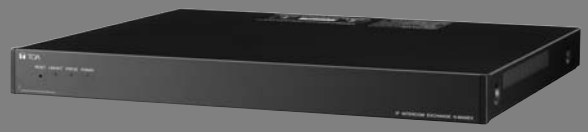
# IP NETWORK INTERCOM SYSTEM

## IP Network Intercom Exchange



N-8000EX/N-8010EX

## Multi Interface Unit



N-8000MI

## Master Stations



N-8000MS



N-8010MS



N-8011MS



N-8020MS



RS-191

N-8031MS

## IP Master Station



N-8500MS

## IP Door Station



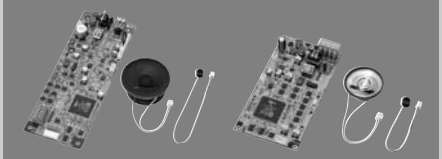
N-8540DS

## Door Station



N-8050DS

## Board Unit



N-8031SB N-8050SB

## 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), Multi interface units and IP Stations to a network (LAN or WAN), 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.

A basic N-8000 Series system is comprised of an intercom exchange unit such as the N-8000EX IP Intercom Exchange. Stations are available in different configurations with different features:

Master Stations: N-8000MS Multifunctional Master Station, N-8010MS Standard Master Station, N-8011MS Hands-Free Master Station, N-8020MS Industrial Use Master Station, N-8031MS Wall Mount Master Station and for network applications, N-8500MS IP Master Station.
Door Stations: N-8050DS Door Station, N-8540DS IP Door Station

Up to 80 exchanges, multi interface units and IP stations can be combined. When 80 exchanges are used, systems of up to 1,280 stations can be realized. The system's "echo cancellation"*2 feature makes hands-free duplex conversation possible (conversations made without using a handset at both parties) between stations. In addition, the multi interface unit features a contact bridge function to be performed by way of contact input and output control.

*1 Technology related to audio transmission over a network.

*2 A circuit that prevents acoustic feedback or echo generated when the voice output from the station's internal speaker enters the microphone.

## FEATURES

- Exchanges, Multi Interface units and IP Stations can be distributed 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.
- Two types of exchanges are available:
  N-8000EX: 4 internal and 8 external speech links with PA paging output.
  N-8010EX: 1 internal and 2 external speech links without PA paging output.
- System configured employing IP stations make communications possible without having to use an exchange unit. (IP Door Stations alone cannot be configured into systems without incorporating a IP Master Station.)
- 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.
- Can be connected to the Exchange of the EXES-2000 or EXES-6000 Intercom System by a tie-line, or the PBX exchange via the E&M lead signaling interface.
- The Multi Interface unit can interlock with an electronic lock system or CCTV surveillance system by way of contact input/output control function.

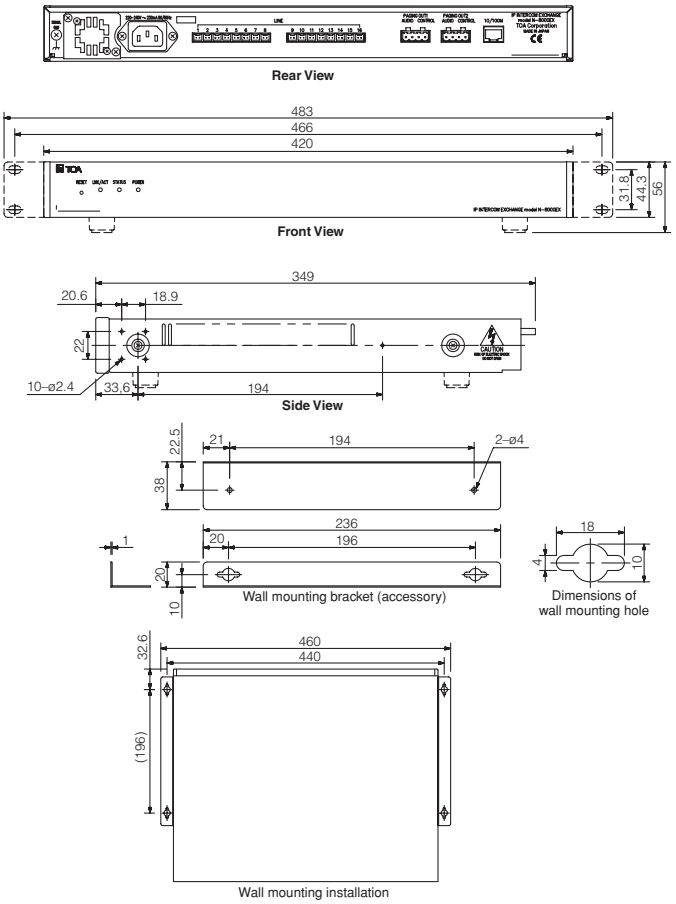
TOA

# N-8000EX (Internal: 4 links / External: 8 links)

## IP Network Intercom Exchange



The IP Network Intercom Exchange uses paket audio technology to permit connection of up to sixteen N-8000 Series stations, and features two outputs for public address paging. Simultaneous hand-free conversation is possible between staions. Moreover, the exchange is equipped with a networking interface, allowing up to 80 exchanges to be connected over a network using additional network intercom exchanges. The Exchange can be mounted in an EIA standard rack (1-unit size) or to a wall using the supplied bracket.

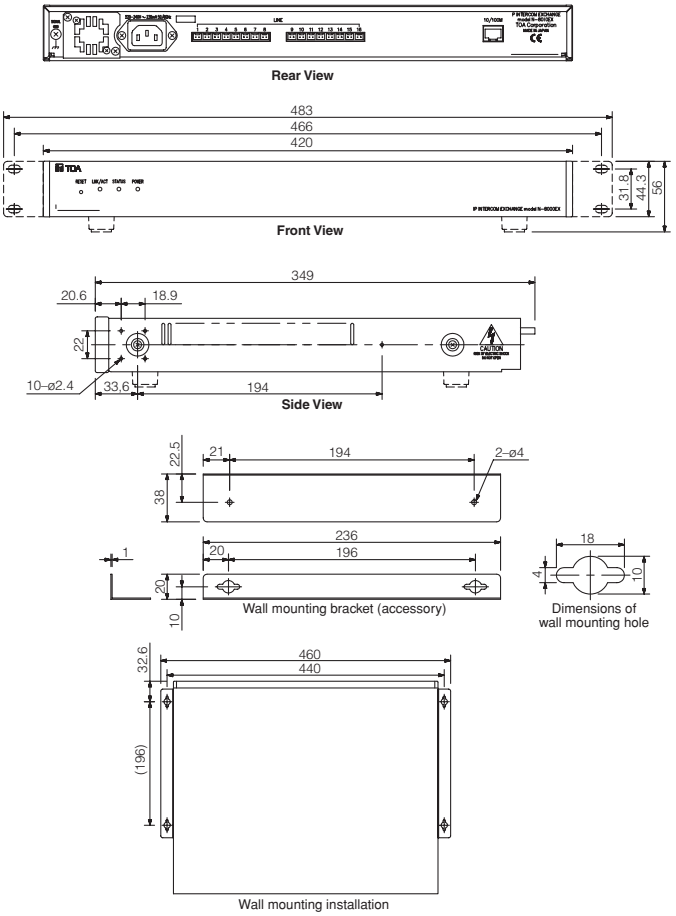



# N-8010EX (Internal: 1 link / External: 2 links)

## IP Network Intercom Exchange



The IP Network Intercom Exchange uses paket audio technology to permit connection of up to sixteen N-8000 Series stations. Simultaneous hand-free conversation is possible between staions. Moreover, the exchange is equipped with a networking interface, allowing up to 80 exchanges to be connected over a network using additional network intercom exchanges. The Exchange can be mounted in an EIA standard rack (1-unit size) or to a wall using the supplied bracket.

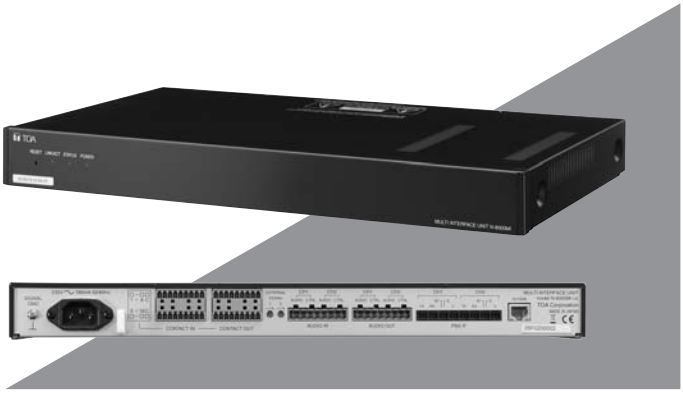


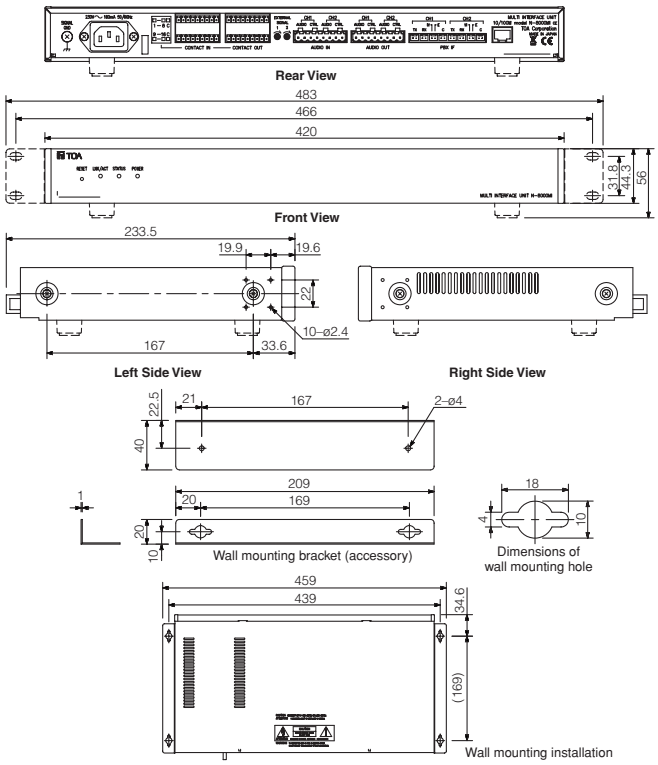
## SPECIFICATIONS

*0dB = 1V

| Model No. | N-8000EX | N-8010EX |
|---|---|---|
| Power Source | N-8000EX/N-8010EX (CE): 230V AC, 50/60Hz/ N-8000EX/N-8010EX (CU): 120V AC, 50/60Hz | |
| Power Consumption | 50W (at rated), 75W (max.) | |
| Type of Speech Path | Space sharing/Time Space sharing | |
| Speech Link | Internal: 4/External: 8 (Both Half duplex/Full duplex use) | Internal: 1/External: 2 (Both Half duplex/Full duplex use) |
| Hands-free Speech Method | Simultaneous conversation by way of echo canceller or Half-duplex conversation by way of voice switch | |
| Line Capacity | Up to 16 stations | |
| Wiring Method | Non-polar one pair stranded wire system | |
| Transmission System | 2 wire 160kbps echo canceller transmission system | |
| Signal Level | Under 0dB* | |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) | |
| Power Supply to Station | 48V DC, Max. 70mA | |
| Paging Output | Audio: 2 channels Max. 0dB*, 600Ω, balanced, detachable terminal block<br>Control: 2 channels, no-voltage make contact output (24V DC/0.5A), detachable terminal block | Station paging only |
| Connecting Terminal | RJ-11 modular jack | |
| Others | Firmware update function, System registration data entry hold facility, Time of day hold facility, Forced air-cooling, Reset switch (front panel) | |
| Network Section | | |
| Network I/F | 10BASE-T/100BASE-TX (Automatic change) | |
| Network Protocol | TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP | |
| Audio Packet Transmission System | Unicast (Simultaneous paging to up to 16 zones)<br>Multicast (Simultaneous paging to up to 79 zones) | |
| Connector | RJ45 connector | |
| Voice Sampling Frequency | 16kHz, 8kHz (Controllable on the software) | |
| Quantifying Bit Number | 16-bit | |
| Voice Encoding Method | Sub-band ADPCM, Cryptosystem | |
| Audio Packet Omission Compensation System | Silence insertion | |
| Audio Delay Time | 80ms, 320ms (Controllable on the software) | |
| Indication | Network LINK/ACT indication, Status Lamp, Power-on indication lamp | |
| Installation Method | Rack, Desk, Surface mount | |
| Operating Temperature | 0°C to +40°C | |
| Operating Humidity | Under 90% RH (no condensation) | |
| Finish | Pre-coated steel plate, black, 30% gloss | |
| Dimensions | 420 (W) × 44.3 (H) × 349 (D)mm | |
| Weight | 4.2kg | |
| Accessory | AC power cord (2m) × 1,<br>CD (for PC setting, maintenance use) × 1,<br>Detachable terminal plug (4P) × 2,<br>Detachable terminal plug (2P) × 20,<br>Plastic foot × 4,<br>Screw for fitting plastic foot × 4,<br>Rack mounting bracket × 2,<br>Screw for rack mounting × 4,<br>Wall mounting bracket × 2,<br>Screw for mounting bracket × 8,<br>Screw for wall mounting × 4 | AC power cord (2m) × 1,<br>CD (for PC setting, maintenance use) × 1,<br>Detachable terminal plug (2P) × 20,<br>Plastic foot × 4,<br>Screw for fitting plastic foot × 4,<br>Rack mounting bracket × 2,<br>Screw for rack mounting × 4,<br>Wall mounting bracket × 2,<br>Screw for mounting bracket × 8,<br>Screw for wall mounting × 4 |

# N-8000MI
## Multi Interface Unit






The N-8000MI is a multi-interface unit designed for use with TOA's packet intercom system (IP network-compatible intercom system) that employs the packet audio technology. Connecting the multi-interface to a local area network permits the ideal system for in-house or wide-area information transmission applications, such as paging, periodical broadcasts, and background music broadcasts, to be built between the multi-interface and IP intercom exchange or other multi-interface unit. The contact bridge function can be realized through contact input and output control. The N-8000MI also features the tie-line function to be connected the the EXES-2000 intercom system or the EXES-6000 system. A total of up to 80 multi-interface units and IP intercom exchanges can be connected to a network. The unit can be mounted in an EIA standard rack (1-unit size) or to a wall using the supplied bracket.

## SPECIFICATIONS

*1 0dB = 1V, *2 0dB = 0.775V

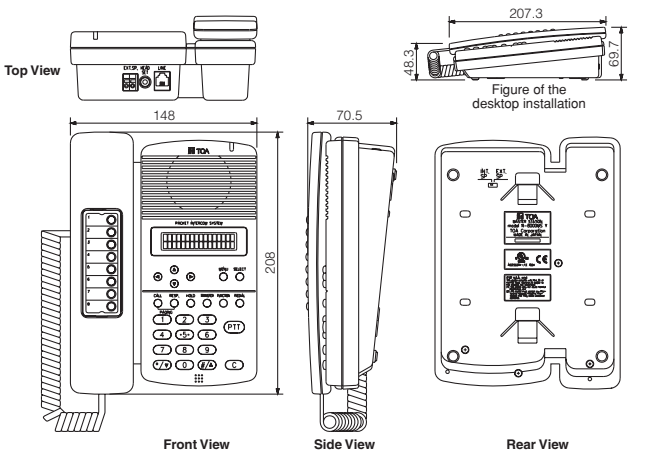
| Model No. | N-8000MI |
|---|---|
| Power Source | N-8000MI (CE): 230V AC, 50/60Hz/ N-8000MI (CU): 120V AC, 50/60Hz |
| Power Consumption | N-8000MI (CE): 19W (180mA) (at rated), 24W (230mA) (max.)/ N-8000MI (CU): 16W (250mA) (at rated), 21W (330mA) (max.) |
| Audio Input*3 | Input: 2 inputs (2P/input), Max. 0dB*1, under 600Ω, balanced, with a semi-fixed volume for adjustment (0 to –25dB)<br>Control: 2 inputs (2P/input), no-voltage make contact input, open voltage: 12V DC, short-circuit current: 10mA<br>Removable terminal block (8 pins) |
| Audio Output*3 | Output: 2 outputs (2P/output), Max. 0db*1, under 600Ω, balanced<br>Control: 2 outputs (2P/output), relay contact output, contact capacity: 24V DC/0.5A<br>Removable terminal block (8 pins) |
| Control Input*3 | 16 inputs, no-voltage make contact input, open voltage; 12V DC, short-circuit current: 10mA, removable terminal block (9 pins) |
| Control Output*3 | 16 outputs, relay contact output, contact capacity: 24V DC/0.5A, removable terminal block (9 pins) |
| PBX I/F*3 | PBX input and output: 2 channels, Max.: Under 0dB*2, Average: Under –15dB*2, 600Ω, balanced, mini-clamp connector (2 pins), with adjustment functions for both input and output (Input: 0 to +15dB, Output: –15 to 0dB), Analog E & M interface |
| Tie-line I/F*3 | Tie-line input and output: 2 channels, Max.: Under 0dB*2, Average: Under –15dB*2, 600Ω, balanced, mini-clamp connector (2 pins)<br>Signal method: EXES-2000/EXES-6000 tie-line method<br>Selective signal: DTMF signal |
| Others | Firmware update function, System registration data entry hold facility, Time of day hold facility,<br>Reset switch (front panel) |
| Network Section | |
| Network I/F | 10BASE-T/100BASE-TX (Automatic change) |
| Network Protocol | TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP |
| Audio Packet Transmission System | Unicast (Simultaneous paging to up to 16 zones)<br>Multicast (Simultaneous paging to up to 79 zones) |
| Connector | RJ45 connector |
| Voice Sampling Frequency | 16kHz, 8kHz (Controllable on the software) |
| Quantifying Bit Number | 16-bit |
| Voice Encoding Method | Sub-band ADPCM, Cryptosystem |
| Voice Packet Loss Recovery | Silence insertion |
| Audio Delay Time | 80ms, 320ms (Controllable on the software) |
| Indication | Network LINK/ACT indication, Status Lamp, Power-on indication lamp |
| Installation Method | Rack, Desk, Surface mount |
| Operating Temperature | 0°C to +40°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Finish | Pre-coated steel plate, black, 30% gloss |
| Dimensions | 420 (W) × 44.3 (H) × 233.5 (D)mm |
| Weight | 2.8kg |
| Accessory | AC power cord (2m) × 1, CD (for PC setting, maintenance use) × 1, Mini-clamp plug (2 pins) × 10, Remote terminal plug (8 pins) × 2, Removable terminal plug (9 pins) × 4, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for rack mounting × 4, Wall mounting bracket × 2, Screw for mounting bracket × 8, Screw for wall mounting × 4 |

*3 Each input and output can be combined in 9 patterns (refer to last page).

# N-8000MS
## Multifunctional Master Station



This Master Station is designed to connect to the Network intercom Exchange, and provides hands-free or handset conversation of high sound quality. In addition to the functions of the standard Master Station, the Multifunctional Master Station provides LCD display. Auto-dialer function enabling one-touch dialing, headset terminal and external speaker terminal. This station can be mounted to the wall using and optional YC-280 wall mounting bracket.




unit: mm

## SPECIFICATIONS

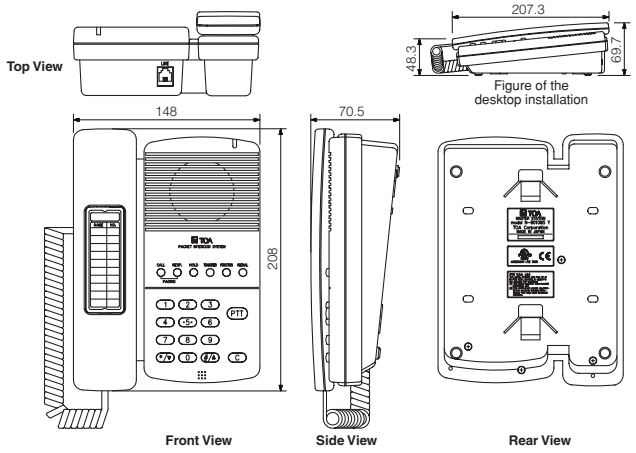
*0dB = 1V

| Model No. | N-8000MS |
|---|---|
| Power Source | 48V DC<br>(supplied from the IP network intercom exchange) |
| Power Consumption | 2.4W |
| Wiring Method | Non-polar one pair stranded wire system |
| Transmission System | 2 wire 160kbps echo canceller transmission system |
| Signal Level | Under 0dB* |
| Speech Method | Hands-free or handset conversation |
| Audio Frequency Range | 300 – 7,000Hz |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) |
| Hands-free | Speaker: 0.6W, 8 ohms, 5.7cm cone-type,<br>Mic.: Omni-directional electret condenser microphone |
| Handset | Receive path: Cone-type,<br>Send path: Electret condenser microphone |
| Display | Alphanumeric characters<br>(16 characters × 2 lines LCD) |
| Line Connecting Terminal | RJ-11 modular jack |
| Headset Terminal | Speaker: 3mW, 32 ohms,<br>Microphone: –49dB*, ø3.5mm mini jack |
| External Speaker Terminal | 0.6W, 8 ohms, screwless connector (2P) |
| Installation Method | Desk/Surface mounted master station (When mounting to the wall, use the optional bracket*1.) |
| Operating Temperature | 0°C to +40°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Finish | Body, Handset: ABS resin, gray |
| Dimensions | 148 (W) × 208 (H) × 70.5 (D)mm<br>(excluding a curl cord section) |
| Weight | 800g |
| Accessory | Connection cord (3m) × 1 |
| Option*1 | Wall mounting bracket: YC-280 |

# N-8010MS
## Standard Master Station



This Master Station is designed to connect to the Network intercom Exchange, and provides hands-free or handset conversation of high sound quality. This station can be mounted to the wall using and optional YC-280 wall mounting bracket.




unit: mm

## SPECIFICATIONS

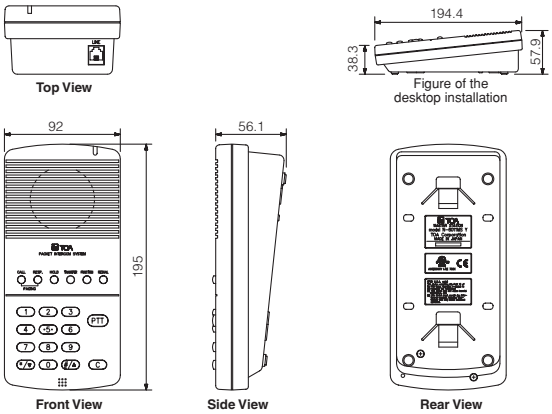
*0dB = 1V

| Model No. | N-8010MS |
|---|---|
| Power Source | 48V DC<br>(supplied from the IP network intercom exchange) |
| Power Consumption | 2.4W |
| Wiring Method | Non-polar one pair stranded wire system |
| Transmission System | 2 wire 160kbps echo canceller transmission system |
| Signal Level | Under 0dB* |
| Speech Method | Hands-free or handset conversation |
| Audio Frequency Range | 300 – 7,000Hz |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) |
| Hands-free | Speaker: 0.6W, 8 ohms, 5.7cm cone-type,<br>Mic.: Omni-directional electret condenser microphone |
| Handset | Receive path: Cone-type,<br>Send path: Electret condenser microphone |
| Line Connecting Terminal | RJ-11 modular jack |
| Installation Method | Desk/Surface mounted master station (When mounting to the wall, use the optional bracket*1.) |
| Operating Temperature | 0°C to +40°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Finish | Body, Handset: ABS resin, gray |
| Dimensions | 148 (W) × 208 (H) × 70.5 (D)mm<br>(excluding a curl cord section) |
| Weight | 700g |
| Accessory | Connection cord (3m) × 1 |
| Option*1 | Wall mounting bracket: YC-280 |

# N-8011MS
## Standard Hands-Free Master Station



This Master Station is designed to connect to the Network intercom Exchange, and provides hands-free or handset conversation of high sound quality. With its space-saving design, this Master Station features the same functions as the Standard Master Station. This station can be mounted to the wall using and optional YC-290 wall mounting bracket.




## SPECIFICATIONS

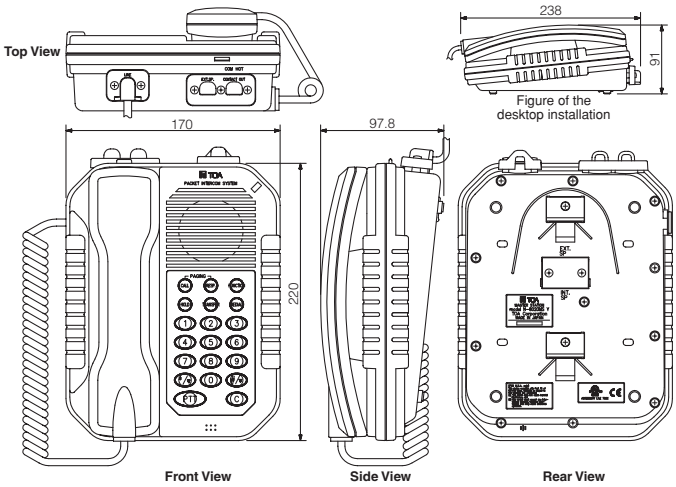
*0dB = 1V

| Model No. | N-8011MS |
|---|---|
| Power Source | 48V DC (supplied from the IP network intercom exchange) |
| Power Consumption | 2.4W |
| Wiring Method | Non-polar one pair stranded wire system |
| Transmission System | 2 wire 160kbps echo canceller transmission system |
| Signal Level | Under 0dB* |
| Speech Method | Hands-free conversation |
| Audio Frequency Range | 300 – 7,000Hz |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) |
| Hands-free | Speaker: 0.6W, 8 ohms, 5.7cm cone-type, Mic.: Omni-directional electret condenser microphone |
| Line Connecting Terminal | RJ-11 modular jack |
| Installation Method | Desk/Surface mounted master station (When mounting to the wall, use the optional bracket*1.) |
| Operating Temperature | 0°C to +40°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Finish | Body: ABS resin, gray |
| Dimensions | 92 (W) × 195 (H) ×56.1 (D)mm |
| Weight | 400g |
| Accessory | Connection cord (3m) × 1 |
| Option*1 | Wall mounting bracket: YC-290 |

# N-8020MS
## Industrial-Use Master Station



This Master Station is designed to connect to the Network intercom Exchange, and provides hands-free or handset conversation of high sound quality. It features dust-proof and waterproof construction, and can be used in locations exposed to ambient temperatures ranging from –10°C to +50°C. In addition to the functions of the standard Master Station, the Industrial-Use Station permits connection of external speaker and can take out control signal for dial-in indicator from its contact output. This station can be mounted to the wall using and optional YC-280 wall mounting bracket.




## SPECIFICATIONS

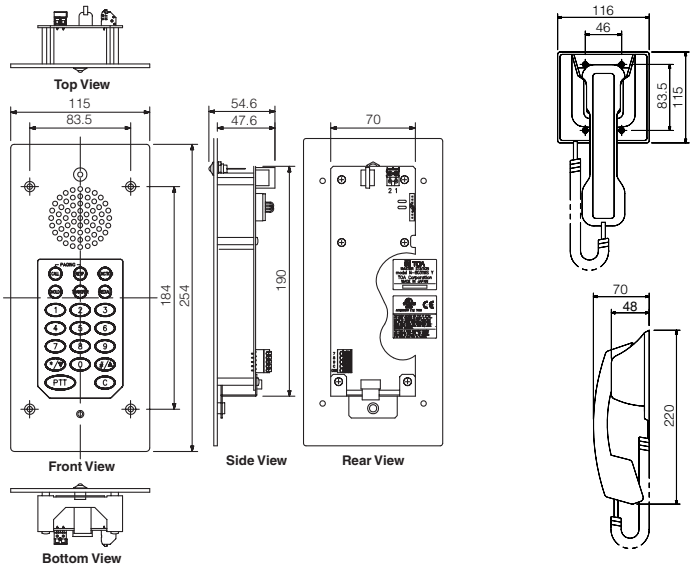
*0dB = 1V

| Model No. | N-8020MS |
|---|---|
| Power Source | 48V DC (supplied from the IP network intercom exchange) |
| Power Consumption | 2.4W |
| Wiring Method | Non-polar one pair stranded wire system |
| Transmission System | 2 wire 160kbps echo canceller transmission system |
| Signal Level | Under 0dB* |
| Speech Method | Hands-free or handset conversation |
| Audio Frequency Range | 300 – 7,000Hz |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) |
| Hands-free | Speaker: 0.6W, 8 ohms, 5.7cm cone-type, Mic.: Omni-directional electret condenser microphone |
| Handset | Receive path: Cone-type, Send path: Electret condenser microphone |
| Dial-in Contact Output | Open collector output (The contacts have polarity.)/ Withstand voltage: Max. 30V DC, Control current: Max. 50mA, screwless connector (2P) |
| Line Connecting Terminal | RJ-11 modular jack |
| External Speaker Terminal | 0.6W, 8 ohms, screwless connector (2P) |
| Installation Method | Desk/Surface mounted master station (When mounting to the wall, use the optional bracket*1.) |
| Operating Temperature | –10°C to +50°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Dust/Water Protection | IP54 |
| Finish | Body, Handset: ABS resin, gray |
| Dimensions | 170 (W) × 220 (H) × 97.8 (D)mm (excluding a curl cord and projection sections) |
| Weight | 1kg |
| Accessory | Rubber cap × 2 |
| Option*1 | Wall mounting bracket: YC-280 |

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




The N-8031MS is a flush- or surface-mount master station designed to operate in conjunction with TOA IP Intercom Exchange and features high quality hands-free conversation.
Connecting a foot switch or other external switch to the external dial input terminal permits one-touch dialing operation by way of such switches.
Handset conversation can be established in conjunction with the optional RS-191.




## SPECIFICATIONS

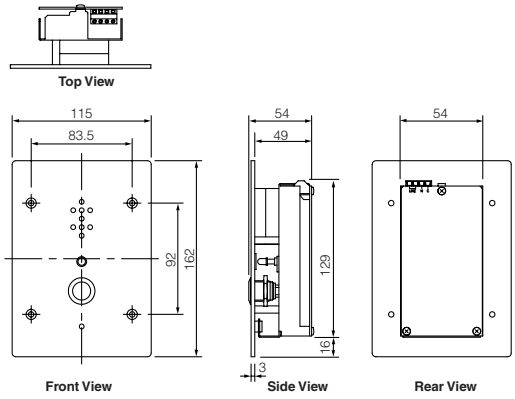
*0dB = 1V

| Model No. | N-8031MS |
|---|---|
| Power Source | 48V DC<br>(supplied from the IP network intercom exchange) |
| Power Consumption | 1.8W (rated), 2.4W (max.) |
| Wiring Method | Non-polar one pair stranded wire system |
| Transmission System | 2 wire 160kbps echo canceller transmission system |
| Signal Level | Under 0dB* |
| Speech Method | Hands-free conversation (Handset conversation can be established in conjunction with the RS-191(option)) |
| Audio Frequency Range | 300 – 7,000Hz |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) |
| Hands-free | Speaker: 0.6W, 8 ohms, 5.7cm cone-type,<br>Mic.: Omni-directional electret condenser microphone |
| Line Connecting Terminal | Pin header (2 pins) |
| External Dial Input | No-voltage make contact input,<br>screwless connector (5 pins) |
| Installation Method | Flush-mount/Surface-mount |
| Operating Temperature | 0°C to +40°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Finish | Panel: Stainless steel (SUS304), hairline |
| Dimensions | 115 (W) × 254 (H) × 54.6 (D)mm |
| Weight | 850g |
| Accessory | Box mounting screw (No.6-32UNC × 18) × 4,<br>Box mounting screw (M4 × 25) × 4,<br>Removable terminal plug (2 pins, preinstalled on the unit) × 1,<br>Handset jumper (8 pins, preinstalled on the unit) × 1,<br>Ferrite clamp ×1 |
| Option | For flush-mount: Back Box YC-241,<br>Wall surface-mount: Wall mount Box YC-251 |

# N-8050DS
## Door Station



Designed to connect to the IP Intercom Exchange, the N-8050DS is a door station featuring high quality hands-free conversation. It has a contact output (momentarily closed) to remotely control an electric door lock. It is in full conformity with IP54 water-proof and dust-proof standards. The operating temperature range is –10°C to 50°C. As provided with guard nets inside to cover over the openings of microphone and speaker, the N-8050DS can be installed free from care in public space.




## SPECIFICATIONS

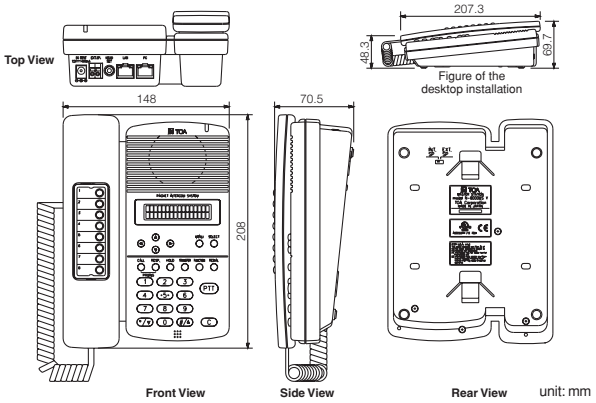
*0dB = 1V

| Model No. | N-8050DS |
|---|---|
| Power Source | 48V DC (supplied from the IP network intercom exchange (option)) |
| Power Consumption | 1.8W (rated), 2.4W (max.) |
| Wiring Method | Non-polar one pair stranded wire system |
| Transmission System | 2 wire 160kbps echo canceller transmission system |
| Signal Level | Under 0dB* |
| Speech Method | Hands-free conversation |
| Audio Frequency Range | 300 – 7,000Hz |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) |
| Hands-free | Speaker: 3.5cm cone-type, 1W, 8 ohms<br>Mic.: Omni-directional electret condenser microphone |
| Contact Output | Open collector output, withstand voltage: Max. 30V DC, control current: Max. 50mA, one shot: can be set from 1 to 9 sec, screw terminal (polarized) |
| Line Connecting Terminal | 2 wire, screw terminal (non-polar) |
| Installation Method | Flush-mount/Surface-mount |
| Operating Temperature | –10°C 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 | Panel: Stainless steel (SUS304), hairline<br>Call button: Metal |
| Dimensions | 115 (W) × 162 (H) × 54 (D)mm |
| Weight | 680g |
| Accessory | Box mounting screw (No.6-32UNC × 18) × 4,<br>Box mounting screw (M4 × 25) × 4 |
| Applicable Box (option) | For flush-mount: 3-gang electrical box or<br>Back Box YC-150,<br>For wall mount: Wall mount Box YC-13A |

# N-8500MS
## IP Multifunctional Master Station



The N-8500MS is an IP multifunctional master station employing packet audio technology. Connecting the N-8500MS to a network (LAN or WAN) permits hands-free or handset conversation of high sound quality to be made between the N-8500MS and intercom stations connected to the IP Intercom Exchange, or between the N-8500MS units. Besides, the N-8500MS can be used in conjunction with the Multi Interface units through a network. In addition to the functions of the standard Master Station, The Multifunctional Master Station provides LCD display, Auto-dialer function enabling one-touch dialing, headset terminal and external speaker terminal. Power can be supplied from the PoE (Power over Ethernet) switching hub. (In this case, an AC adapter is not required)
This station can be mounted to the wall using an optional YC-280 wall mounting bracket.




## SPECIFICATIONS

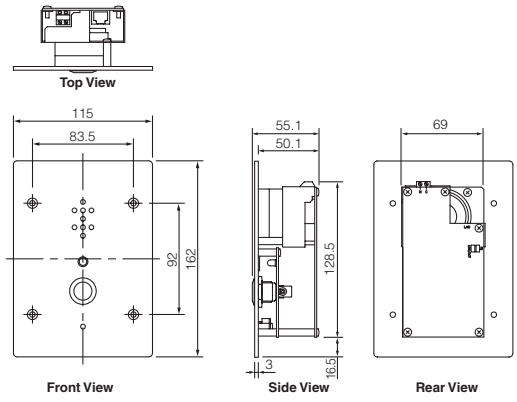
*0dB = 1V

| Model No. | N-8500MS |
|---|---|
| Power Source | Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option)) |
| Power Consumption | 4.2W (at rated), 6W (max.) |
| Speech Method | Hands-free or handset conversation |
| Audio Frequency Range | 300 – 7,000Hz |
| Hands-free | Speaker: 0.6W, 8 ohms, 5.7cm cone-type,<br>Mic.: Omni-directional electret condenser microphone |
| Handset | Receive path: Cone-type,<br>Send path: Electret condenser microphone |
| Handset Terminal | Speaker: 3mW, 32Ω, Microphone: –49dB*, ø3.5mm mini jack |
| External Speaker Terminal | 0.6W, 8 ohms, screwless connector (2P) |
| Network Section | |
| Network I/F | 10BASE-T/100BASE-TX (Automatic-Negotiation) |
| Network Protocol | TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP |
| Audio Packet Transmission System | Unicast (1 speech link, simultaneous paging to up to 16 zones)<br>Multicast (simultaneous paging to up to 79 zones) |
| Connector | LAN: RJ45 connector (compatible with PoE)<br>PC: RJ45 connector (not-compatible with PoE) |
| Voice Sampling Frequency | 16kHz, 8kHz (controllable on the software) |
| Quantifying Bit Number | 16-bit |
| Voice Encoding Method | Sub-band ADPCM, Cryptosystem |
| Voice Packet Loss Recovery | Silence insertion |
| Audio Delay Time | 80ms, 320ms (controllable on the software) |
| Display | LVD alphanumeric characters<br>(16 characters × 2 lines) |
| Installation Method | Desk/Surface mounted master station (When mounting to the wall, use the optional bracket YC-280.) |
| Operating Temperature | 0°C to +40°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Finish | Body, Handset: ABS resin, gray |
| Dimensions | 148 (W) × 208 (H) × 70.5 (D)mm<br>(excluding a curl cord section) |
| Weight | 810g |
| Accessory | CD (for PC setting, maintenance use) × 1 |
| Option | Wall mounting bracket: YC-280, AC adapter: AD-1210P |

# N-8540DS
## IP Door Station



The N-8540DS is an IP door station employing packet audio technology. Connecting the N-8540DS to an IP network (LAN or WAN) permits hands-free conversation of high sound quality to be made between the N-8540DS and intercom station connected to the IP Intercom Exchange, or between the N-8540DS and IP multifunctional master station. Besides, the N-8540DS can be used in conjunction with the Multi Interface units through a network. It is in full conformity with IP54 water-proof and dust-proof standards. The operating temperature range is –10°C to 50°C. As provided with guard nets inside to cover over the openings of microphone and speaker, the N-8540DS can be installed free from care in public space.

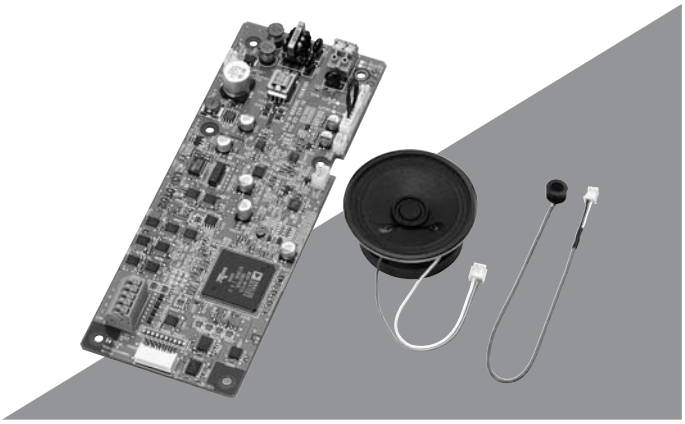



## SPECIFICATIONS

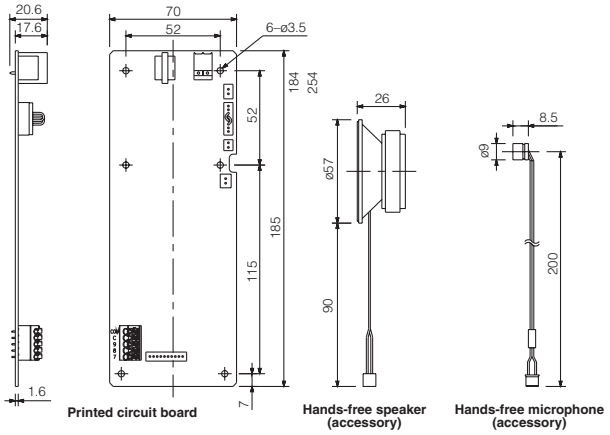
| Model No. | N-8540DS |
|---|---|
| Power Source | Power supply device that complies with IEEE802.3af standard or 12V DC (supplied from the AC adapter (option)) |
| Power Consumption | 4.2W (at rated), 6W (max.) |
| Speech Method | Hands-free conversation |
| Audio Frequency Range | 300 – 7,000Hz |
| Hands-free | Speaker: 3.5cm cone-type, 1W, 8 ohms<br>Mic.: Omni-directional electret condenser microphone |
| Contact Output | Open collector output, withstand voltage: Max. 30V DC, control current: 50mA, one shot: can be set from 1 to 9 sec, screw terminal (polarized) |
| Network Section | |
| Network I/F | 10BASE-T/100BASE-TX (Automatic-Negotiation) |
| Network Protocol | TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP |
| Audio Packet | Unicast, Multicast |
| Connector | RJ45 connector (PoE compatible) |
| Voice Sampling Frequency | 16kHz, 8kHz (controllable on the software) |
| Quantifying Bit Number | 16-bit |
| Voice Encoding Method | Sub-band ADPCM, Cryptosystem |
| Vice Packet Loss Recovery | Silence insertion |
| Audio Delay Time | 80ms, 320ms (controllable on the software) |
| Installation Method | Flush-mount/Surface-mount |
| Operating Temperature | –10°C 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 | Panel: Stainless steel (SUS304), hairline<br>Call button: Metal |
| Dimensions | 115 (W) × 162 (H) × 55.1 (D)mm |
| Weight | 700g |
| Accessory | Box mounting screw (No.6-32UNC × 18) × 4,<br>Box mounting screw (M4 × 25) × 4, Ferrite clamp × 1 |
| Option | AC adapter: AD-1210P, |
| Applicable Box (option) | For flush-mount: 3-gang electrical box or Back Box YC-150 |

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

# N-8031SB
## Hands-Free Master Station Board Unit



The N-8031SB is a printed circuit board unit for the N-8031MS Flush-mount Hands-Free Master Station. You can make the master station suitable for applications using the N-8031SB in combination with the operation panel section to be prepared separately.

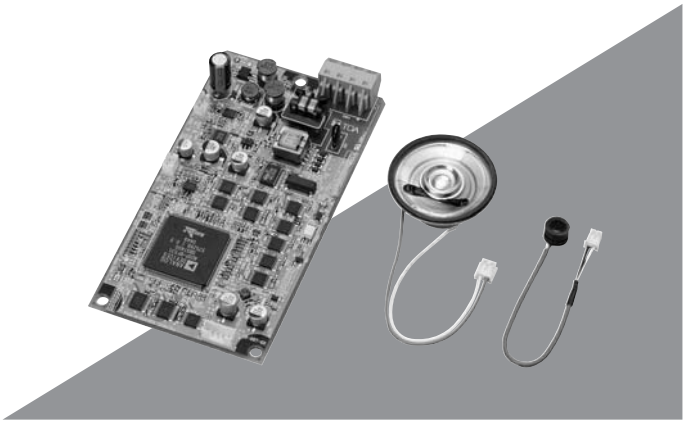



## SPECIFICATIONS

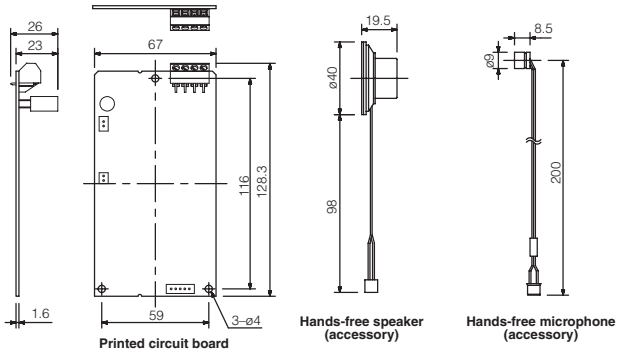
*0dB = 1V

| Model No. | N-8031SB |
|---|---|
| Power Source | 48V DC (supplied from the IP network intercom exchange (option)) |
| Power Consumption | 1.8W (rated), 2.4W (max.) |
| Wiring Method | Non-polar one pair stranded wire system |
| Transmission System | 2 wire 160kbps echo canceller transmission system |
| Signal Level | Under 0dB* |
| Speech Method | Hands-free conversation (Handset conversation can be established in conjunction with the RS-191(option)) |
| Audio Frequency Range | 300 – 7,000Hz |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) |
| Hands-free | Speaker: 0.6W, 8 ohms, 5.7cm cone-type,<br>Mic.: Omni-directional electret condenser microphone |
| Line Connecting Terminal | Pin header (2 pins) |
| Status Indicator LED Connecting Terminal | Solderless connector (2 pins, male), voltage: 5V, maximum load current: 5mA |
| Dial Input | Solderless connector (10 pins, male),<br>open voltage: 3.3V DC, short-circuit current: 1mA |
| External Dial Input | No-voltage make contact input, open voltage: 5V DC, short-circuit current: 1mA, screwless connector (5 pins) |
| Operating Temperature | 0°C to +40°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Dimensions | 70 (W) × 185 (H) × 20.6 (D)mm |
| Weight | 205g (including accessories) |
| Accessory | Removable terminal plug (2 pins, preinstalled on the unit) × 1,<br>Handset jumper (8 pins, preinstalled on the unit) × 1,<br>Ferrite clamp × 1,<br>Hands-free speaker (with connection cord) × 1<br>Hands-free microphone (with connection cord) × 1 |
| Option | Handset: RS-191 |

# N-8050SB
## Hands-Free Substation Board Unit



The N-8050SB is a printed circuit board unit for the N-8050DS Door Station. You can make the sub station suitable for applications using the N-8050SB in combination with the operation panel section to be prepared separately.




## SPECIFICATIONS

*0dB = 1V

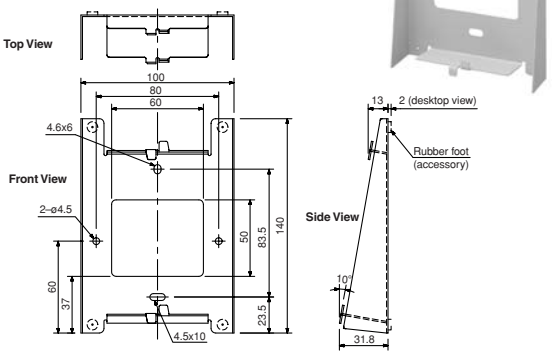
| Model No. | N-8050SB |
|---|---|
| Power Source | 48V DC (supplied from the IP network intercom exchange (option)) |
| Power Consumption | 1.8W (rated), 2.4W (max.) |
| Wiring Method | Non-polar one pair stranded wire system |
| Transmission System | 2 wire 160kbps echo canceller transmission system |
| Signal Level | Under 0dB* |
| Speech Method | Hands-free conversation |
| Audio Frequency Range | 300 – 7,000Hz |
| Transmission Range | Max. 1500m (ø0.65mm. Loop resistance 170 ohms) |
| Hands-free | Speaker: 1W, 8 ohms, 3.5cm cone-type,<br>Mic.: Omni-directional electret condenser microphone |
| Contact Output | Open collector output, withstand voltage: Max. 30V DC, control current: Max. 50mA, one shot: can be set from 1 to 9 sec, screw terminal (polarized) |
| Line Connecting Terminal | 2 wire, screw terminal (non-polar) |
| Status Indicator LED Connecting Terminal | Solderless connector (5 pins, male), voltage: 5V, maximum load current: 4.1mA |
| Call Button Connecting Terminal | Solderless connector (5 pins, male),<br>open voltage: 3.3V DC, short-circuit current: 1.5mA |
| Operating Temperature | –10°C to +50°C |
| Operating Humidity | Under 90% RH (no condensation) |
| Dimensions | 67 (W) × 128.3 (H) × 26 (D)mm |
| Weight | 100g (including accessories) |
| Accessory | Hands-free speaker (with connection cord) × 1<br>Hands-free microphone (with connection cord) × 1 |

# TERMINAL BOARD/BRACKETS/AC ADAPTER

## YC-280
### Wall Mounting Bracket

for N-8000MS, N-8010MS, N-8020MS and N-8500MS.

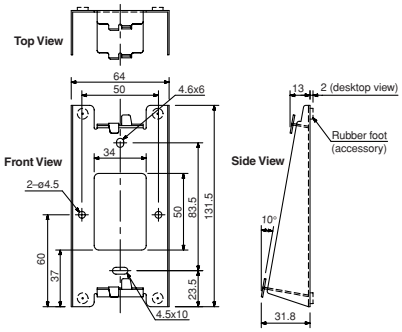





## YC-290
### Wall Mounting Bracket

for N-8011MS.





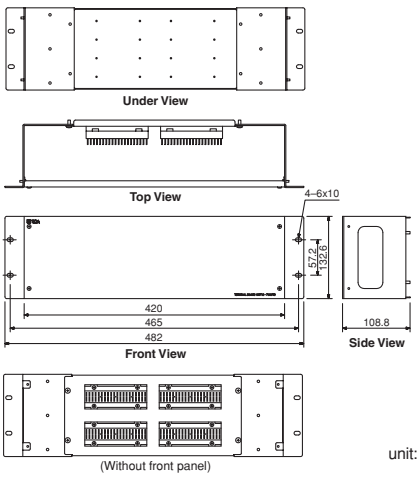

## AD-1210P (CE)/(CU)
### AC Adapter

for N-8500MS and N-8540DS.



## E-7000TB
### Terminal Board

The E-7000TB is Terminal Board for IP Network Intercom. It is used for a hookup between the exchange and the station, and allows connection of up to 40 lines.

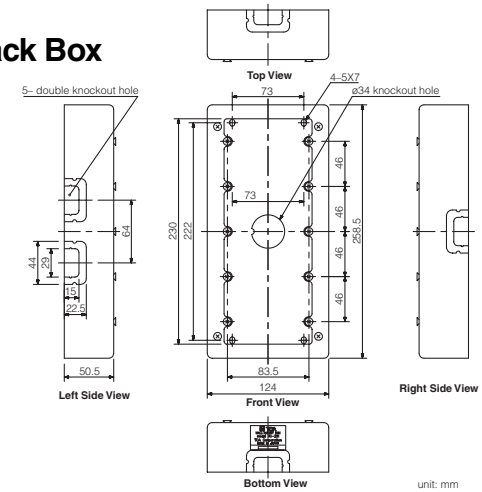



unit: mm

## YC-251
### Surface Mount Back Box

for N-8031MS.



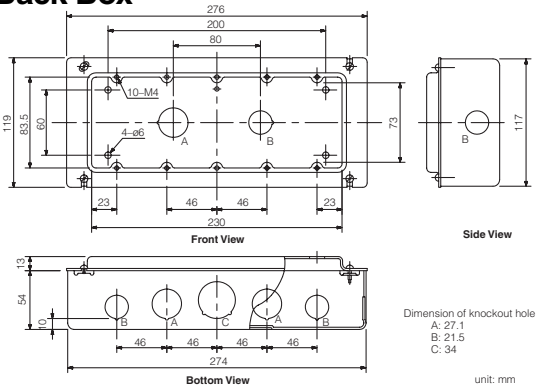



unit: mm

## YC-241
### Flush Mount Back Box

for N-8031MS.





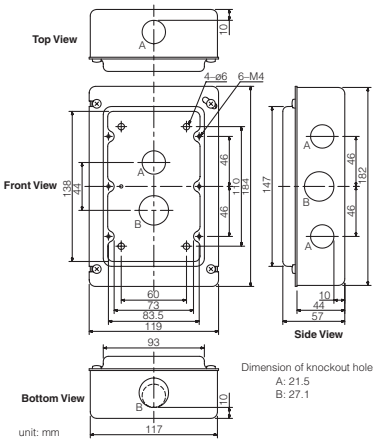

Dimension of knockout hole
A: 27.1
B: 21.5
C: 34

unit: mm

## YC-150
### Flush Mount Back Box

for N-8050DS and N-8540DS.





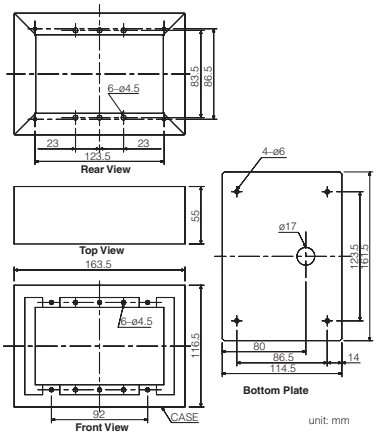

Dimension of knockout hole
A: 21.5
B: 27.1

unit: mm

## YS-13A
### Surface Mount Back Box

for N-8050DS and N-8540DS.






unit: mm

# SYSTEM FUNCTION TABLE

## Basic Functions

| Function | | Description |
|---|---|---|
| Conversation | Hands-free conversation | Permits conversations to be made without lifting the handset when another party is called or when a call is received in automatic connection mode. |
| | Handset conversation | Calls can be made or received by lifting the handset. |
| | PTT conversation | Pressing the PTT key during a hands-free conversation enables one-way conversation from the party who pressed the PTT key. Conversation flow is reversed when the key is released. This function makes announcements and conversations possible to areas with a high ambient noise level. |
| Call | Individual call | The desired party can be called by dialing its station number. |
| | Redialing | Pressing the Redial key automatically redials the last number called. Only Multifunctional Master Station permits selection from the most recent 10 numbers. |
| | Recall | The last conversation partner can be recalled by pressing the [#/▲] key regardless of whether the call was made or received. Only Multifunctional Master Station permits selection from the most recent 10 numbers. |
| | Voice calling | Holding down the PTT 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 PTT key is released. |
| | 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 connection mode settings. If any one of the stations within the group responds, calls to the other stations stop. |
| | Master call | The pre-programmed master station can be called by pressing the door station's call button. |
| Incoming Call Selection | Automatic connection | Incoming calls are automatically connected after a brief call tone (1 second) or without a call tone. |
| | 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 | Auto-dialing | The dial operation (up to 20-digit numbers) programmed into the station's auto dialer can be called by one-touch dialing. (Multifunctional Master station only) |
| | One-touch dialing | The dial operation (up to 20-digit numbers) programmed into the station's [7], [8], [9], [0] or off-hook keys can be called by one-touch dialing. |
| 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. |
| | 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. |
| 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. |
| 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. |
| | 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. |
| | Call forwarding | Calls to stations 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. |
| Remote Response | | Calls to a station can be answered by pressing the PTT key of another station, provided both stations are assigned to the same group. |
| 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. |
| Paging | Zone paging | Calls can be made to one of the pre-programmed zones. |
| | Paging | Calls can be made to up to 10 zones of the preprogrammed multiple zones. |
| | All-call paging | Calls can be made simultaneously to all of the preprogrammed zones. |
| Paging Response | Automatic response | Dialing the Paging Response key automatically initiates a response to the paging last received. |
| | Zone number response | Dialing the number assigned to paging response automatically initiates a response to a next-to-last paging. |
| Scan Monitor | | The station can scan an arbitrary group of pre-programmed stations for auditory monitoring. |
| Door Remote Control (Door Station only) | | Door station's contact output can be used to remotely control external equipment such as electronic lock. The contact output terminals can be shorted for a set period of time by the dial operation to perform this function from the master station engaged in conversation with the door station. |
| Time-out | | The duration of calls, conversations and paging can be limited by pre-programming time intervals (10 - 990 seconds) for individual exchanges or multi interface units. |
| Group blocking | | Arbitrary station groups (up to 31 groups) can be set to permit or disallow calls between groups. |
| Station Speaker Output Setting | | Permits adjustment of the station speaker sound volume. |
| Ambient Noise Control | | Automatically measures the ambient noise level of the station and sets the station for proper hands-free conversation. |

## Multi Interface Unit's Functions

| Function | | Description |
|---|---|---|
| External Input Paging | | Activating the control input after connecting the Remote microphone or playback components to the Multi interface unit enables broadcasting to the preprogrammed zone(s). |
| PBX connection | | If the Multi interface unit is connected to the PBX's E&M interface, call 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. |
| 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 staions connected to the tie-lined excanges. |
| BGM | | Connecting playback components to the Multi interface unit premits Background music selectable from up to 8 programs to be heard from each station speaker while in standby mode. |
| External Equipment Control | One-shot make output | External equipment can be controlled by momentarily colsing the Multi interface unit's corresponding contact through operation of the station. |
| | Make/break output | External equipment can be controlled by closing or opening the Multi interface unit's corresponding contact through operation of the station. |
| Calling Station Indication/CCTV Interlock | | Closing the Multi interface unit's contact in synchroization with calls received enables calling station indication or CCTV system control. |
| Door Remote Control | | Control of such external equipment as electronic locks can be performed by momentarily closing the Multi interface unit's corresponding contact through operation of the station. Operatin the door remote control function at the station in conversation mode closes the Multi interface unit's preset contact output terminal for a specified period of time. |
| Contact Bridge | | Closes the Multi interface unit's output contact terminal when the input contact terminal is closed. |
| Paging Busy Input | | Notifies the busy status of connected external PA paging equipment. |

# SYSTEM SETTING ITEMS

### General System

| Item | Setting from software | Setting from browser | Setting from station |
|---|---|---|---|
| Contents | ● | — | — |
| Equipment number | ● | — | — |
| Equipment name | ● | ● | — |
| Station number digit | ● | — | — |
| Station number | ● | — | ●*1 |
| Station name | ● | — | — |
| Network communications ON or OFF between exchanges | ● | — | — |
| Multicast communications ON or OFF between exchanges | ● | — | — |

### Network setting

| Item | Setting from software | Setting from browser | Setting from station |
|---|---|---|---|
| IP address*2 | ● | ● | ●*1 |
| Subnet Mask*2 | ● | ● | ●*1 |
| Default Gateway*2 | ● | ● | ●*1 |
| Web server port number | ● | ● | — |
| TCP start port number | ● | — | — |
| UDP start port number | ● | — | — |
| Multicast port number | ● | — | — |
| NAPT compatible | ● | — | — |
| Network ID | ● | — | — |
| WAN IP address | ● | — | — |
| WAN Web server port number | ● | — | — |
| WAN TCP start port number | ● | — | — |
| WAN UDP start port number | ● | — | — |
| Broadcast specification | ● | — | — |
| Communication capacity | ● | — | — |

*1 Settings can only be performed from Multifunctional Master station.
*2 Be sure to set this since settings and conversations are performed via a network.

### Sampling frequency correction

| Item | Setting from software | Setting from browser | Setting from station |
|---|---|---|---|
| Sampling frequency correction | ● | — | — |
| Transmitted party IP address | ● | — | — |
| Transmitted party port number | ● | — | — |
| Recipient party IP address | ● | — | — |
| Reception multicast ON/OFF | ● | — | — |
| Reception multicast address | ● | — | — |

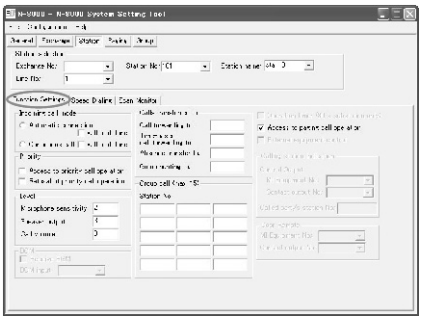
### Function settings

| Item | Setting from software | Setting from browser | Setting from station |
|---|---|---|---|
| Call forwarding function | ● | — | — |
| Time-based call forwrding function | ● | — | — |
| Time-based call forwarding start time | ● | — | — |
| Time-based call forwarding end time | ● | — | — |
| Group hunting function | ● | — | — |
| Absence transfer function | ● | — | — |
| Absence transfer call duration | ● | — | — |
| Oneshot make time | ● | — | — |
| Call time-out | ● | — | — |
| Convarsation time-out | ● | — | — |
| Paging time-out | ● | — | — |
| Paging response mode | ● | — | — |
| Paging priority mode | ● | — | — |
| Calling party indication | ● | — | — |
| BGM input | ● | — | — |

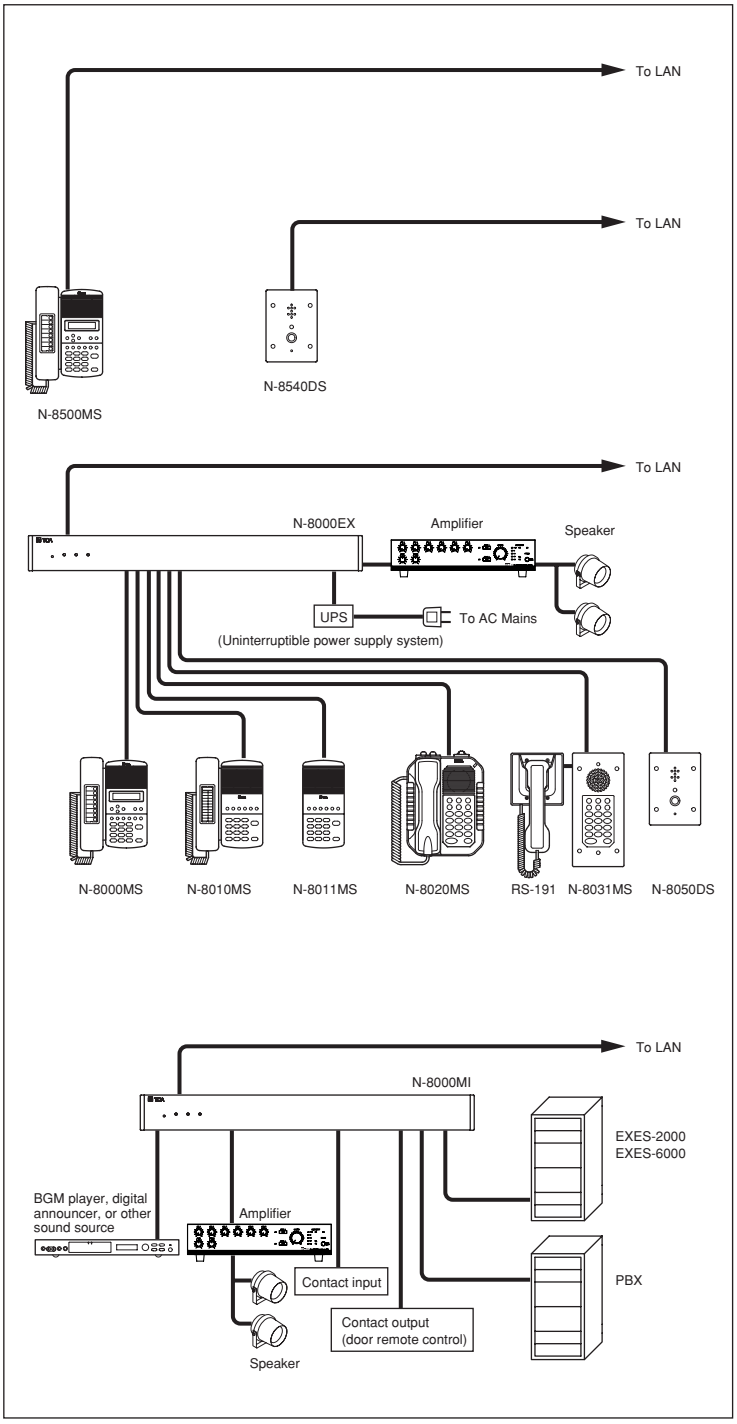
## N-8000MI COMBINATION PATTERN

| I/F type | 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 output | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Contact input | ● | ● | ● | ● | ● | ● | ● | ● | ● |

## PC WINDOW EXAMPLE



## SYSTEM CONFIGURATION EXAMPLE




## SYSTEM SPECIFICATIONS

| | |
|---|---|
| **Number of Units** | |
| **Connectable to LAN** | Max. 80 (a total of Exchanges, Multi interface units and IP stations) |
| **Line Capacity** | Max. 1,280 (80 Exchanges x 16 stations per exchange) |
| **Speech Link Capacity** | Max. 320 (when 80 N-8000EX Exchanges connected ) |
| **In a Exchange (Internal)** | N-8000EX: 4 links<br>N-8010EX: 1 link |
| **Exchange to Exchange (External)** | N-8000EX: 8 links<br>N-8010EX: 2 links<br>N-8000MI: 2 links<br>Speech: Max. 2<br>Audio input: Max. 2<br>Audio output: Max. 2<br>N-8500MS: 1 link<br>N-8540DS: 1 link |
| **Paging** | |
| **Number of Zones** | Max. 160 |
| **PA Paging Output** | Max. 160 (when 80 Exchanges or Multi interface units connected)<br>N-8000EX: 2 outputs<br>N-8000MI: 2 outputs |
| **Simultaneous Operation Capacity** | N-8000EX: Multicast paging: Max. 4 links<br>Unicast paging: 1 link<br>N-8010EX: Multicast paging: Max. 2 links<br>Unicast paging: 1 link<br>N-8000MI: Multicast paging: Max. 2 links<br>Unicast paging: 1 link<br>N-8500MS: Multicast paging: Max. 1 links<br>Unicast paging: 1 link |
| **Paging Destinations Via Network** | Max. 79 (multicast paging)<br>Max. 16 (unicast paging) |
| **BGM Input** | Max. 8 channels (number of inputs per exchange) |
| **PBX Interface** | Max. 160 (when 80 Multi interface units are connected) |
| **Tie-line Interface** | Max. 160 (when 80 Multi interface units are connected) |
| **External Contact Output** | Max. 1,280 (when 80 Multi interface units are connected) |
| **External Contact Input** | Max. 1,280 (when 80 Multi 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** | Max. 1 second (when multicast paging is made to 79 destinations) |
| **Usage Bandwidth** | Max. 2.08 Mbps (one way)/when unicast paging is made to 16 destinations<br>Max. 130 kbps (two-way)/one call |


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Specifications are subject to change without notice.
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