplex conversation by way of voice switch (Handset), PTT conversation
Connector	Dedicated connector
Wiring Method	1 set of twisted pair cable
Feeding Voltage/Current	48 V DC, Max. 70 mA
Paging Output	Station paging only
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 16), Multicast (max. 191)
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator
Others	Firmware update function, System registration date entry hold facility, Time of day hold facility, Forced air cooling, Rest switch (front panel)
Setting Method	Rack, Desk, Surface mount
Operating Temperature	0 to 40 °C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	420 (w) x 44.3 (h) x 356 (d) mm
Weight	4.2 kg

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Mini-clamp (2 pins) 20
Plastic foot 4
Machine screw M4 x 20 4
Rack mounting bracket 2
Tapping screw 3 x 8 8
Rack mounting screw with plain washer 4
Wall mounting bracket 2
Wood screw 3.5 x 20 4

5.3. N-8000MS Multifunctional Master Station

Power Source	48 V DC (supplied from the IP intercom exchange)
Power Consumption	1.8 W (at rated), 2.4 W (max.)
Wiring Method	1 set of twisted pair cable
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	Under 0 dB*
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)
Hands-free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Handset	Receive path: Dynamic type Send path: Electret condenser microphone
Display	LCD: Alphanumeric characters (16 characters x 2 lines)
Indication	Status indicator
Line Connecting Terminal	RJ-11 modular jack
Headset Terminal	Speaker: 3 mW, 32 Ω, Microphone: –49 dB*, ø3.5 mm mini jack
External Speaker Terminal	0.6 W, 8 Ω, screwless connector (2 pins)
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-280.)
Operating Temperature	0 to 40 °C
Operating Humidity	Under 90 % RH (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (w) x 208 (h) x 70.5 (d) mm (excluding a curl cord section)
Weight	800 g

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• **Accessory**

Connection cord (3 m) 1

• **Optional product**

Wall mounting bracket: YC-280

5.4. N-8010MS Standard Master Station

Power Source	48 V DC (supplied from the IP intercom exchange)
Power Consumption	1.8 W (at rated), 2.4 W (max.)
Wiring Method	1 set of twisted pair cable
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	Under 0 dB*
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)
Hands-free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Handset	Receiver path: Dynamic type Send path: Electret condenser microphone
Indication	Status indicator
Line Connecting Terminal	RJ-11 modular jack
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-280.)
Operating Temperature	0 to 40 °C
Operating Humidity	Under 90 % RH (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (w) x 208 (h) x 70.5 (d) mm (excluding a curl cord section)
Weight	700 g

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• **Accessory**

Connection cord (3 m) 1

• **Optional product**

Wall mounting bracket: YC-280

5.5. N-8011MS Standard Hands-Free Master Station

Power Source	48 V DC (supplied from the IP intercom exchange)
Power Consumption	1.8 W (at rated), 2.4 W (max.)
Wiring Method	1 set of twisted pair cable
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	Under 0 dB*
Speech Method	Hands-free conversation
Audio Frequency Range	300 Hz – 7 kHz
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)
Hands-Free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Indication	Status indicator
Line Connecting Terminal	RJ-11 modular jack
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-290.)
Operating Temperature	0 to 40 °C
Operating Humidity	Under 90 % RH (no condensation)
Finish	Body: ABS resin, gray
Dimensions	92 (w) x 195 (h) x 56.1 (d) mm
Weight	400 g

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• **Accessory**

Connection cord (3 m) 1

• **Optional product**

Wall mounting bracket: YC-290

5.6. N-8020MS Industrial-Use Master Station

Power Source	48 V DC (supplied from the IP Intercom exchange)
Power Consumption	1.8 W (at rated), 2.4 W (max.)
Wiring Method	1 set of twisted pair cable
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	Under 0 dB*
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)
Hands-free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Handset	Receiver path: Dynamic type Send path: Electret condenser microphone
Dial-in Contact Output	Open collector output (polarized), withstand voltage: Max. 30 V DC, control current: Max. 50 mA, screwless connector (2 pins)
Indication	Status indicator
Line Connecting Terminal	RJ-11 modular jack
External Speaker Terminal	0.6 W, 8 Ω, screwless connector (2 pins)
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-280.)
Operating Temperature	–10 to +50 °C
Operating Humidity	Under 90 % RH (no condensation)
Dust/Water Protection	IP54
Finish	Body, Handset: ABS resin, gray
Dimensions	170 (w) x 220 (h) x 97.8 (d) mm (excluding a curl cord and projection sections)
Weight	1 kg

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Rubber cap 2

• Optional product

Wall mounting bracket: YC-280

5.7. N-8031MS Flush-Mount Master Station

Power Source	48 V DC (supplied from the IP Intercom exchange)
Power Consumption	1.8 W (at rated), 2.4 W (max.)
Wiring Method	1 set of twisted pair cable
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	Under 0 dB*
Speech Method	Hands-free conversation (Handset conversation can be established in conjunction with the RS-191.)
Audio Frequency Range	300 Hz – 7 kHzMax.
Transmission Range	1500 m (ø0.65 mm, Loop resistance 170 Ω)
Hands-Free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Indication	Status indicator
Line Connecting Terminal	Pin header (2 pins)
External Dial Input	No-voltage make contact input, open voltage: 5 V DC, short-circuit current: 1 mA, screwless connector (5 pins)
Installation Method	Flush-mount/Surface-mount
Operating Temperature	0 to 40 °C
Operating Humidity	Under 90 % RH (no condensation)
Finish	Panel: Stainless steel (SUS304), hairline
Dimensions	115 (w) x 254 (h) x 54.6 (d) mm
Weight	850 g

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Oval head slotted screw UNC No.6 x 18 4
Oval head combination screw M4 x 25 4
Removable terminal plug (2 pins, preinstalled on the unit) 1
Headset jumper (8 pins, preinstalled on the unit) 1
Acoustic material 1

• Optional products

Back Box: YC-241 (For flush mounting)
Wall-mount Box: YC-251 (For surface mounting)
Option Handset: RS-191

5.8. RS-191 Option Handset

Handset Receiver	Dynamic type
Handset Transmitter	Electret condenser type
Operating Temperature	0 to 40 °C (Temperature range not to freeze the speaker and switch)
Finish	ABS resin, pale white
Dimensions	116 (w) x 220 (h) x 70 (d) mm
Weight	330 g

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6 x 18 4
Machine screw M4 x 25 4

• Applicable model

N-8031MS

5.9. N-8033MS Flush-Mount Master Station

Power Source	48 V DC (supplied from the IP intercom exchange)
Power Consumption	1.8 W (at rated), 2.4 W (max.)
Wiring Method	1 set of twisted pair cable
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	Under 0 dB*
Speech Method	Hands-free conversation
Audio Frequency Range	300 Hz – 7 kHz
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)
Hands-free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Indication	Status indicator
Line Connecting Terminal	Pin header (2 pins)
External Dial Input	No-voltage make contact input, open voltage: 5 V DC, short-circuit current: 1 mA, screwless connector (5 pins)
Installation Method	Flush-mount/Surface-mount
Operating Temperature	0 to 40 °C
Operating Humidity	Under 90 % (no condensation)
Dust/Water Protection	IP65 (Note that panel edges must be sealed at installation.)
Resistance to Environment	Passed our chemical-resistant test
Finish	Membrane switch: Polyester film
Dimensions	115 (w) x 254 (h) x 51 (d) mm
Weight	850 g

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Machine screw M4 x 35 4
Acoustic material 1
Removable terminal plug (2 pins, preinstalled on the unit) 1

• Optional product

Back Box: YC-841

5.10. N-8050DS Door Station

Power Source	48 V DC (supplied from the IP Intercom exchange)
Power Consumption	1.8 W (at rated), 2.4 W (max.)
Wiring Method	1 set of twisted pair cable
Transmission System	2 wire 160 kbps echo canceller transmission system
Signal Level	Under 0 dB*
Speech Method	Hands-free conversation
Audio Frequency Range	300 Hz – 7 kHz
Transmission Range	Max. 1500 m (ø0.65 mm, Loop resistance 170 Ω)
Hands-free	Speaker: 3.5 cm cone-type, 1 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Contact Output	Open collector output, withstand voltage: Max. 30 V DC, control current: Max. 50 mA, one shot: can be set from 1 to 9 s , screw terminal (polarized)
Indication	Status indicator
Line Connecting Terminal	2 wire, screw terminal (non-polar)
Setting Method	Flush-mount/Surface-mount
Operating Temperature	–10 to +50 °C
Operating Humidity	Under 90 % RH (no condensation)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Dust/Water Protection	IP54 (Note that panel edges must be sealed at installation.)
Finish	Plate: Stainless steel (SUS304), hairline Call button: Metal
Dimensions	115 (w) x 162 (h) x 54 (d) mm
Weight	680 g

* 0 dB = 1 V

The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6-32 x 18 4
Machine screw M4 x 25 4
Acoustic material 1

• Optional products

Back box: YC-150 (For flush mounting)
Wall-mount Box: YS-13A (For surface mounting)

5.11. N-8500MS IP Multifunctional Master Station

Power Source	Power supply device that complies with IEEE802.3af standard or 12 V DC (supplied from the AC adapter)
Power Consumption	4.2 W (at rated), 6 W (max.)
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz
Hands-free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Handset	Receive path: Dynamic type, Send path: Electret condenser microphone
Headset Terminal	Speaker: 3 mW, 32 Ω, Microphone: –49 dB*, ø3.5 mm mini jack
External Speaker Terminal	0.6 W, 8 Ω, screwless connector (2 pins)
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 16), Multicast (max. 191)
Connector	LAN: RJ-45 connector (PoE compatible) PC: RJ-45 connector (not-compatible with PoE)
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Display	LCD: Alphanumeric characters (16 characters x 2 lines)
Indication	Status indicator
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-280.)
Operating Temperature	0 to 40 °C
Operating Humidity	90 % RH or less (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (w) x 208 (h) x 70.5 (d) mm (excluding a curl cord section)
Weight	810 g

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

CD (for PC setting, maintenance use) 1
Ferrite clamp 1

• Optional products

Wall mounting bracket: YC-280
AC adapter: AD-1210P or AD-1215P

5.12. N-8510MS IP Standard Master Station

Power Source	Power supply device that complies with IEEE802.3af standard or 12 V DC (supplied from the AC adapter)
Power Consumption	4.2 W (at rated), 6 W (max.)
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz
Hands-Free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Handset	Receive path: Dynamic type, Send path: Electret condenser microphone
External Control Input Terminal	No-voltage contact input, open voltage: 5 V DC, short-circuit current: 5 mA or less, screwless connector (2 pins)
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 16), Multicast (max. 191)
Connector	LAN: RJ-45 connector (PoE compatible) PC: RJ-45 connector (not-compatible with PoE)
Voice Sampling Frequency	6 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	Status indicator
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-280.)
Operating Temperature	0 to 40 °C
Operating Humidity	90 % RH or less (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (w) x 208 (h) x 70.5 (d) mm (excluding a curl cord section)
Weight	740 g

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

CD (for PC setting, maintenance use) 1
Ferrite clamp 1

• Optional products

Wall mounting bracket: YC-280
AC adapter: AD-1210P or AD-1215P

5.13. N-8600MS IP Multifunctional Master Station

Power Source	Power supply device that complies with IEEE802.3af standard or 12 V DC (supplied from the AC adapter)
Power Consumption	Use of the AC adapter (12 V DC): 2.5 W (station only) Use of the PoE (48 V DC): 3 W
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz
Hands-free	Speaker: 5.7 cm cone-type, maximum output 0.5 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Handset	Receive path: Dynamic type, Send path: Electret condenser microphone
Headset Terminal	Speaker: 150 Ω, ø3.5 mm mini jack Microphone: –49 dB*, ø3.5 mm mini jack
External Speaker Terminal	Maximum output 0.5 W, 8 Ω, screwless connector (2 pins)
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 16), Multicast (max. 191)
Connector	RJ-45 connector (PoE compatible)
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Display	LCD: Alphanumeric characters (16 characters x 2 lines)
Indication	Status indicator
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-280.)
Operating Temperature	0 to 40 °C
Operating Humidity	90 % RH or less (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (w) x 208 (h) x 70.5 (d) mm (excluding a curl cord section)
Weight	770 g

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessory

CD (for PC setting, maintenance use) 1

• Optional products

Wall mounting bracket: YC-280
AC adapter: AD-1210P or AD-1215P

5.14. N-8610RM IP Microphone Station

Power Source	Power supply device that complies with IEEE802.3af standard or 12 V DC (use of the optional AC adapter)
Power Consumption	Use of the AC adapter (12 V DC): 4 W (microphone only) 8.5 W (when connecting 4 RM-210, Extension units) Use of the PoE (48 V DC): 5.2 W (microphone only), 7.5 W (when connecting 4 RM-210, Extension units)
Speech Method	Hands-free conversation (use of goose-neck microphone)
Audio Frequency Range	300 Hz – 7 kHz
Microphone	Unidirectional electret condenser microphone
Built-in Speaker	6.6 cm cone-type, rated output 0.3 W, 8 Ω
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 16), Multicast (max. 191)
Connector	RJ-45 connector (PoE compatible)
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
No. of Connectable Expansion	Max. 4 units (maximum 2 units at PoE power supply)
Operation	Function keys (including a covered key), talk key
Indicator	Power indicator, Status indicator, Selection indicator, Broadcast status indicator, Microphone indicator
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional WB-RM200.)
Operating Temperature	0 to 40 °C
Operating Humidity	90 % RH or less (no condensation)
Finish	ABS resin, blueish gray
Dimensions	190 (w) x 76.5 (h) x 215 (d) mm (excluding microphone)
Weight	700 g

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

CD (for PC setting, maintenance use) 1
Ferrite clamp (black)..... 2
Ferrite clamp (white)..... 1

• Optional products

Remote microphone extension: RM-210
Wall mounting bracket: WB-RM200
AC adapter: AD-1210P or AD-1215P

5.15. N-8540DS IP Door Station

Power Source	Power supply device that complies with IEEE802.3af standard or 12 V DC (supplied from the AC adapter)
Power Consumption	4.2 W (at rated), 6 W (max.)
Speech Method	Hands-free conversation
Audio Frequency Range	300 Hz – 7 kHz
Hands-free	Speaker: 3.5 cm cone-type,1 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Contact Output	Open collector output, withstand voltage: 30 V DC, control current: 50 mA, 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, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	0 **Note:** Reception only
Connector	RJ-45 connector (PoE compatible)
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	Status indicator
Installation Method	Flush-mount/Surface-mount
Operating Temperature	–10 to +50 °C
Operating Humidity	Under 90 % RH (no condensation)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Dust/Water Protection	IP54 (Note that panel edges must be sealed at installation.)
Finish	Plate: Stainless steel (SUS304), hairline Call button: Metal
Dimensions	115 (w) x 162 (h) x 55.1 (d) mm
Weight	700 g

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6-32 x 18 4
Machine screw M4 x 25 4
Ferrite clamp 1

• Optional products

Back box: YC-150 (For flush mounting)
Wall-mount Box: YS-13A (For surface mounting)
AC adapter: AD-1210P or AD-1215P

5.16. N-8640DS IP Door Station

Power Source	Power supply device that complies with IEEE802.3af standard or 12 V DC (supplied from the AC adapter)
Power Consumption	Use of the AC adapter (12 V DC): 3.5 W (station only) Use of the PoE (48 V DC): 5 W
Speech Method	Hands-free conversation
Audio Frequency Range	300 Hz – 7 kHz
Hands-free	Speaker: 3.5 cm cone-type, maximum output 0.5 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Contact Input	1 channel, no-voltage make contact input, open circuit voltage: 5 V DC, short circuit current: 10 mA or less, unterminated ends
Contact Output	Open collector output, withstand voltage: 30 V DC, control current: Max. 50 mA (4 output 1 COMMON) unterminated ends Relay contact output, 1 channel, withstand voltage: 30 V DC, control current: Max. 500 mA, unterminated ends
External Speaker Terminal	Maximum output 0.5 W, 8 Ω, unterminated ends
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	0 **Note:** Reception only
Connector	RJ-45 connector (PoE compatible)
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	Status indicator
Installation Method	Flush-mount/Surface-mount
Operating Temperature	–10 to +50 °C
Operating Humidity	Under 90 % RH (no condensation)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Dust/Water Protection	IP65 (Note that panel edges must be sealed at installation.)
Finish	Plate: Stainless steel (SUS304), hairline Call button: Metal
Dimensions	115 (w) x 162 (h) x 58.5 (d) mm
Weight	780 g

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6-32 x 20 4
Machine screw M4 x 20 4
Waterproof washer 4
LAN coupler 1

• Optional products

Back box: YC-150 (For flush mounting)
Wall-mount Box: YS-13A (For surface mounting)
AC adapter: AD-1210P or AD-1215P

5.17. N-8650DS IP Door Station

Power Source	Power supply device that complies with IEEE802.3af standard or 12 V DC (supplied from the AC adapter)
Power Consumption	Use of the AC adapter (12 V DC): 3.5 W (station only) Use of the PoE (48 V DC): 5 W
Speech Method	Hands-free conversation
Audio Frequency Range	300 Hz – 7 kHz
Hands-free	Speaker: 3.5 cm cone-type, maximum output 0.5 W, 8 Ω Microphone: Omni-directional electret condenser microphone
Contact Input	1 channel, no-voltage make contact input, open circuit voltage: 5 V DC, short circuit current: 10 mA or less, unterminated ends
Contact Output	Open collector output, withstand voltage: 30 V DC, control current: Max. 50 mA (4 output 1 COMMON) unterminated ends Relay contact output, 1 channel, withstand voltage: 30 V DC, control current: Max. 500 mA, unterminated ends
External Speaker Terminal	Maximum output 0.5 W, 8 Ω, unterminated ends
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	0 **Note:** Reception only
Connector	RJ-45 connector (PoE compatible)
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	Status indicator (built in the Call button)
Installation Method	Flush-mount/Surface-mount
Operating Temperature	–10 to +50 °C
Operating Humidity	Under 90 % RH (no condensation)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Dust/Water Protection	IP65 (Note that panel edges must be sealed at installation.)
Finish	ABS resin, dark gray
Dimensions	116 (w) x 162 (h) x 60 (d) mm
Weight	400 g

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6-32 x 20 4
Machine screw M4 x 20 4
LAN coupler 1

• Optional products

Back box: YC-150 (For flush mounting)
Wall-mount Box: YS-13A (For surface mounting)
AC adapter: AD-1210P or AD-1215P

5.18. N-8000RS Substation Interface Unit

Power Source	CE version: 220 – 240 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	CE version: 40 W (at rated), 50 W (max.) CU version: 35 W (at rated), 45 W (max.)
Interface Section for Sub-station	
Number of Lines	16 lines
Number of Speech Links	2 links
Transmission System	Analog baseband
Transmission Range	500 m/ø0.5 mm (AWG24), 800 m/ø0.65 mm (AWG21), 1300 m/ø0.9 mm (AWG19)
Speech Method	Half-duplex conversation by way of voice switch
Connector	Removable terminal block (3 pins)
Wiring Method	2-core shielded cable
Audio Output	Max. 1 W/line (conversation), Max. 0.5 W/line (paging)
Feeding Voltage/Current	22 V DC, 30 mA max.
Control Signal	Call in button detection, privacy button detection, hook detection
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	0 **Note:** Reception only
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator
Others	Firmware update function, System data hold function, Reset key (front panel), Forced air cooling
Setting Method	Rack, Desk, Surface mount
Operating Temperature	0 to 40°C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	420 (w) x 44.3 (h) x 325.5 (d) mm
Weight	3.9 kg

The design and specifications are subject to change without notice for improvement.

• Accessories

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Removable terminal plug (3 pins) 16
Plastic foot 4
Machine screw M3 x 8 4
Rack mounting bracket 2
Tapping screw 3 x 8 8
Rack mounting screw with plain washer 4

• Optional product

Wall mounting bracket: YC-850

5.19. N-8010RS Substation Interface Unit

Power Source	CE version: 220 – 240 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	CE version: 32 W (at rated), 38 W (max.) CU version: 26 W (at rated), 32 W (max.)
Interface Section for Sub-station	
Number of Lines	16 lines
Number of Speech Links	1 link
Transmission System	Analog baseband
Transmission Range	500 m/ø0.5 mm (AWG24), 800 m/ø0.65 mm (AWG21), 1300 m/ø0.9 mm (AWG19)
Speech Method	Half-duplex conversation by way of voice switch
Connector	Removable terminal block (3 pins)
Wiring Method	2-core shielded cable
Audio Output	Max. 1 W/line (conversation), Max. 0.5 W/line (paging)
Feeding Voltage/Current	22 V DC, 30 mA max.
Control Signal	Call in button detection, privacy button detection, hook detection
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	0 **Note:** Reception only
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator
Others	Firmware update function, System data hold function, Reset key (front panel), Forced air cooling
Setting Method	Rack, Desk, Surface mount
Operating Temperature	0 to 40°C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	420 (w) x 44.3 (h) x 325.5 (d) mm
Weight	3.8 kg

Note: The design and specifications are subject to change without notice for improvement.

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Removable terminal plug (3 pins) 16
Plastic foot 4
Machine screw M3 x 8 4
Rack mounting bracket 2
Tapping screw 3 x 8 8
Rack mounting screw with plain washer 4

• **Optional product**
Wall mounting bracket: YC-850

5.20. RS-150 Indoor Substation

Rated Input	1 W
Rated Impedance	625 Ω (1 W/25 V)
Internal Speaker	4 cm cone-type
Wiring	2-core shielded cable
Transmission Range	500 m/ø0.5 mm (AWG24) 800 m/ø0.65 mm (AWG22) 1300 m/ø0.9 mm (AWG19)
Operating Temperature	–10 to +50°C (Temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel, hairline Call button: Resin
Dimensions	120 (w) x 120 (h) x 48.5 (d) mm
Weight	410 g
Applicable Box (option)	For flush-mount: 2-gang electrical box YC-302 For surface-mount: Indoor wall-mount box YC-822

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6 x 18 4
Machine screw M4 x 25 4

5.21. RS-160 Indoor Vandal-Resistant Substation

Rated Input	1 W
Rated Impedance	625 Ω (1 W/25 V)
Internal Speaker	4 cm cone-type
Wiring	2-core shielded cable
Transmission Range	500 m/ø0.5 mm (AWG24) 800 m/ø0.65 mm (AWG22) 1300 m/ø0.9 mm (AWG19)
Operating Temperature	–10 to +50°C (Temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel, hairline Call button: Metal
Dimensions	120 (w) x 120 (h) x 57.5 (d) mm
Weight	540 g
Applicable Box (option)	For flush-mount: 2-gang electrical box YC-302 For surface-mount: Indoor wall-mount box YC-822

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6 x 18 4
Machine screw M4 x 25 4

5.22. RS-170 Outdoor Vandal-Resistant Substation

Rated Input	1 W
Rated Impedance	625 Ω (1 W/25 V)
Internal Speaker	4 cm cone-type
Wiring	2-core shielded cable
Transmission Range	500 m/ø0.5 mm (AWG24) 800 m/ø0.65 mm (AWG22) 1300 m/ø0.9 mm (AWG19)
Operating Temperature	–10 to +50°C (Temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel, hairline Call button: Metal Printed circuit board: Weather-resistant coating
Dimensions	120 (w) x 120 (h) x 57.5 (d) mm
Weight	540 g
Applicable Box (option)	For flush-mount: 2-gang electrical box YC-302 For surface-mount: Indoor wall-mount box YC-822 Outdoor wall-mount box YC-823

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6 x 18 4
Machine screw M4 x 25 4

5.23. RS-180 Emergency Substation

Rated Input	1 W
Rated Impedance	625 Ω (1 W/25 V)
Internal Speaker	4 cm cone-type
Control Output	Open collector, Withstand voltage: 30 V DC, Control current: 30 mA (The open collector output is kept turned on till the conversation is finished after the call button was pressed.)
Wiring	2-core shielded cable
Transmission Range	500 m/ø0.5 mm (AWG24) 800 m/ø0.65 mm (AWG22) 1300 m/ø0.9 mm (AWG19)
Operating Temperature	–10 to +50°C (Temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel, hairline Call button: Metal Printed circuit board: Weather-resistant coating
Dimensions	120 (w) x 120 (h) x 58.5 (d) mm
Weight	570 g
Applicable Box (option)	For flush-mount: 2-gang electrical box YC-302 For surface-mount: Indoor wall-mount box YC-822 Outdoor wall-mount box YC-823

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

UNC No.6 x 18 4
Machine screw M4 x 25 4

5.24. RS-140 Switch Panel

Call Button	Momentary
Privacy Button	Latching
Indicator	When called: Status indicator (red) flashing In conversation: Status indicator (red) lit In privacy: Privacy indicator (red) lit
Wiring	2-core shielded cable
Transmission Range	500 m/ø0.5 mm (AWG24), 800 m/ø0.65 mm (AWG22), 1300 m/ø0.9 mm (AWG19)
Operating Temperature	0 to 40°C
Finish	Panel: Stainless steel, hairline Call button: Resin, red Privacy button: Resin, white
Dimensions	70 (w) x 115 (h) x 28.6 (d) mm
Weight	80 g
Applicable Box	Flush-mount box: YC-801 (option) Wall-mount box: YC-802 (option)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Mounting bracket 1
No. 6-32UNC x 18 2
Machine screw M4 x 30 2
No. 6-32UNC x 30 2

5.25. RS-141 Option Handset

Handset Receiver	Dynamic type
Handset Microphone	Electret condenser type
Wiring	2-core shielded cable
Handset Receiver Volume Control	Slide volume Maximum control level: 12 – 18 dB
Operating Temperature	0 to 40°C
Finish	ABS resin, pale white
Dimensions	116 (w) x 220 (h) x 71 (d) mm
Weight	350 g
Applicable Box	2-gang electrical box: YC-302 (option)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

No.6-32UNC x 18 4
Machine screw M4 x 25 4

5.26. RS-142 Switch Board

Call Button Wiring	4 cables (for 2 momentary switches)
Wiring	2-core shielded cable
Transmission Range	500 m/ø0.5 mm (AWG24), 800 m/ø0.65 mm (AWG22), 1300 m/ø0.9 mm (AWG19)
Operating Temperature	0 to 40°C
Weight	30 g

Note: The design and specifications are subject to change without notice for improvement.

5.27. RS-143 Switch Panel

Call Button	Momentary
Wiring	2-core shielded cable
Transmission Range	500 m/ø0.5 mm (AWG24), 800 m/ø0.65 mm (AWG22), 1300 m/ø0.9 mm (AWG19)
Operating Temperature	0 to 40°C
Finish	Panel: Stainless steel, hairline Call button: Resin, red
Dimensions	70 (w) x 115 (h) x 28.6 (d) mm
Weight	80 g
Applicable Box	Flush-mount box: YC-801 (option) Wall-mount box: YC-802 (option)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Mounting bracket 1
No. 6-32UNC x 18 2
Machine screw M4 x 30 2
No. 6-32UNC x 30 2

5.28. RS-144 Switch Panel

Call Button	Momentary
Wiring	2-core shielded cable
Transmission Range	500 m/ø0.5 mm (AWG24), 800 m/ø0.65 mm (AWG22), 1300 m/ø0.9 mm (AWG19)
Operating Temperature	0 to 40°C
Finish	Panel: Stainless steel, hairline Emergency call button: Resin, red Call button: Resin, white
Dimensions	70 (w) x 115 (h) x 28.6 (d) mm
Weight	80 g
Applicable Box	Flush-mount box:YC-801 (option) Wall-mount box:YC-802 (option)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Mounting bracket 1
No. 6-32UNC x 18 2
Machine screw M4 x 30 2
No. 6-32UNC x 30 2

5.29. N-8400RS Substation Interface Unit

Power Source	CE version: 220 – 240 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	CE version: 30 W (at rated), 45 W (max.) CU version: 35 W (at rated), 50 W (max.)
Interface Section for Sub-station	
Number of Lines	16 lines
Number of Speech Links	Internal: 1/External: 2
Transmission System	Analog baseband
Transmission Range	1000 m/ø0.5 mm (AWG24), 1500 m/ø0.65 mm (AWG21), 2000 m/ø0.9 mm (AWG19)
Speech Method	Half-duplex conversation by way of voice switch (Hands-free), Full-duplex (Handset)
Connector	Removable terminal block (4 pins)
Wiring Method	2 sets of twisted pair cables
Audio Output	Max. 1 W/line (conversation), Max. 0.5 W/line (paging)
Feeding Voltage/Current	24 V DC, 30 mA max.
Control Signal	Call in button detection, hook detection
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 8), Multicast (max.191)
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator
Others	Firmware update function, System data hold function, Reset key (front panel), Forced air cooling
Setting Method	Rack, Desk, Surface mount
Operating Temperature	0 to 40°C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	420 (w) x 44.3 (h) x 325.5 (d) mm
Weight	4 kg

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Removable terminal plug (4 pins) 16
Plastic foot 4
Machine screw M3 x 8 4
Rack mounting bracket 2
Tapping screw 3 x 8 8
Rack mounting screw with plain washer 4

• Optional product

Wall mounting bracket: YC-850

5.30. N-8410MS Analog Standard Master Station

Power Source	24 V DC (supplied from the sub station interface unit N-8400RS)
Current Consumption	Max. 30 mA
Wiring Method	2 set of twisted pair cable
Transmission System	4 wire baseband transmission system
Signal Level	25 dB* (up), 0 dB* or less (down)
Speech Method	Hands-free or handset conversation
Audio Frequency Range	300 Hz – 7 kHz
Transmission Range	1000 m/ø0.5 mm (AWG24), 1500 m/ø0.65 mm (AWG22), 2000 m/ø0.9 mm (AWG19)
Hands-free	Speaker: 5.7 cm cone-type, 0.6 W, 8 Ω Microphone: Omni-directional electret condenser microphone Speaker volume control: 3-step switch (1-step, 4 dB)
Handset	Receive path: Dynamic type Send path: Electret condenser microphone Handset receiver volume control: Rotary volume Maximum control level: 12 – 18 dB
Indication	Status indicator
Line Connecting Terminal	RJ-11 modular jack
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-280.)
Operating Temperature	0 to 40 °C
Operating Humidity	Under 90 % RH (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (w) x 208 (h) x 70.5 (d) mm (excluding a curl cord section)
Weight	720 g

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessory

Connection cord (3 m) 1

• Optional product

Wall mounting bracket: YC-280

5.31. RS-450 Indoor Substation

Call Button	Momentary (Emergency call: Press twice within 400 ms.)
Rated Input	1 W
Internal Speaker	Cone-type
Internal Microphone	Electret condenser type
Wiring	Twisted pair cables (2-pair)
Transmission Range	1000 m/ø0.5 mm (AWG24), 1500 m/ø0.65 mm (AWG22), 2000 m/ø0.9 mm (AWG19)
Operating Temperature	–10 to +50°C (Temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel, hairline Call button: Resin, black
Dimensions	120 (w) x 120 (h) x 41.5 (d) mm
Weight	510 g
Applicable Box	2-gang electrical box: YC-302 (option)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

No.6-32UNC x 18 4
Machine screw M4 x 25 4

5.32. RS-460 Indoor Vandal-Resistant Substation

Call Button	Momentary (Emergency call: Press twice within 400 ms.)
Rated Input	1 W
Internal Speaker	Cone-type
Internal Microphone	Electret condenser type
Wiring	Twisted pair cables (2-pair)
Transmission Range	1000 m/ø0.5 mm (AWG24), 1500 m/ø0.65 mm (AWG22), 2000 m/ø0.9 mm (AWG19)
Operating Temperature	–10 to +50°C (Temperature range not to freeze the speaker and switch)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Finish	Panel: Stainless steel, hairline Call button: Metal, silver
Dimensions	120 (w) x 120 (h) x 49.5 (d) mm
Weight	540 g
Applicable Box	2-gang electrical box: YC-302 (option)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

No.6-32UNC x 18 4
Machine screw M4 x 25 4

5.33. RS-470 Outdoor Vandal-Resistant Substation

Call Button	Momentary (Emergency call: Press twice within 400 ms.)
Rated Input	1 W
Internal Speaker	Cone-type
Internal Microphone	Electret condenser type
Wiring	Twisted pair cables (2-pair)
Transmission Range	1000 m/ø0.5 mm (AWG24), 1500 m/ø0.65 mm (AWG22), 2000 m/ø0.9 mm (AWG19)
Operating Temperature	–10 to +50°C (Temperature range not to freeze the speaker and switch)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Dust/Water Protection	IP54
Finish	Panel: Stainless steel, hairline Call button: Metal, silver Circuit board: Weather-resistant coating
Dimensions	120 (w) x 120 (h) x 49.5 (d) mm
Weight	550 g
Applicable Box	2-gang electrical box: YC-302 (option)

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

No.6-32UNC x 18 4
Machine screw M4 x 25 4

5.34. RS-480 Emergency Substation

Call Button	Momentary (Emergency call: Press twice within 400 ms.)
Rated Input	1 W
Control Output	Open collector, Maximum controlled voltage: 30 V DC, Control current: 30 mA
Internal Speaker	Cone-type
Internal Microphone	Electret condenser type
Indicator	When called: Status indicator (red) flashing In conversation: Status indicator (red) lit
Wiring	Twisted pair cables (2-pair)
Transmission Range	1000 m/ø0.5 mm (AWG24), 1500 m/ø0.65 mm (AWG22), 2000 m/ø0.9 mm (AWG19)
Operating Temperature	–10 to +50°C (Temperature range not to freeze the speaker and switch)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Dust/Water Protection	IP54
Finish	Panel: Stainless steel, hairline Call button: Metal, red Circuit board: Weather-resistant coating
Dimensions	120 (w) x 120 (h) x 50.5 (d) mm
Weight	575 g
Applicable Box	2-gang electrical box: YC-302 (option)

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

No.6-32UNC x 18 4
Machine screw M4 x 25 4

5.35. RS-442 Switch Board

Call Button Wiring	6 cables (for 3 momentary switches)
Rated Input	1 W
Control Output	Open collector, Maximum controlled voltage: 30 V DC Control current: 30 mA
Microphone	Electret condenser microphone
Wiring	Twisted pair cables (2 pairs)
Transmission Range	1 km/ø0.5 mm (AWG24) 1.5 km/ø0.65 mm (AWG22) 2 km/ø0.9 mm (AWG19)
Operating Temperature	0 to 40 ºC
Weight	140 g

Note: The design and specifications are subject to change without notice for improvement.

5.36. RS-481 Option Handset

Handset Receiver	Dynamic type
Handset Microphone	Electret condenser type
Handset Receiver Volume Control	Slide volume Maximum control level: 12 – 18 dB
Operating Temperature	0 to 40°C
Finish	ABS resin, pale white
Dimensions	116 (w) x 220 (h) x 71 (d) mm
Weight	365 g
Applicable Box	2-gang electrical box: YC-302 (option)

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

No.6-32UNC x 18 4
Machine screw M4 x 25 4

5.37. N-8000MI Multi Interface Unit

Power Source	CE version: 230 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	CE version: 19 W (180 mA) (at rated), 24 W (230 mA) (max.) CU version: 16 W (250 mA) (at rated), 21 W (330 mA) (max.)
Audio Input	Input: 2 inputs (2P/input), Max. 0 dB*1, 600 Ω or less, balanced,with a semi-fixed volume for adjustment (0 to –25 dB) Control: 2 inputs (2P/input), no-voltage make contact input, open voltage: 12 V DC, short-circuit current: 10 mA Removable terminal block (8 pins)
Audio Output	Output: 2 outputs (2P/output), Max. 0 dB*1, 600 Ω or less, balanced Control: 2 outputs (2P/output), relay contact output, contact capacity: 24 V DC/0.5 A Removable terminal block (8 pins)
Contact Input	16 inputs, no-voltage make contact input, open voltage: 12 V DC, short-circuit current: 10 mA, removable terminal block (18 pins)
Contact Output	16 outputs, relay contact output, contact capacity: 24 V DC/0.5 A, removable terminal block (18 pins)
PBX I/F	PBX input and output: 2 channels, Max.: 0 dB*2 or less, Average: –15 dB*2 or less, 600 Ω, balanced, mini-clamp connector (2 pins), with adjustment functions for both input and output (Input: 0 to 15 dB, Output: –15 to 0 dB), Analog E & M interface
Tie-line I/F	Tie-line input and output: 2 channels, Max.: 0 dB*2 or less, Average: –15 dB*2 or less, 600 Ω, balanced, mini-clamp connector (2 pins), Signal method: EXES-2000/EXES-6000 tie-line method Selective signal: DTMF signal
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 16), Multicast (max. 191)
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator
Others	Firmware update function, System registration data entry hold facility, Time of day hold facility, Reset key (front panel)
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0 to 40°C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	420 (w) x 44.3 (h) x 239.5 (d) mm
Weight	2.8 kg

*1 0 dB = 1 V *2 0 dB = 0.775 V

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Removable terminal plug (9 pins) 4
Removable terminal plug (8 pins) 2
Mini-clamp connector (2 pins) 10
Plastic foot 4
Machine screw M4 x 20 4
Rack mounting bracket 2
Tapping screw 3 x 8 8
Rack mounting screw with plain washer 4
Wall mounting bracket 2
Wood screw 3.5 x 20 4

5.38. N-8000CO C/O Interface Unit

Power Source	CE version: 220 – 240 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	7 W (max.)
C/O Interface	Public switched telephone networks Number of lines: 1 line Selective signal type: DTMF signal Signal system: Compatible with loop start signaling Wiring method: 1 pair of twisted pair cables
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 8), Multicast (max. 191)
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator Outside line indicator
Others	Firmware update function, System data hold function, Time of day hold facility, Reset key (front panel)
Setting Method	Rack, Desk, Surface mount
Operating Temperature	0 to 40°C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	210 (w) x 44.3 (h) x 267 (d) mm
Weight	1.7 kg

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Mini-clamp connector (2 pins) 2
Plastic foot 4
Machine screw M3 x 8 4

• **Optional products**

Rack mounting bracket: MB-15B-BK (for rack mounting one N-8000CO unit)
MB-15B-J (for rack mounting two N-8000CO units)
Wall mounting bracket: YC-850

5.39. N-8000AF Audio Interface Unit

Power Source	CE version: 220 – 240 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	7 W (max.)
Audio Input	1 input (transformer isolated), –58 to 0 dB*, 2 kΩ, balanced (MIC/LINE input, controllable on the software) with input volume control knob, removable terminal block (3 pins)
Audio Output	1 output (transformer isolated), 0 dB*, 600 Ω, balanced, removable terminal block (3 pins)
Contact Input	8 inputs, no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 5 mA or less, removable terminal block (10 pins), (1 common terminal for 4 inputs)
Contact Output	8 outputs, relay contact output, contact capacity: 24 V DC/2 – 500 mA, removable terminal block (16 pins)
Time Sync Input	1 input, no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 5 mA or less, removable terminal block (2 pins)
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 8), Multicast (max. 191)
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator, Signal indicator, Peak indicator
Others	Firmware update function, System data hold function, Time of day hold facility, Reset key (front panel)
Setting Method	Rack, Desk, Surface mount
Operating Temperature	0 to 40°C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	210 (w) x 44.3 (h) x 267 (d) mm
Weight	1.7 kg

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Removable terminal plug (2 pins) 1
Removable terminal plug (3 pins) 2
Removable terminal plug (5 pins) 2
Removable terminal plug (8 pins) 2
Plastic foot 4
Machine screw M3 x 8 4

• Optional products

Rack mounting bracket: MB-15B-BK (for rack mounting one N-8000AF unit)
MB-15B-J (for rack mounting two N-8000AF units)
Wall mounting bracket: YC-850

5.40. N-8000AL Telephone Interface Unit

Power Source	CE version: 220 – 240 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	8W (max.)
Telephone Interface	
Number of Telephone Lines	1 line
Selective Signal Type	DTMF signal
Monitoring Function	Line Loop detection
Control Function	Caller ID function
Wiring Method	1 pair of twisted pair cables
Short-Circuit Current	120 mA
Open Voltage	24 V DC
Calling Signal Output Voltage	Max. 80 V (0-p) AC (16 Hz)
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP
Audio Packet Transmission System	Unicast, Multicast
Number of Paging Destinations	Unicast (max. 8), Multicast (max. 191)
Connector	RJ-45 connector
Voice Sampling Frequency	16 kHz, 8 kHz (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	80 ms, 320 ms (controllable on the software)
Indication	LNK/ACT indicator, Status indicator, Power indicator, Line indicator
Others	Firmware update function, System date hold function, Time of day hold facility, Reset key (front panel)
Setting Method	Rack, Desktop, Surface mount
Operating Temperature	0 to 40 °C
Operating Humidity	90 % RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	210 (w) x 44.3 (h) x 267 (d) mm
Weight	1.7 kg

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Mini-clamp connector (2 pins) 2
Plastic foot 4
Machine screw M3 x 8 4

• Optional products

Rack mounting bracket: MB-15B-BK (for rack mounting one N-8000AL unit)
MB-15B-J (for rack mounting two N-8000AL units)
Wall mounting bracket: YC-850

5.41. N-8000DI Direct Select Unit

Power Source	CE version: 220 – 240 V AC, 50/60 Hz CU version: 120 V AC, 50/60 Hz
Power Consumption	16 W (max.)
Contact Input	32 inputs, no-voltage make contact input, open voltage: 24 V DC, short-circuit current: 5 mA or less, removable terminal block (20 pins) (1 common terminal for 4 inputs)
Contact Output	32 outputs, relay contact output, contact capacity: 24 V DC/2 – 500 mA, removable terminal block (32 pins)
Network Section	Network I/F: 10BASE-T/100BASE-TX (Automatic-Negotiation) Network protocol: TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP Connector: RJ-45 connector
Indication	LNK/ACT indicator, Status indicator, Power indicator, Channel status indicator (32 channels)
Other	Firmware update function, System data hold function, Time of day hold facility, Reset key (front panel)
Setting Method	Rack, Desk, Surface mounting
Operating Temperature	0 to 40°C
Operating Humidity	Under 90 % RH (no condensation)
Finish	Pre-coated steel plate, black, 30 % gloss
Dimensions	420 (w) x 44.3 (h) x 267 (d) mm
Weight	2.8 kg

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

AC power cord (2 m) 1
CD (for PC setting, maintenance use) 1
Removable terminal plug (10 pins) 4
Removable terminal plug (16 pins) 4
Plastic foot 4
Machine screw M3 x 8 4
Rack mounting bracket 2
Tapping screw 3 x 8 8
Rack mounting screw with plain washer 4

• Optional product

Wall mounting bracket: YC-850

5.42. SX-200IP IP Module

Network Section	Network I/F: 10BASE-T/100BASE-TX (Automatic-Negotiation) Network protocol: TCP/IP, UDP, HTTP, RTP, ARP, ICMP, IGMP Connector: RJ45 connector for LAN 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: 80 ms, 320 ms (controllable on the software)
Indicator	Operation indicator (RUN)
Operating Temperature	0 to 40 °C
Operating Humidity	90% RH or less (no condensation)
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (w) x 119.5 (h) x 178.4 (d) mm
Weight	150 g

Note: The design and specifications are subject to change without notice for improvement.

5.43. YC-280 Wall Mounting Bracket

Finish	Surface-treated steel plate, gray, paint
Dimensions	100 (w) x 140 (h) x 31.8 (d) mm
Weight	120 g

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

Wood screw 3.5 x 20 2
Rubber foot 4

• **Applicable models**

N-8000MS/8010MS/8020MS/8410MS/8500MS/8510MS/8600MS

5.44. YC-290 Wall Mounting Bracket

Finish	Surface treated steel sheet, gray, paint
Dimensions	64 (w) x 131.5 (h) x 31.8 (d) mm
Weight	100 g

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

Wood screw 3.5 x 20 2
Rubber foot 4

• **Applicable model**

N-8011MS

5.45. YC-850 Wall Mounting Bracket

Finish	Surface-treated steel plate, black, 30 % gloss
Dimensions	45.1 (w) x 220 (h) x 10 (d) mm
Weight	180 g

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

Machine screw M3 x 6 4
Wood screw 3.5 x 20 4

• **Applicable models**

N-8000RS/8010RS/8400RS/8000DI/8000AF/8000CO/8000AL

Note: The YC-850 cannot be used with the N-8000EX, N-8010EX, or N-8000MI.

5.46. YC-241 Back Box

Finish	Colored chrome plating
Dimensions	119 (w) x 276 (h) x 67 (d) mm
Weight	100 g

Note: The design and specifications are subject to change without notice for improvement.

• Applicable model

N-8031MS

5.47. YC-251 Wall-Mount Box

Finish	Surface-treated steel plate, white
Dimensions	124 (w) x 258.5 (h) x 50.5 (d) mm
Weight	1.06 kg

Note: The design and specifications are subject to change without notice for improvement.

• Applicable model

N-8031MS

5.48. YC-150 Back Box

Finish	Zinc-plating, t1.6
Dimensions	184 (w) x 119 (h) x 57 (d) mm
Weight	700 g

Note: The design and specifications are subject to change without notice for improvement.

• Applicable models

N-8050DS/8540DS/8640DS/8650DS

5.49. YS-13A Wall-Mount Box

Finish	Surface treated steel sheet, ivory, paint
Dimensions	116.5 (w) x 163.5 (h) x 55 (d) mm
Weight	550 g

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Machine screw M3 x 12 4
Wood screw 3.8 x 16 4
Rubber foot 4
Bushing 1

• Applicable models

N-8050DS/8540DS/8640DS/8650DS

5.50. YC-302 2-Gang Electrical Box

Quantity Packed per Display Carton	10 pieces
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
Weight	370 g

Note: The design and specifications are subject to change without notice for improvement.

• Applicable models

RS-141/150/160/170/180/191/450/460/470/480/481

5.51. YC-801 Flush-Mount Box

Finish	Colored chrome plating
Dimensions	72 (w) x 119 (h) x 57 (d) mm
Weight	350 g

Note: The design and specifications are subject to change without notice for improvement.

• Applicable models

RS-140/143/144

5.52. YC-802 Wall-Mount Box

Finish	Surface-treated steel plate, white
Dimensions	75 (w) x 124 (h) x 50.5 (d) mm
Weight	360 g

Note: The design and specifications are subject to change without notice for improvement.

• Applicable models

RS-140/143/144

5.53. YC-822 Indoor Wall-Mount Box

Finish	Surface-treated steel plate, off-white
Dimensions	124 (w) x 124 (h) x 61 (d) mm
Weight	400 g

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Wood screw 3.5 x 20 4

• Applicable models

RS-141/150/160/170/180/191/450/460/470/480/481

5.54. YC-823 Outdoor Wall-Mount Box

Finish	Stainless steel plate, off-white
Dimensions	124 (w) x 124 (h) x 62 (d) mm
Weight	440 g

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

Wood screw 3.5 x 20 4

• **Applicable models**

RS-170/180/470/480

5.55. YC-841 Back Box

Finish	Surface-treated steel plate, white
Dimensions	119 (w) x 258 (h) x 57 (d) mm
Weight	1 kg

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

Wood screw 3.5 x 20 4

• **Applicable model**

N-8033MS

5.56. E-7000TB Terminal Board

Line Capacity	80 (40 lines)
Line Connection Terminal	Clip terminal
Finish	Panel: Surface treated steel plate, black, 30 % gloss
Dimensions	482 (w) x 132.6 (h) x 108.8 (d) mm
Weight	2.5 kg

Note: The design and specifications are subject to change without notice for improvement.

• **Accessories**

Rack mounting screw 5 x 12 4
Fiber washer M5 4
Name plate 4
Cord clamp 6

5.57. AD-1210P AC Adapter

Model number	AD-1210P CU	AD-1210P CE
Power Source	100 – 240 V AC, 50/60 Hz	230 V AC, 50 Hz
Output	12 V DC, 1 A	
Current Consumption	270 mA (rated output)	120 mA (rated output)
Cord Length	1.5 m	1.8 m
Plug	Center positive	
Operating Temperature	0 to 40 °C	
Finish	Case: Polycarbonate, black	Case: Noryl resin, black
Dimensions (Case)	50 (w) x 72 (h) x 58 (d) mm	56.5 (w) x 70.5 (h) x 85.5 (d) mm
Weight	110 g	470 g

Note: The design and specifications are subject to change without notice for improvement.

• **Applicable models**

N-8500MS/8510MS/8600MS/8610RM/8540DS/8640DS/8650DS

5.58. AD-1215P AC Adapter

Power Source	100 – 240 V AC, 50/60 Hz
Output	12 V DC, 1.5 A
Power Consumption	0.5 A AC Input 100 V (rated output)
Cord Length	1.8 m
Plug	Conductor: Center positive, ø5.5 x ø2.1 x L9.5 mm
Operating Temperature	0 to 40 °C
Finish	Polycarbonate, black
Dimensions	45 (w) x 70 (h) x 55.5 (d) mm
Weight	130 g

Note: The design and specifications are subject to change without notice for improvement.

• **Applicable models**

N-8500MS/8510MS/8600MS/8610RM/8540DS/8640DS/8650DS

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