TOA

IP INTERCOM SYSTEM

Architectural and Engineering Specifications

General

Conditions and Requirements

Manufacturer

The manufacturer shall have been in the business of manufacturing microprocessor-based communication systems for more than thirty years, and shall provide a minimum of ___ years limited warranty to the authorized installing dealer.

Contractor

The contractor shall only submit products for which they are factory authorized to sell, install and service. The contractor shall furnish all equipment, accessories and material. This shall be done in strict accordance with specifications and applicable drawings as required for a complete and working solid state microprocessor based intercom system. All material and /or equipment necessary for proper operation of the system not specified or described herein shall be deemed part of the specifications.

Qualifications

Any system substitution proposed as an equal to that herein specified shall be proven to be such by the contractor. The contractor shall send the name and model numbers of substitute equipment and material together with three copies of specifications and dimensional drawings to the architect no less than ___ days prior to the bid date. The contractor shall obtain the Architect's approval in writing, by addendum, prior to bid date.

Standard Products

The equipment furnished under this specification shall be equal in every way to that manufactured by TOA Corporation. Catalog and model numbers are intended to indicate type and quality of design and material, as well as exact operating features. All equipment shall be designed by the manufacturer to operate as a complete system, and shall be accompanied by the manufacturer's complete installation and operating instructions. Contractor shall provide drawings showing all system inter-connections.

Service Facilities

The contractor shall make available to the purchaser a local service agent for the manufacturer's equipment. This service agent shall stock the manufacturer's parts and shall provide maintenance during normal working hours at no cost to the purchaser for the warranty period of ____ years. Damage caused by misuse, abuse or accident is exempt from this warranty. On-site service provided outside of normal working hours shall be made available at the prevailing overtime labor rate.

System Features

General

The system shall be an IP network-compatible intercom system that employs packet audio technology. It shall be capable of connecting exchanges, IP stations and various interface units to a local area network (LAN), wide area network (WAN) or fiber-optic network. The system shall be designed to allow duplex conversations between stations, paging broadcasts, set time broadcasts, background music broadcasts, etc.. An assortment of up to a total of 192 exchanges, IP stations and various interface units shall be capable of being connected per system, with the use of 192 exchanges allowing the construction of a system having up to 3,072 stations. The system shall feature an echo cancelling function that prevents acoustic feedback and echo in order to make possible full-duplex hands-free conversations between stations. Additionally, the use of IP stations shall allow the construction of systems that can operate without an exchange. Centralized control of the system shall be possible using a PC with dedicated TOA software installed.

System Programming

System programming shall be accessible by the contractor, or the end user, to allow restructuring of the system as needed. System programming shall be accessible from a Windows PC computer on the same Ethernet network as the intercom exchange, running the dedicated setup software. Setup software shall be protected by a password. Stations that can be connected directly to the network shall be accompanied by the system's dedicated CD-ROM software (door stations excepted). Limited programming features shall be available through a web browser running on the same IP network as the intercom exchange. Settings via the browser shall enable users to change network settings, to know the current operation status and line status and to view operation and stream logs. (Recommended browsers: Internet Explorer 6/Internet Explorer 7/Internet Explorer 8)

Dialing
Dialing a station number of two to six digits in length shall establish an immediate communications link between two stations within a system. The number of dialing digits shall be established using the system setup software.

Station Numbering and Naming
It shall be possible to assign or change station numbers and alphanumeric names via the setup software. A simple programming sequence shall be used without the need to open, disable or disassemble the system hardware.

Reception Mode
In this system either of the following two reception modes shall be selectable

Sequential Response (Master-to-Master System)
This method shall mainly be used by master stations and suitable for “Master-to-Master” systems that enable free calling. Its main applications shall include communication and paging, and responses to calls shall be made on a first-come-first-served basis.

Selective Response (Master-to-Sub System)
This method shall mainly be used by substations or door stations and shall be suitable for “Master-to-Sub” systems in which many substations call a master station.

Call from Substations
Pressing the substation’s call button shall call up the preprogrammed master station or analog telephone connected to the Telephone Interface unit.

Emergency Calls
The door station and substation shall allow emergency calls to be made by performing emergency call-up operation (i.e. pressing the call button twice in quick succession). The master station receiving the emergency call shall sound an emergency call tone and provide an emergency call display.

Selective Response
When the master station simultaneously receives two or more calls from stations, the user shall be able to freely select the call to respond to.

Priority Calls
Five different priority levels shall be capable of being assigned to door stations and substations, and calls from such stations shall be displayed on the called master station in order of such priority.

Standard Features (No Programming Required)

Automatic Line Release
The system shall release the speech path if dialing is not completed within five seconds.

Camp on Busy
A calling party shall be able to wait or “camp-on” if the called station is busy. Once the called party becomes available, the camped-on party shall be automatically connected.

Push to Talk and Release to Listen
One way conversation shall be available by using the PUSH-TO-TALK key. Releasing the PUSH-TO-TALK key shall reverse the one way conversation. The PUSH-TO-TALK key shall have precedence over the voice switched mode.

Mic-Off
A master station’s microphone shall be mutable during conversation. This function shall hold a call in progress without interruption and without forcing the user to re-establish the call.

Auto-Dialing (Single Digit Dialing)
The multifunctional master station shall have the ability to enable preprogrammed Auto Dial key operation of up to 20 digits with the touch of a single button.

Redial
A master station shall be able to redial the last station called by pressing the redial key.

Recall
A master station shall be able to redial the last conversation partner by pressing a designated key.

Call Transfer
Pressing the Transfer Key shall make it possible to place an in-progress conversation on hold and call a third party for discussion. After the discussion is completed, the original conversation shall be capable of being restored or the original conversation switched to a conversation between the third party and the original conversation partner.

Three-Party Conferences
Full-duplex conversations shall be possible among three parties using station handsets.

Ambient Noise Control
Ambient noise levels shall be automatically calibrated to enable correct hands-free conversations when power is supplied to the exchange and when a call is established between stations.

It shall be possible to re-calibrate ambient noise levels if hands-free conversation cannot be properly carried out.

Privacy Function
When enabled at the Switch Panel, this function shall permit the user to refuse any incoming calls other than emergency all-call pages.

Selectable Features (Enabled Through Programming)

Paging and Response

Select Paging Group (Zone)

Up to 192 groups (zones) shall be pre-programmable using the setup software.

Group Paging (Zone paging)

Only one group (zone) shall be selected for paging.

Selective Paging

This function allows paging to up to 10 groups (zones).

All-Call Paging

This function shall allow simultaneous paging to all programmed paging groups (zones).

Emergency All-Group Paging

This function shall terminate all concurrent conversations, paging and other ongoing operations, allowing all stations and units designated as paging output destinations to be simultaneously paged.

Message Paging

Emergency communications systems that allow broadcasts of prerecorded emergency messages shall be capable of being created with the use of the IP Master Stations.

Prerecorded emergency message broadcasts shall interrupt all conversations and paging currently in progress at the preselected stations to allow the emergency page to go through.

The emergency broadcast shall be terminated when the IP Master Station's Clear key is pressed or when the broadcast exceeds the preprogrammed number of repetitions (up to 10 times).

It shall also be made possible to close the corresponding Interface Unit's contact output in synchronization with the activation of the emergency message broadcast.

Paging Methods

Station Paging

Paging of individual stations shall be possible. However, only IP stations shall be capable of being preprogrammed by the setting software for precedence priority when pages and normal calls are simultaneously received.

PA Paging by Way of External PA Equipment

This function shall allow paging to be initiated through PA equipment connected to the exchange's paging output terminals or the multi-interface or audio interface unit's audio output terminals.

External Input Paging

This function shall allow audio or music from externally connected equipment to be broadcast by way of the multi-interface and audio interface units.

Station Paging Reception Mode

If a paged party dials a paging response number at a nearby station, that party shall then be directly connected to the station where the page initiated.

One-Touch Dialing

A master station shall have the ability to dial up to 32 digits by the touch of one button. Then simply pressing an abbreviated number shall enable dial operations such as paging activation and call transfer.

Unanswered Calls

No-Answer Call

When a call is received at a station programmed for "No-Answer Call Forwarding," if no response is made for a specified period of time, the call shall be automatically transferred to another pre-designated station.

Busy Call

When the designated station to which a call was transferred is busy, the call shall be automatically transferred to the next designated station, and this shall continue in series until a free line is found.

Call Forwarding

When a call is received at a station programmed for "Call Forwarding," the call shall be automatically transferred to another pre-designated station without sounding a call tone. Either of the two following modes for placing the station in call forwarding mode shall be selectable:

One that instantly sets the station for the call forwarding mode by manually designating the station to which a call is to be transferred.

One in which the station is automatically placed in the call forwarding mode when the pre-programmed time is reached.

Continuous Calling Tone – One Touch Response (When in Sequential response mode)

A master station, programmed for continuous calling tone, shall be able to answer a call by touching any numeric key.

Continuous Calling Tone – Handset Response

A master station, programmed for continuous calling tone, shall be able to answer a call by lifting the handset. Handset conversations shall be full duplex.

Dial Operation

The following selections shall be made possible to determine dialing sequences for station dialing and paging response.

- Station dialing numbers shall be independent of connected exchange number or other hardware configuration. Station numbering shall be programmable as two to six digits in length.
- Paging zone numbering shall be programmable as single, double or triple digit.
- Paging response shall be accomplished by pressing the paging response key or by pressing the paging response key plus the zone number.

Group Blocking

The system shall support the inclusion of stations into any of 31 groups. These groups shall be prohibited from calling or paging each other unless specifically allowed via system programming.

Group Remote Response

The system shall support remote response groups. This feature shall enable stations so programmed to respond to calls to any station within the same remote response group

Scan Monitor
The system shall support scan monitor groups. Each master station shall be able to select any one of up to four arbitrary groups of up to 16 preprogrammed stations per group for auditory monitoring. Setup Software shall allow the pre-programming of member stations and scan sequence for each scan monitor group and time interval for automatic scanning. The master station shall be able to select which group to scan and shall have the ability to pause the automatic scan sequence, manually step through the sequence forward and backward, and restart the automatic scan sequence. Pressing the PTT key during scan monitor shall activate a speech path from the master station to the monitored station.

Executive Priority
When a called party is busy, the caller shall be able to interrupt the conversation. The original call shall be terminated once the new conversation is established. This function shall be selectable on a per station basis via the programming master station.

Programmable Station Numbers
Station dialing numbers shall be programmable and shall be independent of connected exchange number or other hardware configuration. Any number having the pre-selected number of digits (2-6), and not duplicated in the system, shall be usable.

Restricted Access
Stations with access to All-Call Paging and Group Paging (Zone Paging) shall be capable of being limited.

Time-Out of Conversation, Paging, or Unanswered Call
Time-out settings shall be available, per exchange, to optionally and independently limit the duration of conversations, paging announcements, and unanswered calls. The available settings shall range from 10 to 999 seconds in 10 second increments.

Annunciation

Dry Contact Closures
The system shall provide dry contact closures that can be controlled from the Master Stations, or activated upon call-in by designated master stations or sub-stations, for use in driving custom annunciator panels indicating calling party or hospital waiting status, to trigger CCTV camera call up, or other custom functions. User shall have the choice of one-shot make or latching make/break operation when controlling the contact closures manually. Install the multi-interface unit(s) or the direct select unit(s) as required.

Open Collector Outputs
The system shall provide open collector outputs at designated master stations for use in triggering annunciator lamps or related equipment to indicate a call incoming and in-use status. Install the industrial-use master station(s) as required.

Door Control

Dry Contact Closures
The system shall provide dry contact closures that can be controlled from the master stations for use in door remote control or other custom functions. User shall have the choice of one-shot make or latching make/break operation. Duration of one-shot make closure shall be software programmable from 1 to 9 seconds. Install the multi-interface unit(s) or the direct select unit(s) as required.

Open Collector Outputs
The system shall provide open collector outputs at designated door stations for use in door remote control or other custom functions. Duration of door trigger shall be software programmable from 1 to 9 seconds. Install N-8050DS/N-8540DS door station(s) as required.

BGM
The system shall allow connection of up to eight BGM sources, and assigned master stations/door stations shall be able to access any of these sources. Install multi-interface unit(s) as required.

External Audio Source Distribution
If playback equipment or remote microphones connected to the multi-interface and audio interface units are activated from the control input, paging shall be capable of being made over pre-programmed paging zones.

PBX Interface
Connecting the multi-interface unit to the PBX's OD trunk shall allow calls or conversations between the N-8000 system's stations and PBX extension telephones or paging from the PBX extension telephones.

External Equipment Control
(1) External equipment control: Shall allow control of externally connected equipment by way of the multi interface unit or direct select unit in synchronization with conversations or through station operation.

(2) Remote Dialing: If the multi interface unit's or direct select unit's contact input is closed, the calling station automatically dials the pre-programmed station.

(3) Contact bridge function (external contact synchronization): Shall allow transmission of contact signals by way of the network.

(4) Paging busy input: If the intercom system is designed to synchronize with a large broadcast system, like those installed in airports, the intercom system shall be capable of receiving busy status data from the higher level system, ensuring that important announcements can be transmitted correctly.

(5) System diagnosis: Multi-interface unit or direct select unit shall diagnose the exchange's line status and the network status of the connected equipment, and provide its results at the contact output terminal as open or closed contact.

(6) Direct select (selective response mode only): By assigning each channel of the Direct Select unit's contact inputs and outputs to the master station and other stations, calls to desired parties shall be able to be made and calls from other parties shall be able to be responded to with the use of an operation panel switch, etc.

(7) Synchronization with the calling party indication/CCTV.

Time Signal
External sound sources or those built into the audio interface unit shall be capable of being broadcast according to preset schedules.

Audio Trigger
If audio input to a pre-programmed door station's microphone meets set conditions (detection time or signal level), the door station shall initiate alarm operation (making a call to the designated master station).

Time Correction
Clocks of all equipment connected to the system shall be capable of being synchronized with the programmed master clock.

Calling Outside Line Telephones
The use of the C/O line interface unit shall allow calls to be made from master/door stations and substations to outside line telephones.

Calls from an Outside Line Telephones
There shall be two modes for receiving calls from an outside line telephone: Direct-in Line and Direct-in Dialing.
Direct-In Line: Mode for calling up to four pre-designated stations.
Direct-In Dialing: Mode for calling a desired station by dialing that station number.

Absent Transfer to Outside Line Telephones
Outside line telephones shall be capable of being designated as Master Stations absent call transfer destinations.

Paging from Outside Line Telephones
Paging from outside line telephones to intercom stations shall be possible if the group number is dialed by the telephone via the C/O line interface unit.

Scan Monitoring from Outside Line Telephones
Outside line telephones (the transmitting party) shall be capable of scan-monitoring the intercom station by dialing the number for scan monitor operation via the C/O line interface unit.

External Equipment Control from Outside Line Telephones
If an outside line telephone (the transmitting party) dials a number specified for external equipment control after the C/O line interface unit has automatically responded to the call received from the outside line telephone, this shall have the ability to control the contact output of the multi-interface unit, direct select unit and door station.

C/O Line Interface Unit Control Password
It shall be possible to use a password to prevent any outside line telephone from freely accessing the scan monitor or external equipment control functions via the C/O line interface unit.

Door Remote Control
This function shall make it possible for when the master station engaged in ongoing conversation with a door station to easily execute door lock control through a contact output.

Recording
A recording device connected to the audio interface unit shall be capable of recording the conversations and paging calls of master stations, intercom telephones, and outside line telephones.

Automatic Daylight Saving Time Correction
The system shall allow all clocks to be automatically reset at the preprogrammed times and dates of the start and end of daylight saving time.

System Configuration and Components

General

System Size

- Maximum 192 units connectable to LAN
- Maximum 3,072 stations in a system
- Maximum number of links :768 units (96 units when IP stations)
- Maximum 192 paging zones
- Maximum 384 PA paging zones by way of external PA equipment

Selectable Wiring System

3 types of exchanges

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 shall be 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 IP station can be operated on its own without being connected to any exchanges.

There shall be five types of interface units as shown below:

- Multi-interface unit
- Audio interface unit
- Direct select unit
- C/O interface unit
- Telephone interface unit

Connection of External Equipment

The Multi-Interface unit shall have 2 channels each for audio input and output, and 16 contacts each for control input and output. The unit shall enable tie-line connection with TOA EXES-6000 and EXES-2000 intercom systems and shall connect with PBX via the analog E&M interface. The Multi-Interface Unit shall serve as PA paging interface by connecting with PA equipment. The unit shall allow external inputs such as music player or paging to be broadcast with/without remote control function. The unit shall have the interface function that enables external broadcast by connecting a paging microphone or a playing device without a Remote Control function. The unit shall control an indicator or external equipment such as a CCTV's switcher using relay contacts. The interface unit shall have the function that enables Direct Select, Calling Station Display and Remote Dialing functions for designated Master Stations using contact input and output. The unit shall have the function to diagnose system line and network statuses and transmit the diagnosed result.

The Audio Interface Unit shall support 1 audio input and output, a time synchronization contact input, and each 8 contact inputs and outputs. The unit shall serve as PA paging interface by connecting with PA equipment. External inputs such as music player (chime unit) or paging shall be broadcast. The Time Signal function shall enable the unit 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 unit’s audio output and transmitting it to the recorder activated when its contact output terminal is closed.

The Direct Select Unit shall have 32 contacts each for control input and output. The unit shall control an indicator or external equipment such as a CCTV's switcher using relay contacts. It shall have the function that enables Direct Select, Calling Station Display and Remote dialing functions for designated Master Stations using contact input and output. The unit shall have the function to diagnose system line and network statuses and transmit the diagnosed result.

The C/O Interface Unit shall have one analog outside line circuit and connect to the outside line.

The Telephone Interface Unit shall have one outside line connection circuit and allow an analog telephone to be operated in the same manner as the intercom master station.

Wiring

A single non-polar twisted-pair cable shall be used for connection of stations to the exchange.

Two-core shielded cables or four wires (two-polarized, twisted cables) shall be used for connection of Substations to the Substation connection unit.

Service Distance

The system master stations and sub-stations shall remain fully functional using the following wire gauge and distances:

- Master and door stations to Exchange
  26 gauge / 570 m (1,870 ft), 24 gauge / 900 m (2,950 ft), 22 gauge / 1.5 km (4,920 ft), 19 gauge / 2.9 km (9,500 ft)
- Sub-stations to sub-station interface unit (2-core shielded system)
  24 gauge / 500 m (1,640 ft), 22 gauge / 800 m (2,625 ft), 19 gauge / 1.3 km (4,265 ft)
- Sub-stations to sub station interface unit (4-wire system)
  24 gauge / 1 km (3,281 ft), 22 gauge / 1,5 km (4,921 ft), 19 gauge / 2 km (6,562 ft)

N-8000EX
IP Network Intercom Exchange

The IP Network Intercom Exchange uses packet audio technology to permit connection of up to sixteen N-8000 Series stations, and features two outputs for public address paging. Simultaneous hands-free conversation is possible between stations. Moreover, the exchange is equipped with a networking interface, allowing up to 192 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

Power Source	(CE): 230V AC, 50/60Hz/(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)
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 Control: 2 channels, no-voltage make contact output (24V DC/0.5A), removable terminal block
Connecting Terminal	Dedicated connector
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-Negotiation)
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Simultaneous paging to up to 16 zones) Multicast (Simultaneous paging to up to 191 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 LNK/ACT indication, Status Lamp, Power-on indication lamp
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 44.3 (H) × 356 (D)mm (16.54" × 1.74" × 14.02")
Weight	4.1kg (9.04 lb)
Accessory	AC power cord (2m (6.56 ft)) × 1, CD (for PC setting, maintenance use) × 1, Removable terminal plug (4P) × 2, Mini-clamp plug (2P) × 20, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for rack mounting × 4, Wall mounting bracket × 2, Screw for mounting bracket × 8, Screw for wall mounting × 4

*0dB = 1V

N-8010EX
IP Network Intercom Exchange

The IP Network Intercom Exchange uses packet audio technology to permit connection of up to sixteen N-8000 Series stations.
Simultaneous hands-free conversation is possible between stations. Moreover, the exchange is equipped with a networking interface, allowing up to 192 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

Power Source	(CE): 230V AC, 50/60Hz/(CU): 120V AC, 50/60Hz
Power Consumption	50W (at rated), 75W (max.)
Type of Speech Path	Space sharing/Time Space sharing
Speech Link	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	Station paging only
Connecting Terminal	Dedicated connector
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-Negotiation)
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Simultaneous paging to up to 16 zones) Multicast (Simultaneous paging to up to 191 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 (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 44.3 (H) × 349 (D)mm (16.54" × 1.74" × 13.75")
Weight	4.2kg (9.26 lb)
Accessory	AC power cord (2m (6.56 ft)) × 1, CD (for PC setting, maintenance use) × 1, Removable terminal plug (2P) × 20, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for rack mounting × 4, Wall mounting bracket × 2, Screw for mounting bracket × 8, Screw for wall mounting × 4

*0dB = 1V

N-8000RS
Sub-Station Interface Unit

The N-8000RS is a Sub-station interface unit designed for use with TOA's packet intercom system (IP network-compatible intercom system) that employs the packet audio technology.
Up to 16 sub-stations can be connected using 2-core shielded cables.
Connecting the unit to the LAN permits the sub-station to make calls to the Master stations and receive calls and paging calls through the IP intercom exchange.
It can be mounted in an EIA equipment rack (1U size) with the use an accessory rack mounting bracket or installed on a wall using an optional wall mounting bracket.

Specifications

Power Source	(CE): 220 – 240V AC, 50/60Hz/(CU): 120V AC, 50/60Hz
Power Consumption	(CE): 40W(at rated), 50W(max.)/(CU): 35W(at rated), 45W(max.)
Interface Section for Sub-station	
Number of Lines	16 lines
Number of Speech Link	2 links
Transmission System	Analog baseband
Transmission Range	500m (546.81 yd)/ø0.5mm (AWG24), 800m (874.89 yd)/ ø0.65mm (AWG21), 1300m (1421.7 yd)/ø0.9mm (AWG19)
Speech Method	Half-duplex conversation by way of voice switch, Half duplex conversation through PTT operation on the master station
Connector	Removable terminal block (3 pins)
Wiring Method	Two-core shielded cable
Audio Output	Conversation: Max. 1W, Paging: Max. 0.5W/line
Feeding Voltage/current	22V DC, 30mA max.
Control Signal	Call in button detection, privacy button detection, hook detection
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation) Auto MDI/MDI-X compatible
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Speech: 2 links, Paging Max. 8 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 LNK/ACT indication, Status Lamp, Power-on indication lamp
Other	Firmware update function, System data hold function, Reset switch (front panel)
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 44.3 (H) × 325.5 (D)mm (16.54" × 1.74" × 12.81")
Weight	3.9kg (8.6 lb)
Accessory	Power cord (2m (6.56 ft)) × 1, CD (for PC setting, maintenance use) × 1, Removable terminal plug (3 pins) × 16, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for mounting bracket × 8, Screw for rack mounting × 4
Option	Wall mounting bracket: YC-850

N-8010RS
Sub Station Interface Unit

The N-8010RS is a Sub-station interface unit designed for use with TOA's packet intercom system (IP network-compatible intercom system) that employs the packet audio technology.
Up to 16 sub-stations can be connected using 2-core shielded cables.
The number of LAN-connected N-8000 system component such as the N-8010RS and IP intercom exchanges is 192 maximum in total.
Connecting the unit to the LAN permits the sub-station to make calls to the Master station and receive calls and paging calls through the IP intercom exchange.
It can be mounted in an EIA equipment rack (1U size) with the use an accessory rack mounting bracket or installed on a wall using an optional wall mounting bracket.

Specifications

Power Source	(CE): 220 – 240V AC, 50/60Hz/(CU): 120V AC, 50/60Hz
Power Consumption	(CE): 32W(at rated), 38W(max.)/(CU): 26W(at rated), 32W(max.)
Interface Section for Sub-station	
Number of Lines	16 lines
Number of Speech Link	1 link
Transmission System	Analog baseband
Transmission Range	500m (546.81 yd)/ø0.5mm (AWG24), 800m (874.89 yd)/ ø0.65mm (AWG21), 1300m (1421.7 yd)/ø0.9mm (AWG19)
Speech Method	Half-duplex conversation by way of voice switch, Half duplex conversation through PTT operation on the master station
Connector	Removable terminal block (3 pins)
Wiring Method	Two-core shielded cable
Audio Output	Conversation: Max. 1W, Paging: Max. 0.5W/line
Feeding Voltage/current	22V DC, 30mA max.
Control Signal	Call in button detection, privacy button detection, hook detection
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation) Auto MDI/MDI-X compatible
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Speech: 1 link)
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 LNK/ACT indication, Status Lamp, Power-on indication lamp
Other	Firmware update function, System data hold function, Reset switch (front panel)
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 44.3 (H) × 325.5 (D)mm (16.54" × 1.74" × 12.81")
Weight	3.8kg (8.38 lb)
Accessory	Power cord (2m (6.56 ft)) × 1, CD (for PC setting, maintenance use) × 1, Removable terminal plug (3 pins) × 16, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for mounting bracket × 8, Screw for rack mounting × 4
Option	Wall mounting bracket: YC-850

N-8400RS
Sub Station Interface Unit

The N-8400RS is a Sub-station interface unit designed for use with TOA's packet intercom system (IP network-compatible intercom system) that employs the packet audio technology.
Up to 16 sub-stations can be connected using 2 sets of twisted pair cables.
The number of LAN-connected N-8000 system component such as the N-8400RS and IP intercom exchanges is 192 maximum in total.
Connecting the unit to the LAN permits the sub-station to make calls to the Master stations and receive calls and paging calls through the IP intercom exchange.
It can be mounted in an EIA equipment rack (1U size) with the use an accessory rack mounting bracket or installed on a wall using an optional wall mounting bracket.

Specifications

Power Source	(CE): 220 – 240V AC, 50/60Hz/(CU): 120V AC, 50/60Hz
Power Consumption	(CE): 35W (at rated), 50W(max.)/(CU): 30W(at rated), 45W(max.)
Interface Section for Sub-station	
Number of Lines	16 lines
Number of Speech Link	2 links
Transmission System	Analog baseband
Transmission Range	1km (1094 yd)/ø0.5mm (AWG24), 1.5km (1640 yd)/ ø0.65mm (AWG21), 2km (2189 yd)/ø0.9mm (AWG19)
Speech Method	Half-duplex conversation by way of voice switch (hands-free), Full-duplex (Handset) Half-duplex conversation through PTT operation on the master station
Connector	Removable terminal block (4 pins)
Wiring Method	2 sets of twisted pair cables
Audio Output	Conversation: Max. 1W, Paging: Max. 0.5W/line
Feeding Voltage/current	24V DC, 30mA max.
Control Signal	Call in button detection, hook detection
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation) Auto MDI/MDI-X compatible
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Speech: 2 links)
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 LNK/ACT indication, Status Lamp, Power-on indication lamp
Other	Firmware update function, System data hold function, Reset switch (front panel)
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 44.3 (H) × 325.5 (D)mm (16.54" × 1.74" × 12.81")
Weight	4kg (8.82 lb)
Accessory	Power cord (2m (6.56 ft)) × 1, CD (for PC setting, maintenance use) × 1, Removable terminal plug (4 pins) × 16, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for mounting bracket × 8, Screw for rack mounting × 4
Option	Wall mounting bracket: YC-850

N-8000MI
Multi Interface Unit

The N-8000MI Multi-Interface Unit allow the connection of up to 2 audio (BGM) input sources, up to 2 audio output lines, up to 2 inter-system tie-lines for expansion of existing EXES-6000 and EXES-2000 intercom systems, or up to 2 PBX interface connections. The N-8000MI also allow connection of up to 16 relay contact outputs, and up to 16 no-voltage make contact inputs.
The intercom system shall support up to 192 Multi-Interface Units, IP intercom exchanges and other interface units. The unit can be mounted in an EIA standard rack (1-unit size) or to a wall using the supplied bracket

Specifications

Power Source	(CE): 230V AC, 50/60Hz/ (CU): 120V AC, 50/60Hz
Power Consumption	(CE): 19W (180mA) (at rated), 24W (230mA) (max.)/ (CU): 16W (250mA) (at rated), 21W (330mA) (max.)
Audio Input	Input: 2 inputs (2P/input), Max. 0dB*1, under 600Ω, balanced, with a semi-fixed volume for adjustment (0 to –25dB) Control: 2 inputs (2P/input), no-voltage make contact input, open voltage: 12V DC, short-circuit current: 10mA Removable terminal block (8 pins)
Audio Output	Output: 2 outputs (2P/output), Max. 0dB*1, under 600Ω, balanced Control: 2 outputs (2P/output), relay contact output, contact capacity: 24V DC/0.5A Removable terminal block (8 pins)
Contact Input	16 inputs, no-voltage make contact input, open voltage; 12V DC, short-circuit current: 10mA, removable terminal block (9 pins)
Contact Output	16 outputs, relay contact output, contact capacity: 24V DC/0.5A, removable terminal block (9 pins)
PBX I/F	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	Tie-line input and output: 2 channels, Max.: Under 0dB*2, Average: Under –15dB*2, 600Ω, balanced, mini-clamp connector (2 pins) Signal method: EXES-2000/EXES-6000 tie-line method Selective signal: DTMF signal
Others	Firmware update function, System registration data entry hold facility, Time of day hold facility, Reset switch (front panel)
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation)
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Simultaneous paging to up to 16 zones) Multicast (Simultaneous paging to up to 191 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 LNK/ACT indication, Status Lamp, Power-on indication lamp
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 44.3 (H) × 239.5 (D)mm (16.54" × 1.74" × 9.43")
Weight	2.8kg (6.17 lb)
Accessory	Power cord (2m (6.56 ft)) × 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

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

N-8000AF
Audio Interface Unit

The N-8000AF is an Audio interface unit designed for use with TOA's packet intercom system (IP network-compatible intercom system) that employs the packet audio technology.
It has an analog audio input and output, a time synchronization contact input, and each 8 contact inputs and outputs. Connecting the unit to the LAN permits recording of conversations, chime broadcast at regular intervals (time signal) and paging broadcast to be implemented.
It can be mounted in an EIA equipment rack (1U size) with the use of an optional rack mounting bracket or installed on a wall using an optional wall mounting bracket.

Specifications

Power Source	(CE): 230 – 240V AC, 50/60Hz/ (CU): 120V AC, 50/60Hz
Power Consumption	7W (Max.)
Audio Input	1 input (transformer isolated), -58dB* to 0dB*, 2kΩ, balanced (MIC/LINE input, controllable on the software) with input volume control knob, removable terminal block (3 pins)
Audio Output	1 output (transformer isolated), 0dB*, 600Ω, balanced, removable terminal block (3 pins)
Contact Input	8 inputs, no-voltage make contact input, open voltage: 24V DC, short-circuit current: 5mA or less, removable terminal block (10 pins), (1 common terminal for 4 inputs)
Contact Output	8 outputs, relay contact output, output capacity: 24V DC/2 – 500mA, removable terminal block (16 pins)
Time Sync Input	1 input, no-voltage make contact input, open voltage:24V DC, short-circuit current:5mA or less, removable terminal block (2 pins)
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation) Auto MDI/MDI-X compatible
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Simultaneous paging to up to 8 zones) Multicast (Simultaneous paging to up to 191 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 LNK/ACT indication, Status Lamp, Power-on indication lamp, Signal lamp, Peak lamp
Other	Firmware update function, System data hold function, Time of day hold facility, Reset switch (front panel)
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	210 (W) × 44.3 (H) × 267 (D)mm (8.27" × 1.74" × 10.51")
Weight	1.7kg (3.75 lb)
Accessory	Power cord (2m (6.56 ft)) × 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, Screw for fitting plastic foot × 4
Option	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

* 0dB = 1V

N-8000AL
Telephone Interface Unit

The N-8000AL is a Telephone interface unit designed for use with TOA's packet intercom system (IP network-compatible intercom system) that employs the packet audio technology.
It has a single telephone line interface, allowing an analog telephone to be connected.
Connecting the unit to the LAN permits the analog telephone to be operated in the same manner as the intercom master station.
It can be mounted in an EIA equipment rack (1U size) with the use of an optional rack mounting bracket or installed on a wall using an optional wall mounting bracket.

Specifications

Power Source	(CE): 220 – 240V AC, 50/60Hz/ (CU): 120V AC, 50/60Hz
Power Consumption	8W (Max.)
Line	
Number of Lines	1 line
Contact Signal Type	DTMF signal
Monitor Function	Line Loop detection
Control Function	Caller ID function
Wiring Method	1 pair of twisted pair cables
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation) Auto MDI/MDI-X compatible
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Simultaneous paging to up to 8 zones) Multicast (Simultaneous paging to up to 191 zones)
Connector	RJ45 connector
Indication	Network LNK/ACT indication, Status Lamp, Power-on indication lamp, Line connection indication lamp
Other	Firmware update function, System data hold function, Time of day hold facility, Reset switch (front panel)
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	210 (W) × 44.3 (H) × 267 (D)mm (8.27" × 1.74" × 10.51")
Weight	1.7kg (3.75 lb)
Accessory	Power cord (2m (6.56 ft)) × 1, CD (for PC setting, maintenance use) × 1, Mini-clamp plug (2 pins) × 1, Plastic foot × 4, Screw for fitting plastic foot × 4
Option	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

* 0dB = 1V

N-8000CO
C/O Interface Unit

The N-8000CO is a C/O interface unit designed for use with TOA's packet intercom system (IP network-compatible intercom system) that employs the packet audio technology.
It has an analog central office line circuit, allowing the intercom station to make and receive calls to and from the telephone line.
Connecting the unit to the LAN permits paging calls through analog subscriber line to be made and the equipment connected to the N-8000MI and N-8000DI to be controlled.
It can be mounted in an EIA equipment rack (1U size) with the use of an optional rack mounting bracket or installed on a wall using an optional wall mounting bracket.

Specifications

Power Source	(CE): 220 – 240V AC, 50/60Hz/ (CU): 120V AC, 50/60Hz
Power Consumption	7W (Max.)
Line	Public Switched telephone networks
Number of Lines	1 line
Selective Signal Type	DTMF signal
Signal System	Compatible with loop start signalling
Wiring Method	1 pair of twisted pair cables
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation) Auto MDI/MDI-X compatible
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet Transmission System	Unicast (Simultaneous paging to up to 8 zones) Multicast (Simultaneous paging to up to 191 zones)
Connector	RJ45 connector
Indication	Network LNK/ACT indication, Status Lamp, Power-on indication lamp, Line in-use lamp
Other	Firmware update function, System data hold function, Time of day hold facility, Reset switch (front panel)
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	210 (W) × 44.3 (H) × 267 (D)mm (8.27" × 1.74" × 10.51")
Weight	1.7kg (3.75 lb)
Accessory	Power cord (2m (6.56 ft)) × 1, CD (for PC setting, maintenance use) × 1, Mini-clamp plug (2 pins) × 2, Plastic foot × 4, Screw for fitting plastic foot × 4
Option	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

* 0dB = 1V

N-8000DI
Direct Select Unit

The N-8000DI is a Direct select unit designed for use with TOA's packet intercom system (IP network-compatible intercom system) that employs the packet audio technology.
It is equipped with each 32 contact inputs and outputs, and the indicators on the front panel indicate the output statuses.
Connecting the unit to the LAN permits the calling station display, external equipment control, and direct selection function to be implemented.
It can be mounted in an EIA equipment rack (1U size) with the use of an accessory rack mounting bracket or installed on a wall using an optional wall mounting bracket.

Specifications

Power Source	(CE): 220 – 240V AC, 50/60Hz/ (CU): 120V AC, 50/60Hz
Power Consumption	16W (Max.)
Contact Input	32 inputs, no-voltage make contact input, open voltage: 24V DC, short-circuit current: 5mA or less, removable terminal block (20 pins), (1 common terminal for 4 inputs)
Contact Output	32 outputs, relay contact output, contact capacity: 24V DC/2 – 500mA, removable terminal block (32 pins)
Network Section	
Network I/F	10BASE-T/100BASE-TX (Automatic-Negotiation) Auto MDI/MDI-X compatible
Network Protocol	TCP/IP, UDP, ARP, ICMP, HTTP, RTP, IGMP
Connector	RJ45 connector
Indication	Network LNK/ACT indication, Status Lamp, Power-on indication lamp Channel indication lamps (32 channels)
Other	Firmware update function, System data hold function, Time of day hold facility, Reset switch (front panel)
Installation Method	Rack, Desk, Surface mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Pre-coated steel plate, black, 30% gloss
Dimensions	420 (W) × 44.3 (H) × 267 (D)mm (16.54" × 1.74" × 10.54")
Weight	2.8kg (6.17 lb)
Accessory	Power cord (2m (6.56 ft)) × 1, CD (for PC setting, maintenance use) × 1, Removable terminal plug (10 pins) × 4, Removable terminal plug (16 pins) × 4, Plastic foot × 4, Screw for fitting plastic foot × 4, Rack mounting bracket × 2, Screw for mounting bracket × 8, Screw for rack mounting × 4
Option	Wall mounting bracket: YC-850

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 IP network (LAN or WAN) permits hands-free or handset conversation of high sound quality to be made between the N-8500MS units and other IP stations or between the N-8500MS and intercom stations connected to the IP Intercom Exchange. Besides, the N-8500MS can be used in conjunction with the Multi Interface units through a network. 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

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 (2.24") cone-type, Mic.: Omni-directional electret condenser microphone
Handset	Receive path: Cone-type, Send path: Electret condenser microphone
Headset 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	Unicast (1 speech link, simultaneous paging to up to 16 zones)
Transmission System	Multicast (simultaneous paging to up to 191 zones)
Connector	LAN: RJ45 connector (compatible with PoE) 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	LCD alphanumeric characters (16 characters × 2 lines)
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional bracketYC-280.)
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (W) × 208 (H) × 70.5 (D)mm (5.83" × 8.19" × 2.78") (excluding a curl cord section)
Weight	810g (1.79 lb)
Accessory	CD (for PC setting, maintenance use) × 1
Option	Wall mounting bracket: YC-280, AC adapter: AD-1210P

*0dB = 1V

N-8510MS
IP Standard Master Station

The N-8510MS is an IP Master station designed for use with TOA's packet intercom system that employs the packet audio technology. Connecting the N-8510MS to a IP network (LAN or WAN) permits hands-free or handset conversation of high sound quality to be made between the N-8510MS and intercom stations connected to the IP Intercom Exchange, or between the N-8510MS units. Besides, the N-8510MS can be used in conjunction with the Multi Interface units through a network. 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

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	300Hz – 7kHz
Hands-free	Speaker: 0.6W, 8 ohms, 5.7cm (2.24") cone-type, Mic.: Omni-directional electret condenser microphone
Handset	Receive path: Cone-type, Send path: Electret condenser microphone
External Contact Input Terminal	No-voltage contact input, open voltage: 5V 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, ARP, ICMP, HTTP, RTP, IGMP
Audio Packet	Unicast (1 speech link, simultaneous paging to up to 16 zones)
Transmission System	Multicast (simultaneous paging to up to 191 zones)
Connector	LAN: RJ45 connector (compatible with PoE) 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)
Installation Method	Desk/Surface mounted master station (When mounting to the wall, use the optional YC-280.)
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (W) × 208 (H) × 70.5 (D)mm (5.83" × 8.19" × 2.78") (excluding a curl cord section)
Weight	740 g (1.63 lb)
Accessory	CD (for PC setting, maintenance use, emergency message creating software) × 1
Option	Wall mounting bracket: YC-280, AC adapter: AD-1210P

*0dB = 1V

N-8540DS
IP Door Station

The N-8540DS is 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 the intercom station connected to the IP Intercom Exchange, or between the N-8540DS and an 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 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

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: 1W, 8 ohms, 3.5cm (1.38") cone-type, 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 (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	80ma, 320ma (controllable on the software)
Installation Method	Flush-mount/Surface-mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (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/Call button: Metal
Dimensions	115 (W) × 162 (H) × 55.1 (D)mm (4.53" × 6.38" × 2.17)
Weight	700g (1.54 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4, Ferrite clamp × 1
Option	AC adapter: AD-1210P For flush-mount: 3-gang electrical box or Back Box YC-150, Wall surface-mount: Wall mount Box YC-13A

*0dB = 1V

* 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-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.

Specifications

Power Source	48V DC (supplied from the IP network intercom exchange)
Power Consumption	1.8W (at 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 or handset conversation
Audio Frequency Range	300 – 7,000Hz
Transmission Range	Max. 1500m (4921 ft) (ø0.65mm (0.03"). Loop resistance 170 ohms)
Hands-free	Speaker: 0.6W, 8 ohms, 5.7cm (2.24") cone-type, Mic.: Omni-directional electret condenser microphone
Handset	Receive path: Cone-type, Send path: Electret condenser microphone
Display	Alphanumeric characters (16 characters × 2 lines LCD)
Line Connecting Terminal	RJ-11 modular jack
Headset Terminal	Speaker: 3mW, 32 ohms, Microphone: –49dB*, ø3.5mm (ø0.14") 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: YC-280.)
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (W) × 208 (H) × 70.5 (D)mm (5.83" × 8.19" × 2.78") (excluding a curl cord section)
Weight	800g (1.76 lb)
Accessory	Connection cord (3m (9.84 ft)) × 1
Option	Wall mounting bracket: YC-280

*0dB = 1V

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.

Specifications

Power Source	48V DC (supplied from the IP network intercom exchange)
Power Consumption	1.8W (at 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 or handset conversation
Audio Frequency Range	300 – 7,000Hz
Transmission Range	Max. 1500m (4921 ft) (ø0.65mm (0.03"). Loop resistance 170 ohms)
Hands-free	Speaker: 0.6W, 8 ohms, 5.7cm (2.24") cone-type, Mic.: Omni-directional electret condenser microphone
Handset	Receive path: Cone-type, 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: YC-280.)
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Body, Handset: ABS resin, gray
Dimensions	148 (W) × 208 (H) × 70.5 (D)mm (5.83" × 8.19" × 2.78") (excluding a curl cord section)
Weight	700g (1,54 lb)
Accessory	Connection cord (3m (9.84 ft)) × 1
Option	Wall mounting bracket: YC-280

*0dB = 1V

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 spacesaving 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

Power Source	48V DC (supplied from the IP network intercom exchange)
Power Consumption	1.8W (at 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 (4921 ft) (ø0.65mm (0.03"). Loop resistance 170 ohms)
Hands-free	Speaker: 0.6W, 8 ohms, 5.7cm (2.24") 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: YC-290.)
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Body: ABS resin, gray
Dimensions	92 (W) × 195 (H) × 56.1 (D)mm (3.62" × 7.68" × 2.21")
Weight	400g (0.44 lb)
Accessory	Connection cord (3m (9.84 ft)) × 1
Option	Wall mounting bracket: YC-290

*0dB = 1V

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 dustproof and waterproof construction, and can be used in locations exposed to ambient temperatures ranging from –10°C to +50°C (14°F to 122°F). 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

Power Source	48V DC (supplied from the IP network intercom exchange)
Power Consumption	1.8W (at 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 or handset conversation
Audio Frequency Range	300 – 7,000Hz
Transmission Range	Max. 1500m (4921 ft) (ø0.65mm (0.03"). Loop resistance 170 ohms)
Hands-free	Speaker: 0.6W, 8 ohms, 5.7cm (2.24") 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: YC-280.)
Operating Temperature	–10°C to 50°C (14°F to 122°F)
Operating Humidity	90% RH or less (no condensation)
Dust/Water Protection	IP54
Finish	Body, Handset: ABS resin, gray
Dimensions	170 (W) × 220 (H) × 97.8 (D)mm (6.69" × 8.66" × 3.85") (excluding a curl cord section)
Weight	1kg (2.20 lb)
Accessory	Rubber cap × 2
Option	Wall mounting bracket: YC-280

*0dB = 1V

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

Power Source	48V DC (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 (4921 ft) (ø0.65mm (0.03"). Loop resistance 170 ohms)
Hands-free	Speaker: 0.6W, 8 ohms, 5.7cm (2.24") cone-type, Mic.: Omni-directional electret condenser microphone
Line Connecting Terminal	Pin header (2 pins)
External Dial Input	No-voltage make contact input, open voltage: 5V DC, short-circuit current: 1mA, screwless connector (5 pins)
Installation Method	Flush-mount/Surface-mount
Operating Temperature	0°C to +40°C (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Finish	Panel: Stainless steel (SUS304), hairline
Dimensions	115 (W) × 254 (H) × 54.6 (D)mm (4.53" × 10.0" × 2.15")
Weight	850g (1.87 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4, Removable terminal plug (2 pins, preinstalled on the unit) × 1, Handset jumper (8 pins, preinstalled on the unit) × 1, Ferrite clamp ×1
Option	For flush-mount: Back Box YC-241, Wall surface-mount: Wall mount Box YC-251

*0dB = 1V

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 waterproof and dust-proof standards. The operating temperature range is –10°C to 50°C (14°F to 122°F). 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

Power Source	48V DC (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
Audio Frequency Range	300 – 7,000Hz
Transmission Range	Max. 1500m (4921 ft) (ø0.65mm (0.03"). Loop resistance 170 ohms)
Hands-free	Speaker: 1W, 8 ohms, 3.5cm (1.38") cone-type, 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 (14°F to 122°F)
Operating Humidity	90% RH or less (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/Call button: Metal
Dimensions	115 (W) × 162 (H) × 54 (D)mm (4.53" × 6.38" × 2.13")
Weight	680g (1.50 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4
Option	For flush-mount: 3-gang electrical box or Back Box YC-150, Wall surface-mount: Wall mount Box YC-13A

*0dB = 1V

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

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 (4921 ft) (ø0.65mm (0.03"). Loop resistance 170 ohms)
Hands-free	Speaker: 0.6W, 8 ohms, 5.7cm (2.24") cone-type, Mic.: Omni-directional electret condenser microphone
Line Connecting Terminal	Pin header (2 pins)
Status Indicator LED	Solderless connector (2 pins, male), voltage: 5V,
Connecting Terminal	maximum load current: 5mA
Dial Input	Solderless connector (10 pins, male), 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 (32°F to 104°F)
Operating Humidity	90% RH or less (no condensation)
Dimensions	70 (W) × 185 (H) × 20.6 (D)mm (2.76" × 7.28" × 0.81")
Weight	205g (0.45 lb) (including accessories)
Accessory	Removable terminal plug (2 pins, preinstalled on the unit) × 1, Handset jumper (8 pins, preinstalled on the unit) × 1, Hands-free speaker (with connection cord) × 1, Hands-free microphone (with connection cord) × 1, Ferrite clamp ×1
Option	Handset: RS-191

*0dB = 1V

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

Power Source	48V DC (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
Audio Frequency Range	300 – 7,000Hz
Transmission Range	Max. 1500m (4921 ft) (ø0.65mm (0.03"). Loop resistance 170 ohms)
Hands-free	Speaker: 1W, 8 ohms, 3.5cm (1.38") cone-type, 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)
Line Connecting Terminal	Pin header (2 pins)
Status Indicator LED	Solderless connector (2 pins, male), voltage: 5V,
Connecting Terminal	maximum load current: 4.1mA
Call Button Connecting	Solderless connector (5 pins, male),
Terminal	open voltage: 3.3V DC, short-circuit current: 1.5mA
Operating Temperature	–10°C to +50°C (14°F to 122°F)
Operating Humidity	90% RH or less (no condensation)
Dimensions	67 (W) × 128.3 (H) × 26 (D)mm (2.64" × 5.05" × 1.02")
Weight	100g (0.22 lb) (including accessories)
Accessory	Hands-free speaker (with connection cord) × 1 Hands-free microphone (with connection cord) × 1

*0dB = 1V

RS-150
Substation (Indoor Type)

The RS-150 is a substation to be connected to the N-8000RS/8010RS Substation Interface Unit. Pressing a call button will initiate a call to a preprogrammed master station, enabling a conversation.

Specifications

Rated Input	1W
Rated Impedance	625Ω (1W/25V)
Internal Speaker	4cm (1.57") cone-type
Operating Temperature	–10°C to +50°C (14°F to 122°F) (temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel (SUS304), hairline Call button: Resin
Dimensions	120 (W) × 120 (H) × 48.5 (D)mm (4.72" × 4.72" × 1.91")
Weight	410g (0.90 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4

RS-160
Substation (Indoor Vandal-Resistant Type)

The RS-160 is a substation to be connected to the N-8000RS/8010RS Substation Interface Unit. Pressing a call button will initiate a call to a preprogrammed master station, enabling a conversation.

Specifications

Rated Input	1W
Rated Impedance	625Ω (1W/25V)
Internal Speaker	4cm (1.57") cone-type
Operating Temperature	–10°C to +50°C (14°F to 122°F) (temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel (SUS304), hairline Call button: Metal
Dimensions	120 (W) × 120 (H) × 57.5 (D)mm (4.72" × 4.72" × 2.26")
Weight	540g (1.19 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4

RS-170
Substation (Outdoor Vandal-Resistant Type)

The RS-170 is a substation to be connected to the N-8000RS/8010RS Substation Interface Unit.
Pressing a call button will initiate a call to a preprogrammed master station enabling a conversation.

Specifications

Rated Input	1W
Rated Impedance	625Ω (1W/25V)
Internal Speaker	4cm (1.57") cone-type
Operating Temperature	–10°C to +50°C (14°F to 122°F) (temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel (SUS304), hairline Call button: Metal
Dimensions	120 (W) × 120 (H) × 57.5 (D)mm (4.72" × 4.72" × 2.26")
Weight	540g (1.19 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4

RS-180
Substation (Emergency Use)

The RS-180 is a substation to be connected to the N-8000RS/8010RS Substation Interface Unit.
Pressing a call button will initiate a call to a preprogrammed master station enabling a conversation. The RS-180 is equipped with a status indicator.

Specifications

Rated Input	1W
Rated Impedance	625Ω (1W/25V)
Internal Speaker	4cm (1.57") cone-type
Control Output	Open collector output: 24V DC, 30mA (The open collector output is kept turned on till the conversation is finished after the call button was pressed.)
Operating Temperature	–10°C to +50°C (14°F to 122°F) (temperature range not to freeze the speaker and switch)
Finish	Panel: Stainless steel (SUS304), hairline Call button: Metal Printed circuit board: Weather-resistant coating
Dimensions	120 (W) × 120 (H) × 58.5 (D)mm (4.72" × 4.72" × 2.30")
Weight	570g (1.26 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4

RS-140
Switch Panel

The RS-140 is a switch panel designed for use with the N-8000RS and N-8010RS 2-Core Shielded Substation Interface Unit. It is equipped with a Call button and a Privacy button, and can be installed in a 1-gand electrical box.
By connecting a high impedance speaker to it, hands-free conversation with the master station can be made

Specifications

Call-in Switch	Momentary
Privacy Switch	Latching
Indicator	When called: Call LED (red) flashing In conversation: Call LED (red) lit In privacy: Privacy LED (red) lit
Wiring	Two-core shielded cable
Transmission Range	0.5km (546 yd)/ø0.5mm (AWG24) 0.8km (874 yd)/ ø0.65mm (AWG22) 1.3km (1421 yd)/ø0.9mm (AWG19)
Operating Temperature	0°C to +40°C (32°F to 104°F)
Finish	Panel: Stainless steel, hairline Call-in Switch: Resin, red Privacy Switch: Resin, white
Dimensions	70 (W) × 115 (H) × 28.6 (D)mm (2.76" × 4.53" × 1.13")
Weight	80g (0.18 lb)
Accessory	Mounting bracket × 1, Bracket mounting screw (No.6–32UNC × 18) × 2, Box mounting screw (M4 × 30) × 2, Box mounting screw (No.6–32UNC× 30) × 2
Applicable Box	Flush-mount box: YC-801 (option) Wall-mount box: YC-802 (option)

RS-141
Option Handset

The RS-141 is a handset for the RS-140 Switch Panel. Lifting the handset will initiate a call to a preprogrammed master station, enabling a handset conversation.

Specifications

Handset Receiver	Dynamic type
Handset Transmitter	Electret condenser type
Wiring	Two-core shielded cable + Twisted pair cables (2-pair)
Handset Receiver Volume Control	Side volume, Maximum attenuation level: 12 – 18dB
Operating Temperature	0°C to +40°C (32°F to 104°F)
Finish	ABS resin, pale white
Dimensions	116 (W) × 220 (H) × 71 (D)mm (4.57" × 8.66" × 2.8")
Weight	350g (0.77 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4
Applicable Box	2-gang electrical box: YC-302 (option)

RS-450
Substation (Indoor Type)

The RS-450 is a substation to be connected to the N-8400RS 4-wire Substation Interface Unit.
Pressing a call button will initiate a call to a preprogrammed master station, enabling a conversation.

Specifications

Call-in Switch	Momentary (Emergency call: Press twice within 400 ms)
Rated Input	1W
Internal Speaker	cone-type
Internal Mic	Electret condenser type
Wiring	Twisted pair cables (2-pair)
Transmission Range	1km (1093 yd)/ø0.5mm (AWG24) 1.5km (1640 yd)/ ø0.65mm (AWG22) 2km (2187 yd)/ø0.9mm (AWG19)
Operating Temperature	–10°C to +50°C (14°F to 122°F)
Finish	Panel: Stainless steel, hairline Call Switch: Resin, black
Dimensions	120 (W) × 120 (H) × 41.5 (D)mm (4.72" × 4.72" × 1.63")
Weight	510g (1.12 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4
Applicable Box	2-gang electrical box: YC-302 (option)

RS-460
Substation (Indoor Vandal-Resistant Type)

The RS-460 is a substation to be connected to the N-8400RS 4-wire Substation Interface Unit.
Pressing a call button will initiate a call to a preprogrammed master station, enabling a conversation.

Specifications

Call-in Switch	Momentary (Emergency call: Press twice within 400 ms)
Rated Input	1W
Internal Speaker	cone-type
Internal Mic	Electret condenser type
Wiring	Twisted pair cables (2-pair)
Transmission Range	1km (1093 yd)/ø0.5mm (AWG24) 1.5km (1640 yd)/ ø0.65mm (AWG22) 2km (2187 yd)/ø0.9mm (AWG19)
Operating Temperature	–10°C to +50°C (14°F to 122°F)
Finish	Panel: Stainless steel, hairline Call Switch: Metal, silver
Dimensions	120 (W) × 120 (H) × 49.5 (D)mm (4.72" × 4.72" × 1.95")
Weight	540g (1.19 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4
Applicable Box	2-gang electrical box: YC-302 (option)

RS-470

Substation (Outdoor Vandal-Resistant Type)

The RS-470 is a substation to be connected to the N-8400RS 4-wire Substation Interface Unit.
Pressing a call button will initiate a call to a preprogrammed master station, enabling a conversation.

Specifications

Call-in Switch	Momentary (Emergency call: Press twice within 400 ms)
Rated Input	1W
Internal Speaker	cone-type
Internal Mic	Electret condenser type
Wiring	Twisted pair cables (2-pair)
Transmission Range	1km (1093 yd)/ø0.5mm (AWG24) 1.5km (1640 yd)/ ø0.65mm (AWG22) 2km (2187 yd)/ø0.9mm (AWG19)
Operating Temperature	–10°C to +50°C (14°F to 122°F)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Dust/Water Protection	IP54
Finish	Panel: Stainless steel, hairline Call Switch: Resin, black Circuit board: Weather-resistant coating
Dimensions	120 (W) × 120 (H) × 49.5 (D)mm (4.72" × 4.72" × 1.95")
Weight	550g (1.21 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4
Applicable Box	2-gang electrical box: YC-302 (option)

RS-480
Substation (Emergency Use)

The RS-480 is a substation to be connected to the N-8400RS 4-wire Substation Interface Unit.
Pressing a call button will initiate a call to a preprogrammed master station, enabling a conversation. Also, it can be used in connection with the RS-481 Option Handset.
The RS-480 is equipped with a Status indicator.

Specifications

Call-in Switch	Momentary (Emergency call: Press twice within 400 ms)
Rated Input	1W
Control Output	Open collector output: 30V DC, 30mA
Internal Speaker	cone-type
Internal Mic	Electret condenser type
Indicator	When called: LED (red) flashing In conversation: LED (red) lit
Wiring	Twisted pair cables (2-pair)
Transmission Range	1km (1093 yd)/ø0.5mm (AWG24) 1.5km (1640 yd)/ ø0.65mm (AWG22) 2km (2187 yd)/ø0.9mm (AWG19)
Operating Temperature	–10°C to +50°C (14°F to 122°F)
Housing Protection	BS EN62262: 2002: IK02 equivalent
Dust/Water Protection	IP54
Finish	Panel: Stainless steel, hairline Call Switch: Metal, silver Circuit board: Weather-resistant coating
Dimensions	120 (W) × 120 (H) × 50.5 (D)mm (4.72" × 4.72" × 1.99")
Weight	575g (1.27 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4
Applicable Box	2-gang electrical box: YC-302 (option)

RS-481
Option Handset

The RS-481 is a handset for the RS-480 Substation (Emergency use).
Lifting the handset will initiate a call to a preprogrammed master station, enabling a handset conversation.

Specifications

Handset Receiver	Dynamic type
Handset Transmitter	Electret condenser type
Handset Receiver Volume Control	Slide volume, Maximum attenuation level: 12 – 18dB
Operating Temperature	0°C to +40°C (32°F to 104°F)
Finish	ABS resin, pale white
Dimensions	116 (W) × 220 (H) × 71 (D)mm (4.57" × 8.66" × 2.8")
Weight	365g (0.81 lb)
Accessory	Box mounting screw (No.6-32UNC × 18) × 4, Box mounting screw (M4 × 25) × 4
Applicable Box	2-gang electrical box: YC-302 (option)

E-7000TB
Terminal Board

The E-7000TB is a rack mountable terminal board designed exclusively for use with the N-8000 Packet Intercom System (IP network compatible intercom).
Up to 40 stations can be connected to the E-7000TB.

Specifications

Line Capacity	80 (40 lines)
Line Connection Terminal	Clip terminal
Finish	Panel: Surface-treated steel plate, black, 30% gloss
Dimensions	482 (W) × 132.6 (H) × 108.8 (D)mm (18.98" × 5.22" × 4.28")
Weight	2.5kg (5.51 lb)
Accessory	Rack mounting screw × 4, Fiber washer × 4, Name plate × 4, Cord clamp × 6

YC-280
Wall-Mount Bracket

Designed to mount N-8000MS, N-8010MS, N-8020MS, N-8500MS and N-8510MS on a wall.

Specifications

Finish	Surface-treated steel plate, gray, paint
Dimensions	100(W) × 140(H) × 31.8(D) mm (3.94" × 5.51" × 1.25")

YC-290
Wall-Mount Bracket

Designed to mount N-8011MS on a wall.

Specifications

Finish	Surface-treated steel plate, gray, paint
Dimensions	64(W) × 131.5(H) × 31.8(D) mm (2.52" × 5.18" × 1.25")

YC-241
Flush-Mount Back Box

Designed to surface-mount N-8031MS Flush-mount Hands-free Master Station on a wall.

Specifications

Finish	Colored chrome painting
Dimensions	276(W) × 119(H) × 67(D) mm (10.87" × 4.69" × 2.64")

YC-251
Surface-Mount Back Box

Designed to mount N-8031MS Flush-mount Hand-free Master Station on a wall.

Specifications

Finish	Surface-treated steel plate, white
Dimensions	124 (W) × 258.5(H) × 50.5(D) mm (4.88" × 10.18" × 1.99")

YC-150
Flush-Mount Back Box

Designed to flush-mount N-8050DS and N-8540DS Door Stations on a wall.

Specifications

Finish	Zinc-plating
Dimensions	184 (W) × 119(H) × 57(D) mm (7.24" × 4.69" × 2.24")

YS-13A
Surface-Mount Back Box

Designed to surface-mount N-8050DS and N-8540DS Door Stations on a wall.

Specifications

Finish	Zinc-plating
Dimensions	163.5 (W) × 114.5(H) × 55 (D) mm (6.44" × 4.51" × 2.17")

YC-850
Wall-Mount Bracket

Designed to mount N-8000RS, N-8000DI, N-8000AF, N-8000AL and N-8000CO interface units on a wall.

Specifications

Finish	Surface-treated steel plate, black, 30% gloss
Dimensions	451 (W) × 220 (H) × 10(D)mm (17.76" × 8.66" × 0.39")

YC-302
2-gang Electrcal Box

The YC-302 is a 2-gand electrical box (with cover) of wall flush mount type..

Specifications

Finish	SPHT, MFZn4 (glazed chromate)
Dimensions	Outlet box: 102 (W) × 102 (H) × 44(D)mm/ Cover: 106 (W) × 106 (H) × 13 (D)mm

YC-801
Flush-Mount Box

Designed to flush-mount RS-140 Switch Panel on a wall.

Specifications

Finish	Colored chrome painting
Dimensions	72(W) × 119(H) × 57(D) mm (2.83" × 4.69" × 2.24")

YC-802
Wall-Mount Box

Designed to mount RS-140 Switch Panel on a wall.

Specifications

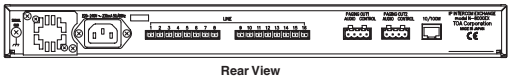
Finish	Surface-treated steel plate, white
Dimensions	75(W) × 124(H) × 50.5(D) mm (2.95" × 4.88" × 1.99")

AD-1210P
AC Adapter

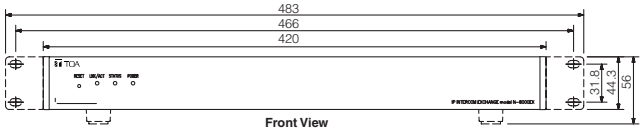
Allows N-8500MS, N-8510MS and N-8540DS to be operated on AC.

Appearance and Dimensional Diagram

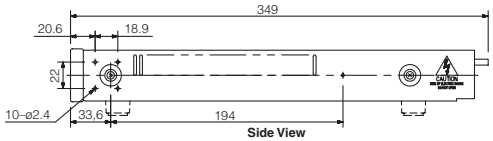
N-8000EX



Rear View

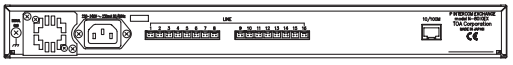


Front View

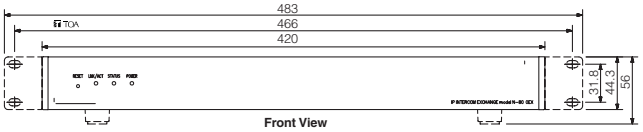


Side View

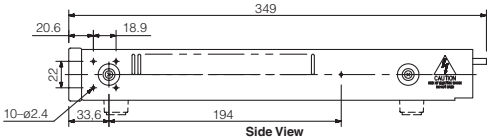
N-8010EX



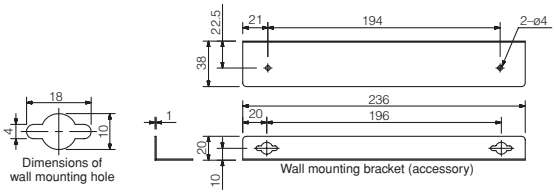
Rear View



Front View

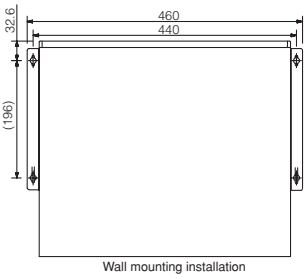


Side View



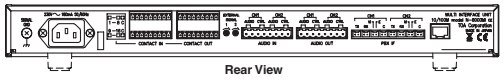
Dimensions of wall mounting hole

Wall mounting bracket (accessory)

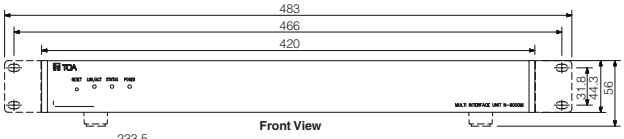


Wall mounting installation

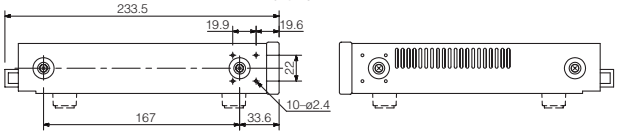
N-8000MI



Rear View

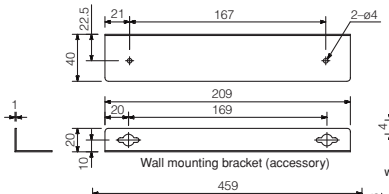


Front View



Left Side View

Right Side View

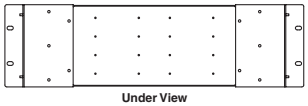


Wall mounting bracket (accessory)

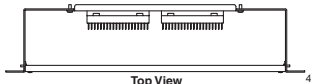
Dimensions of wall mounting hole

Wall mounting installation

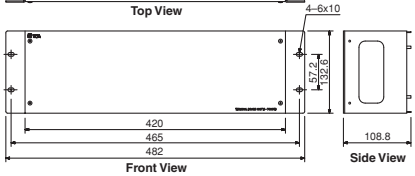
E-7000TB



Under View

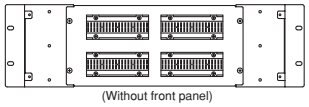


Top View



Front View

Side View

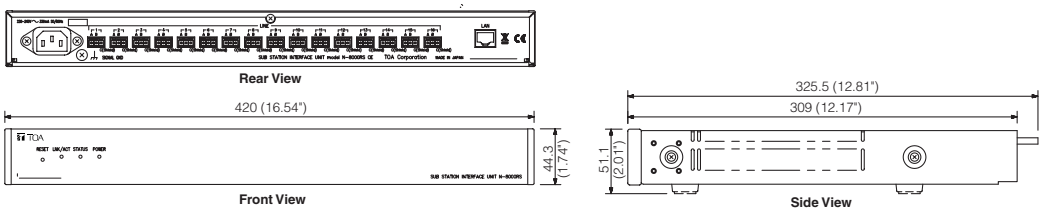


(Without front panel)

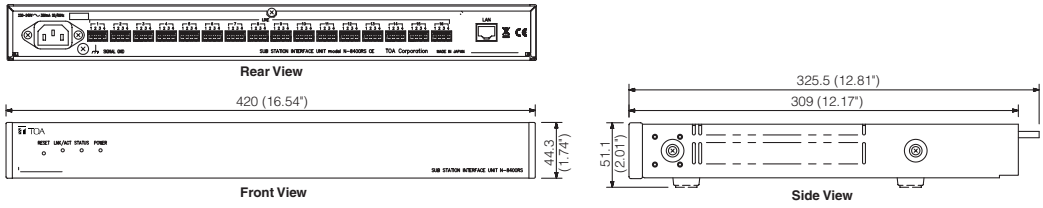
unit: mm

Appearance and Dimensional Diagram

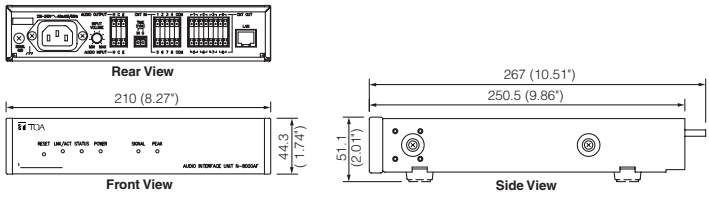
N-8000RS/8010RS



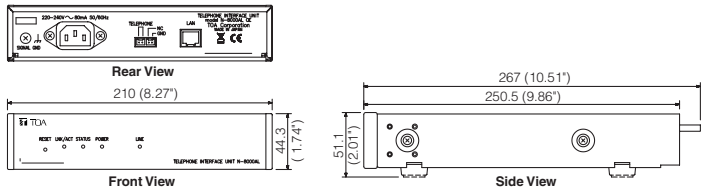
N-8400RS



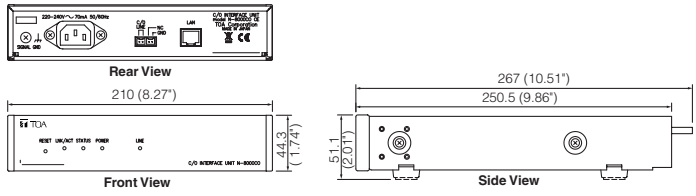
N-8000AF



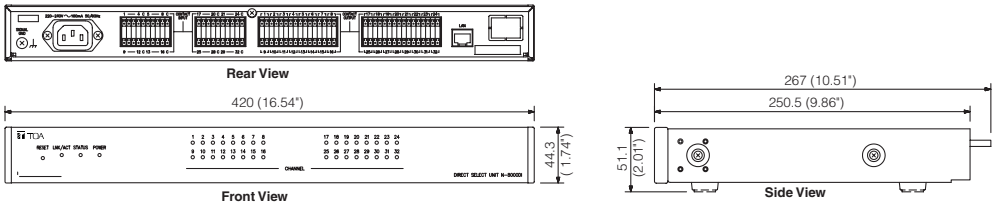
N-8000AL



N-8000CO



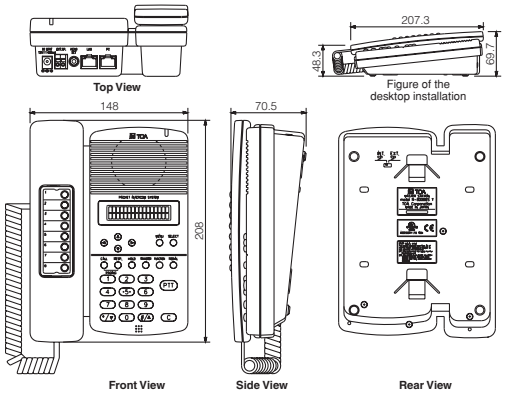
N-8000DI



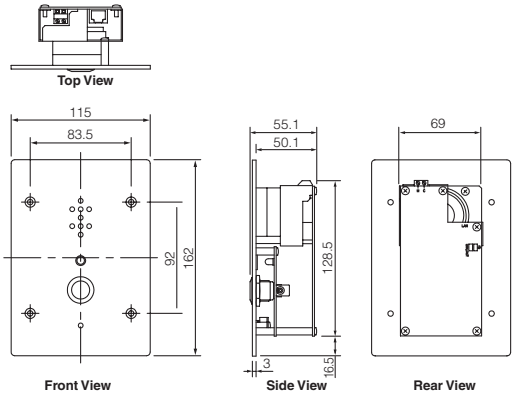
unit: mm

Appearance and Dimensional Diagram

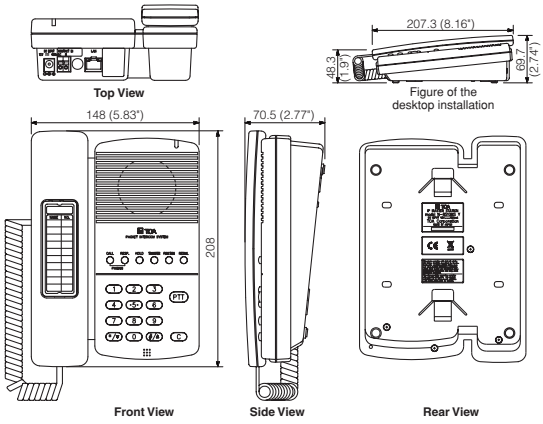
N-8500MS



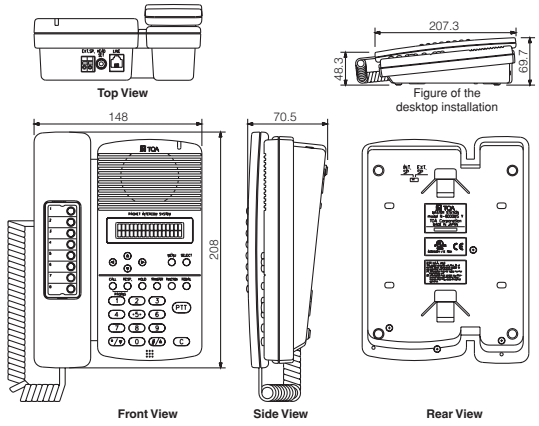
N-8540DS



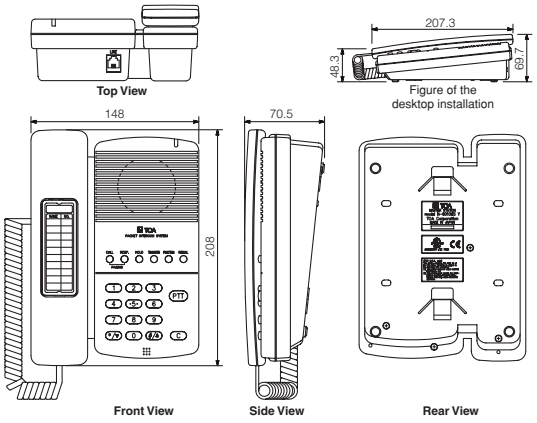
N-8510MS



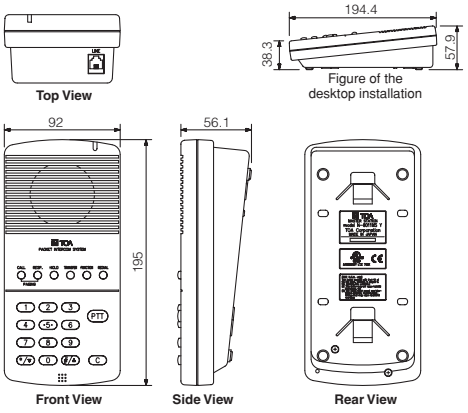
N-8000MS



N-8010MS



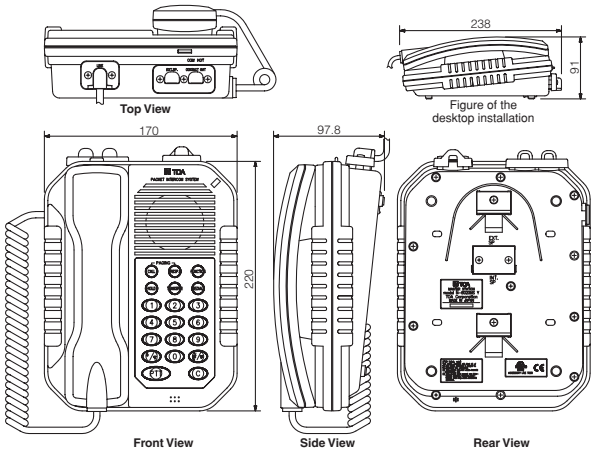
N-8011MS



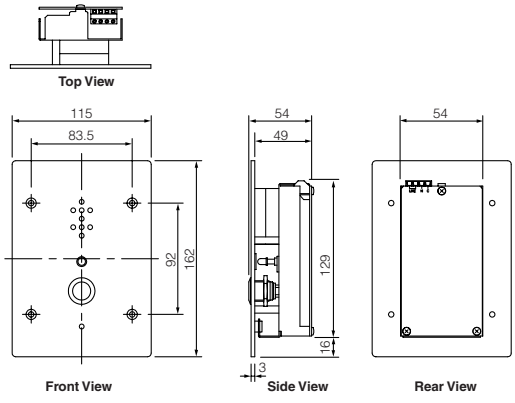
unit: mm

Appearance and Dimensional Diagram

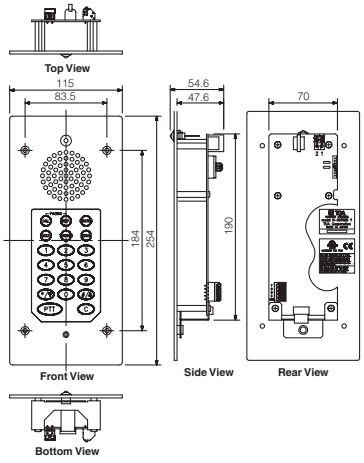
N-8020MS



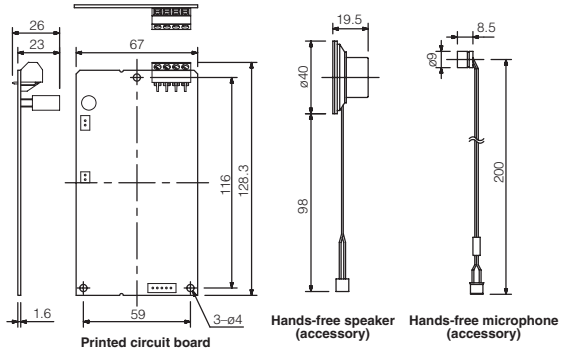
N-8050DS



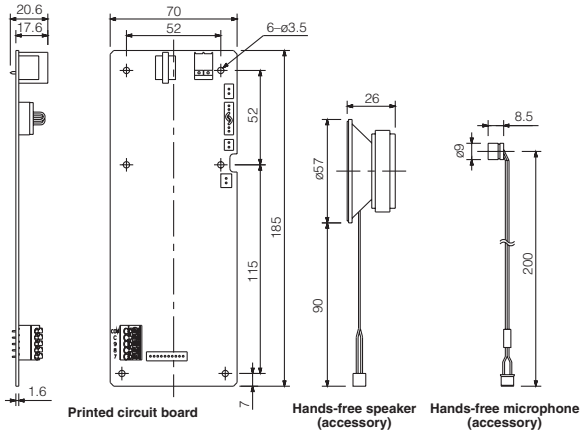
N-8031MS



N-8050SB



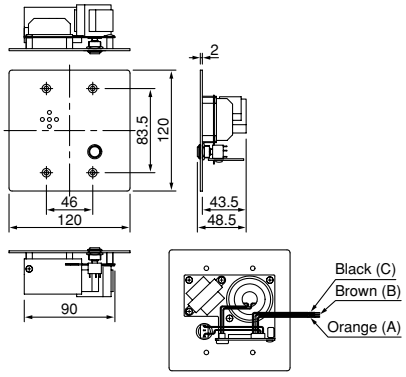
N-8031SB



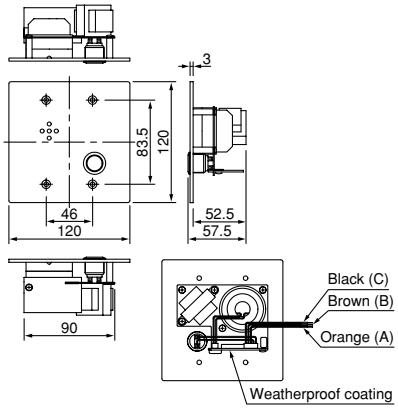
unit: mm

Appearance and Dimensional Diagram

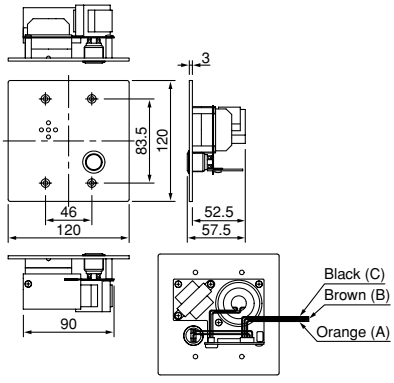
RS-150



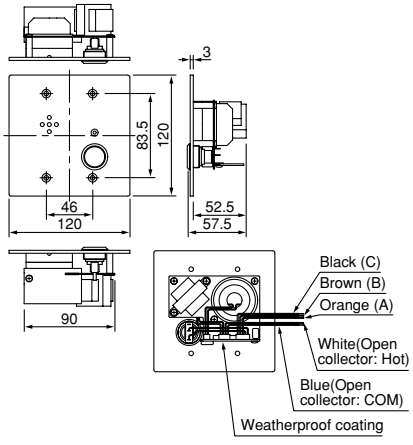
RS-160



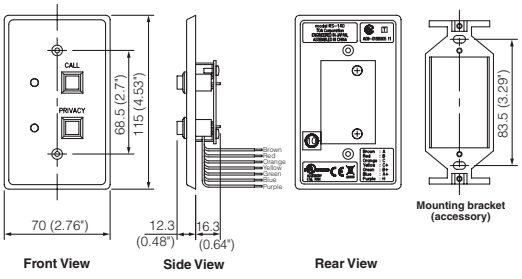
RS-170



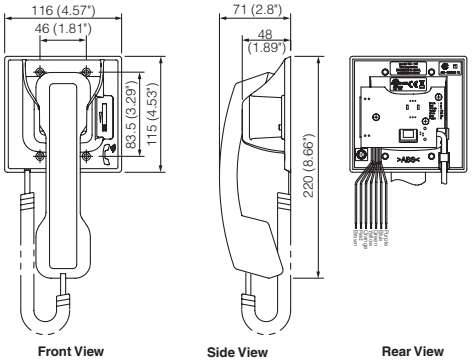
RS-180



RS-140



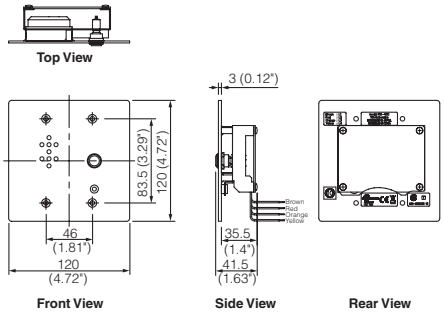
RS-141



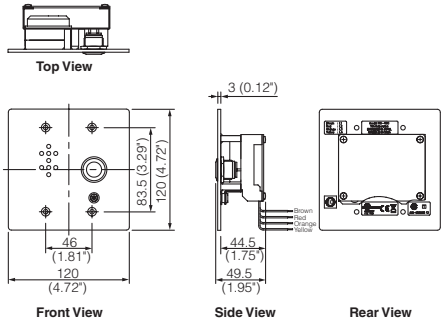
unit: mm

Appearance and Dimensional Diagram

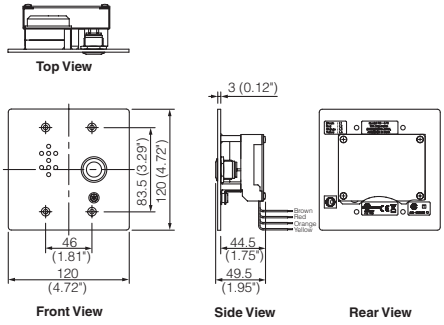
RS-450



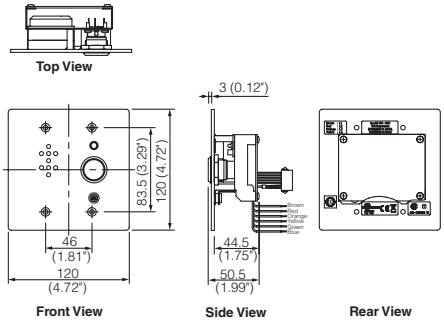
RS-460



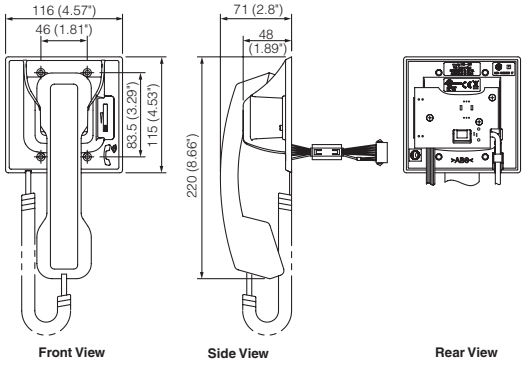
RS-470



RS-480



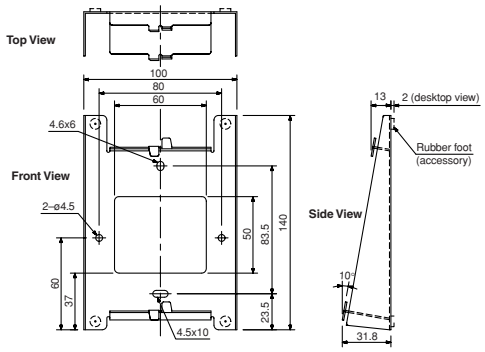
RS-481



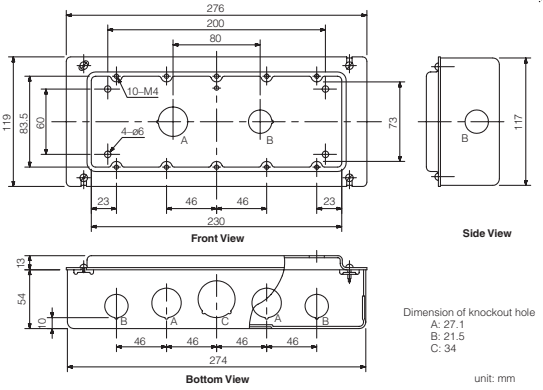
unit: mm

Appearance and Dimensional Diagram

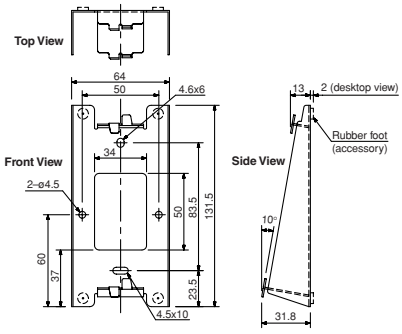
YC-280



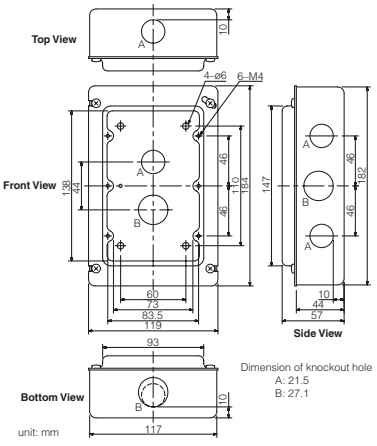
YC-241



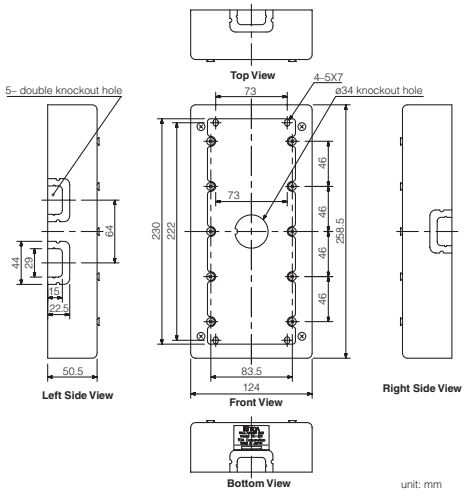
YC-290



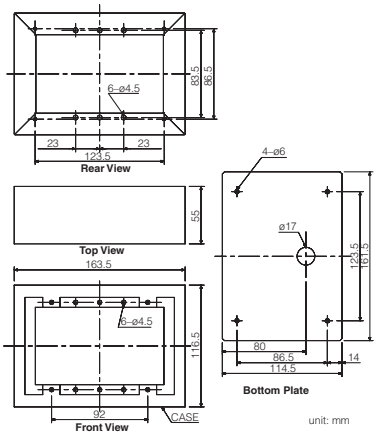
YC-150



YC-251



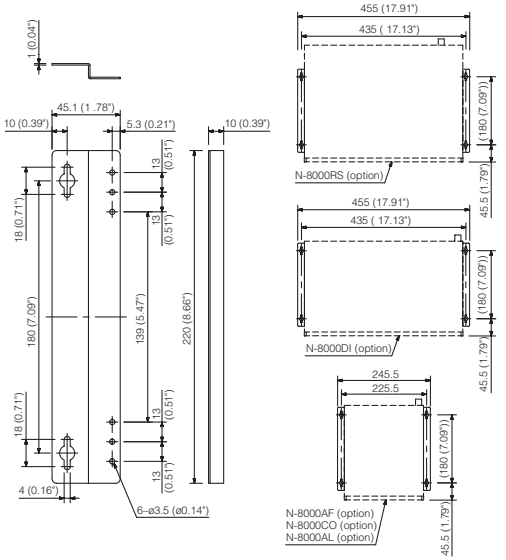
YS-13A



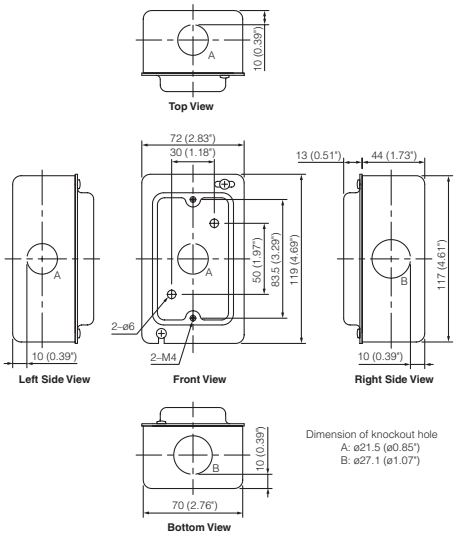
unit: mm

Appearance and Dimensional Diagram

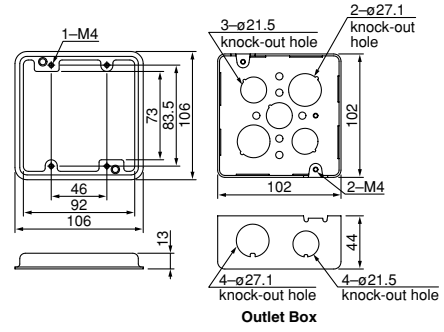
YC-830



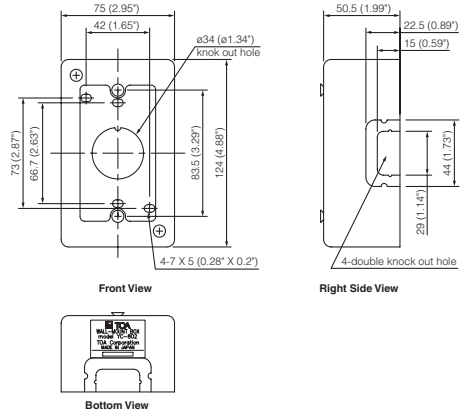
YC-801



YC-302

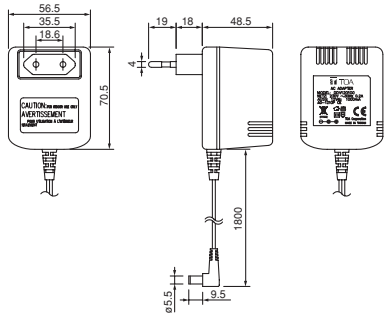


YC-802

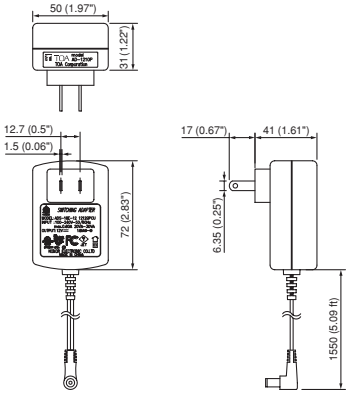


AD-1210P

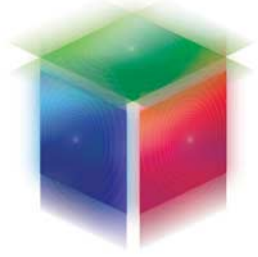
CE Version



CU Version



unit: mm



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