



# STENTOFON AlphaCom XE

## Security Communications System

### A & E GUIDE SPECIFICATIONS

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## PART I: GENERAL

### 1.1. WORK INCLUDED

- A. Furnish and install a complete microprocessor controlled, "duplex" voice communication system as described herein and shown on the plans. The system shall include a digital central audio server and all necessary boards, power supplies, master control stations, substations, receptacles, special mounting boxes, loudspeakers terminal boards, cable, connectors, and accessories for a complete operational communication system.
- B. Scope of work shall include the on-site SECURITY COMMUNICATION SYSTEMS, including all intercoms, with access to audio paging, the telephone system, CCTV video switchers, alarm systems and access control security systems as shown on the plans.

(Note to specifier: Indicate exact scope of work)

### 1.2. CONTRACT DOCUMENTS

- A. All equipment and work specified in this section shall comply with all the General Conditions of the specifications, contract documents, and drawings as indicated.

### 1.3. RELATED WORK

- A. Systems shall be installed by a qualified Security Communications Contractor, who shall coordinate all work with other contractors and trades.
- B. All necessary conduit, raceways, pull boxes, standard boxes, (and special boxes provided by intercom manufacturer), shall be installed by the electrical contractor.
- C. Installation of the communication systems shall be coordinated with the installation of other related systems such as: C.C.T.V video switching, audio paging, access control, two-way radio, alarm and telephone systems.

(Note to specifier: Indicate other related systems)

### 1.4. QUALITY ASSURANCE

- A. Installation shall comply with all applicable codes.
- B. All equipment shall be new, in current production, and the standard products of a manufacturer of intercom equipment. Manufacturer shall be certified as complying with the standards of ISO-9001 for quality control. The central audio server shall meet standards and be certified with a CE label as conforming to rigid EMC requirements for electromagnetic emissions, immunity and harmonics.



- C. Manufacturer shall guarantee availability of parts, for a minimum of (\_7\_) years from date of shipment.
- D. If required, manufacturer shall be able to demonstrate features, functions, operating characteristics and clarity of sound to owner.
- E. System shall be installed by a factory authorized communications contractor with technicians specifically trained on this system.
- F. On-site maintenance and repair service shall be available locally and within (\_4\_) hours of notification for emergency conditions.
- G. System shall allow remote programming. Manufacturer shall have the ability to access and make changes to the system via IP connectivity.

#### 1.5. WARRANTY

- A. System shall include a factory warranty that equipment is free from defects in design, material, manufacturing and operation.
- B. Factory warranty period shall be for 36 months from date of shipment.
- C. Installing communications contractor shall guarantee the equipment, wire, cable, and installation for 12 months from date of acceptance.

#### 1.6. SUBMITTALS

- A. Shall include an equipment list, and data sheets, system description and block diagrams on equipment to be furnished.
- B. Shall include all data necessary to evaluate design, function, quality, and configuration of proposed equipment and system(s).



## PART II: PRODUCTS

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### 2.1. ACCEPTABLE MANUFACTURERS

- A. The system as described herein is based on the STENTOFON® ALPHACOM XE Audio Servers manufactured by Zenitel USA, Kansas City, Missouri. ALPHACOM XE Audio Servers meet the requirements of the specifications and shall be considered as the acceptable Base Bid.
- B. Substitutions must meet requirements of Prior Approval, as outlined in the contract documents. Substitutions that meet Prior Approval requirements must be listed as alternates by addendum, and shall be shown separately on the bid forms. Consideration will be based on ability to comply with all aspects of the specifications, the desired functional operation, quality, reliability, design, size, and appearance of the equipment and the support capabilities of the manufacturer.

### 2.2. SYSTEM DESCRIPTION

- A. The purpose of the SECURITY COMMUNICATION SYSTEM shall be to provide fast “duplex,” (hands-free at both ends) voice communication as required to provide instant intercommunications for employees and visitors, emergency paging and signaling, alarm distribution, audio program distribution and active noise cancellation for high noise environments. System shall assist with personnel safety, facility security, security systems integration, operational efficiency and maintenance functions.
- B. The system shall be a microprocessor controlled system running embedded real time Linux, fully "digital", PC programmable, central switching audio server type using individual (2) twisted pair cable from the audio server to each station. The system shall be capable of automatic “duplex,” hands-free operation, without the use of handsets, at both the initiating and receiving station, and each station shall include a condenser microphone and preamplifier. The audio server shall include 2 Ethernet IP ports which can support protocols IP v4-IP v6, TCP, UDP, Telnet, SSH, NTP, HTTP 1.1, Syslog, SNMP v2c, SIP, RTP, RTCP, VoIP AlphaNet and 2 serial data ports, RS-232, RS-422 and RS485 type, both input and output, for direct transfer of call processing functions to and from other AlphaCom and AlphaCom XE servers as well as to external microprocessor controlled equipment such as access control, CCTV switchers, remote control boards and audio amplifiers. The audio server shall support the mix of IP with integrated noise cancellation and traditional stations as desired. The audio server shall support SIP protocol to allow for interfacing to VoIP telephones and or systems and equipment. The system shall provide special features such as the capability of redundancy via IP, wideband audio (7kHz), built in firewall, integrated web & SIP server as well as low latency switching. The audio server shall allow for remote programming, logging and maintenance via IP using AlphaPro as well as additional maintenance and statistical information via IP using web browser to interface to AlphaWeb. The AlphaCom Audio Servers shall have the capability (thru software licensing) for allowing up to 15 minutes of customer specific messages that can be used for evacuation or emergency events.
- C. System capacity shall include a modular central audio server cabinet(s) for \_\_\_\_\_ wired stations and or \_\_\_\_\_ IP noise cancellation stations and \_\_\_\_\_ speech channels. System shall be expandable by adding plug-in boards, analog stations, IP noise cancellation stations and software licenses and modules to approximately 140,208 stations. The system shall be expandable to AlphaNet operation with remote sites, using transparent dialing between remote modules.

(Note to specifier: indicate size and capacity of audio server(s))



- D. The scope of the system shall include all features and functions described herein and the equipment shown on the plans. System shall be capable of adding optional features, equipment and interfaces listed in the specifications, even if not initially included or shown on the plans.
- E. A complete operational system shall be provided. The system functions in public areas such as elevators, lobbies and parking areas shall comply with ADA requirements.

### 2.3. SYSTEM CONFIGURATION

- A. The central audio server (s), power supplies, batteries, interfaces, page adapters, accessories, and main distribution board, shall be located in an appropriate secure data processing room, separate from the telephone equipment room (as shown on the plans).
- B. The central audio servers(s) may or shall be configured in AlphaNet configuration and connected via IP to customers LAN/WAN or internet and be able to be connected in such a matter to create a single system that can consists of up to 254 AlphaCom XE system nodes. All necessary data and audio routing between AlphaCom XE audio servers shall be via IP and only require the necessary AlphaNet VoIP software licenses based on the system design. No additional hardware boards or proprietary black boxes will be necessary to do the networking via IP between AlphaCom XE audio servers.
- C. System shall consist of duplex master stations with direct access buttons, with or without handsets, and with or without LCD displays, as indicated on the plans. Each master shall be capable of calling all other stations in the system unless specifically blocked or restricted through programming. System shall be capable of having both traditional and IP noise cancellation based stations along with SIP stations to meet the needs of the system design.
- D. Security control room masters and all other master stations shall be desk, flush or surface wall mounted, or rack mounted as shown on the plans.
- E. Substations shall be flush or surface mounted, tamper and weather resistant where needed and located as required for direct access calling to control room masters, as shown on the plans. The elevator company shall install elevator car substations.
- F. System shall include a "supervisor's" display type master control station at or near the central audio server to function as a system maintenance and fault indication station.
- G. All features and functions shall be programmed on site with a standard PC via IP.  
(Note to specifier: Indicate project requirements)

### 2.4. STANDARD SYSTEM FEATURES

- A. **MASTER CALLS.** A call shall be placed from any master station to any other station in the system, unless specifically blocked, by dialing the appropriate number of the desired station, or using one of the direct access buttons. Either party can cancel call by pressing the (C) button.
- B. **SUBSTATION CALLS.** Each substation shall be programmed to call a specific master station(s). Pressing button on substation shall provide call request verification by blinking LED on station and giving voice message (with optional voice board). A substation "call-request" call shall be identified on a display master, with text message, or flash an associated LED and sound a unique tone on a CRM type control room master.



- C. **DIRECT ACCESS BUTTONS.** All desk master stations shall include (10) direct access buttons, programmed for direct access calling, to allow single button speed dialing of other stations, features or telephone lines. Station user shall easily program direct access buttons at any time. Control room masters (CRMIV) shall have button modules available in (48) direct access button size with each CRMIV capable of up to 96 direct access buttons. Dual Display Master Stations (7007) shall be capable of up to 90 direct access buttons.
- D. **ALL-CALL.** All master stations shall be able to initiate an all-call page to all other stations in the system. It shall be possible to remove stations, through programming, from receiving all-call and restrict any station from initiating an all-call. Selected stations shall receive all-call announcements at full volume, regardless of station volume setting.
- E. **GROUP-CALL.** All master stations shall be able to initiate selective paging to predetermined groups of stations in the system. Ability to initiate group call shall be restricted to designated stations. A station may be programmed for membership in several groups. It shall be possible to program up to 250 groups. There shall be no limitations to the number of stations in any group. It shall be possible to program up to eight adjacent stations out of a group call so as to eliminate audio feedback. The system shall be able to send out several group calls simultaneously. With up to 4 levels of priority. Each group shall be able to program one of 4 call announce chime tones.
- F. **OVERHEAD PAGING.** All master stations shall be able to dial or direct access into one, or more, voice paging system(s) for zoned and/or department paging over amplified speakers, unless specifically restricted through programming.
- G. **AUTOMATIC SEARCH FEATURE.** Each station shall have a pre-programmed list of actions that can automatically take place when their station is called but they are either busy, private, absent or unattended call request. System shall allow call to be automatically rerouted to another station, call request, group call etc. Each station can have up to 3 different search call numbers.
- H. **REPLY FEATURE.** A person hearing a page or group call shall be able to begin an immediate normal hands free conversation with the person who initiated the page, by simply pressing an answer code, 99, on any convenient master station in the group. System shall allow multiple page/reply functions simultaneously. The waiting time shall be programmable.
- I. **DUPLEX/MANUAL OPERATION.** Once call connection is established, normal conversation shall take place in the "duplex" mode, whereby each person may talk "hands-free." Each master shall have a manual "M" button that when used shall control the direction of the conversation (press to talk, release to listen). Momentarily depressing "M" button shall restore duplex mode.
- J. **REMOTE CONTROL FUNCTIONS.** Each station port in the audio server shall include (1 RCO (Remote Control Output) to be freely used for control of external equipment. AlphaCom Relay Board 99702 required. See Options.
- K. **VOLUME CONTROLS.** The volume of each station shall be adjustable by programming the appropriate subscriber board in the audio server, either from the station or from PC programming. In addition, each master shall have an adjustable volume control knob. Outgoing volume shall be automatically increased by +6 dB when using the M key for press-to-talk.
- L. **TONE SIGNALS.** All features and functions such as: off hook, call connection; busy; call forward; all call; group call; etc., shall be accompanied or preceded by a distinguishable tone. All/Group Call tone signals shall be programmable, and tones shall be harmonic and undistorted. It shall be possible to customize and change the length and frequency of All/Group tones.



- M. MICROPHONE MUTE. During a conversation, a person shall be able to momentarily block the microphone on any master by holding down one button (the "0" key).
- N. CALL HOLD, INQUIRY & TRANSFER. Once a call is connected, it shall be possible to place the call on "hold" by pressing one button (digit #2), dialing and conversing with a third party, switching back and forth or transferring the call by pressing one button (#3).
- O. SIMPLEX CONFERENCE. It shall be possible to establish and/or join a conference by dialing a four-digit code. It shall be possible to include any number or all stations in a conference. The system shall be capable of 50 conferences. Voice control shall be manual, (press-to-talk, release-to-listen). In a standard conference, intercom and paging announcements shall temporarily interrupt the conference. One person at a time shall talk in an individual conference. Stations can be programmed with the ability to override and take control of talking into or speaking into the conference.
- P. PRE-SET GROUP CONFERENCE. It shall be possible to set up a group conference by simply dialing a two-digit code, then a group number followed by the conference number. System shall allow up to 50 conference groups. Dialing the pre-set group conference number shall include all members of the group, and all members of the group shall be able to hear whoever is talking. Each group member shall be able to speak to the group by holding down the [M] button on his master. It shall be possible to have a pre-set conference automatically activated by a remote alarm contact. One person at a time shall talk in an individual conference. Certain stations can be programmed with the ability to override and take control of talking into or feeding the conference.
- Q. OPEN DUPLEX CONFERENCE. It shall be possible to set up an open duplex conference by simply dialing a four-digit code. It shall be possible to have 20 different conferences. Upon dialing the code, the station will enter the conference. By placing handset back on hook you will leave the conference. If you wish to rejoin the open duplex conference you simply dial the four-digit code. It shall be possible to start a preset open duplex conference to include a preset group of stations. It shall also be possible to program DAK Keys on stations to allow for single button dialing to enter conference and also start a preset conference. The maximum number of participants is 16 stations in an open duplex conference.
- R. PRIORITY AND CLASS OF SERVICE. System shall have 4 levels of priority to allow or deny access to features, such as voice or pocket paging, all-call, group-calls, preset conferences, telephone lines, groups of stations and text display of alarm messages. System shall include 16 classes of service which shall allow the ability to customize features/functions available to stations.
- S. DO-NOT-DISTURB. All master stations shall be equipped with a privacy/open knob or button to allow user to place station in the "privacy" mode. When in the privacy mode, an incoming call shall sound a unique "privacy ring tone" at both the initiating station and station being called. Call may be answered by pressing the "M" button. It shall be possible to program selected stations with "Privacy Override", whereby calls will be heard even if stations are in the privacy mode.
- T. STATION NUMBERING. System shall have a true flexible numbering plan feature whereby any number from "0" to "99999999" may be assigned to stations or feature codes. Dialing between remote audio server(s) shall be transparent. Shall be factory programmed with an "autoload" numbering plan that may be changed on-site as required. It shall be possible to change numbers any time through programming, with access codes, without any rewiring.



- U. **MUSIC DISTRIBUTION.** System shall allow up to 6 channels of music to be distributed to all stations. Each master may select a desired channel by simply dialing a three-digit code. Music shall be interrupted during intercom calls and return automatically upon completion of the call. System shall also include a "channel step" function. Thirty-two additional channels shall be available through optional boards. Note: Standard for AlphaCom XE7 is two channels. Optional APC Connection Kit (#1009503000) must be used with AlphaCom XE20 and XE26 Audio Servers. AlphaCom XE1 not capable of music distribution feature.

(Note to specifier: Indicate if music distribution is required for system.)

- V. **INFORMATION CHANNEL.** System shall allow one or more audio channels to be programmed to distribute audio information that is pertinent to the operation of the facility. Channel shall be accessed and operate as described for music distribution.
- W. **REMOTE SET UP OF PROGRAMS.** It shall be possible to individually program stations, or groups of stations to receive a channel from a remote master control station.
- X. **TEXT MESSAGES.** The system shall allow multiple alpha/numeric text messages to be stored in queue on each master. The sequence of display shall be based on the priority of each message.
- Y. **TECHNICAL ALARMS.** It shall be possible to activate a preset (16) character text message on a selected display master, group of masters or activate an audio message on the information channel, from remote alarm contacts. Each message can be customized and set with a priority level through programming. The system shall include (6) inputs for technical alarms. Note: AlphaCom XE1 and XE7 have two inputs. Optional APC Connection Kit (#1009503000) must be used with AlphaCom XE20 and XE26 Audio Servers.

(Note to specifier: Indicate if music distribution is required for system.)

- Z. **AUDIO ALERT OF TEXT MESSAGE.** System shall allow (4) distinct types of audible alert tones to sound at the master, when messages are activated. Shall also allow connection of external alarm indicators (lamps, buzzers or bells) to sound for high priority messages in noisy environments.
- AA. **CALL REQUESTS TO MULTIPLE MASTERS.** It shall be possible to program up to (20) masters to simultaneously receive and display text message call requests from substations. When the calls are answered at one master, the messages shall be deleted from all other masters. It shall also be possible if receiving a call request with a certain high priority level to alert receiving station(s) by a private ringing tone.
- BB. **TRANSFER OF CALL REQUESTS.** It shall be possible to transfer call requests from substations (while allowing standard calls) to different masters by simply dialing a (4) digit transfer code plus the number of the master or group of masters that will receive the transferred calls.
- CC. **TRANSFER OF STANDARD CALLS.** It shall be possible to redirect (Call Forward) "all" calls to another master, a DECT phone, telephone number, or group number simply by dialing a two-digit code 71, plus the redirected number. When in the "transferred" mode, only the station selected to receive the diverted calls shall be able to call or transfer calls to the forwarded station. It shall also be possible to redirect calls while at the receiving station (Follow me) by dialing a two-digit code 72 plus the number of the forwarded station. The system shall be able to simultaneously handle up to (100) call forward commands.



- DD. "CAMP-ON" BUSY. The system shall include ability to call a busy station, or feature, hear a busy tone (reduced in volume after 5 seconds), wait for a preset time and automatically connect when the called station or feature is free. Upon connection, both parties shall hear the normal "connection tone." Number of "camp-on" calls in the system shall be unlimited.
- EE. TEXT CALL BACK MESSAGE. If the calling party does not wish to remain "camped-on," it shall be possible to place the call in memory and display a callback message on the called party's station by dialing an additional digit [8]. The message shall be registered on the display. It shall be possible to leave up to 9 pre-set text messages on the display of the called station. The number of "call-back messages" on any one station, or in the whole system, shall be unlimited.
- FF. VOICE CALL-BACK MESSAGE. It shall be possible to leave a "pre-set" audio voice message, by dialing a voice message code 7 on the initiating intercom station. The audio message shall be played back at the receiving station by dialing two digits 70. Voice messages shall require (#10096485001 Enhanced Audio Messaging License).
- GG. GROUP HUNT. The system shall allow programming of multiple "Hunt" groups, whereby calls to a group number will search and connect to the first available station in the group. The feature may be programmed to have a rotational or fixed start point. Feature shall allow substation calls to be directed to a primary master but if it is busy, search for an available master in the group. Shall allow automatic transfer on busy.
- HH. CALL REQUEST TRANSFER "PRESET." Stations shall be allowed to automatically divert call request calls to a pre-selected station or group of stations simply by dialing a pre-set code [7870], then the station number or group number.
- II. SOFTWARE PROTECTION. All programmable information, including the customer's program, IP related setting and software licenses shall be retained in the onboard, removable SIM card. In addition, it shall be possible to store the program on a PC using AlphaPro and also be able to download via AlphaWeb the contents of the FLASH memory as a file for troubleshooting.
- JJ. EMERGENCY ALARM CALLS. Selected stations shall be able to initiate priority alarm calls to groups of stations in the system. Alarm calls shall override all conversations in progress, override station volume settings, and be heard even if handset is off-hook on desk master stations. Stations can be exempt from receiving the emergency calls. In addition, it shall be possible to initiate an alarm call from external equipment and give an automatic voice message.
- KK. WAKE UP REMINDER CALLS. The system shall allow (200) separate automatic date and time calls that will cause individual stations to ring at preset times. This wake up time is entered at the selected station itself. The duration and number of rings shall be programmable. After initiation, dialing a digit or lifting the handset shall cancel the ring.
- LL. FAULT/ALARM LOGGING. System shall archive via Syslog file fault conditions within the system (faulty boards, wiring or software), and external alarm conditions input through the intercom system (prints time and source of alarm) as well as call logging between intercom stations for the entire system. It shall also be possible to view via AlphaWeb the Syslog file to inspect the contents of the file. Using an OEM Syslog viewer shall allow for faults/alarm logging and call logging events to be sent to remote/external IP address for remote monitoring of the system and also the possibility to send these events via Syslog viewer to an email address.



- MM. ALARM OVERRIDE. System shall allow priority calls and voice alarm messages to override standard intercom calls and come through speaker at full volume, even when handset is in use, privacy switch on and volume set low.
- NN. TONE TEST. System shall have the capability to do a tone test of entire system. This tone test shall test the speaker and microphone circuits of all standard stations. This test can be performed automatically everyday at a certain time or can be manually started to provide a system evaluation for troubleshooting purposes. The results of the tone test are sent to Syslog file and are saved so results can be looked at a later time that is convenient via AlphaWeb.
- OO. HOTLINE CALL. System shall have the ability from any master station with a handset to perform a hotline call. This hotline call is performed by lifting the handset on a master station, which in turn will place a call to a station or feature that is programmable per station in 5 seconds. Default timer of 5 seconds is programmable, however this is a system wide timer for all stations.
- PP. EVENT HANDLING. Programming of custom scripts allows for custom software functions or features that are not provided in the basic system. These special features can include actions such as ASCII data outputs strings to external computers for interfacing to CCTV or card access or specific events related to transfers, call requests to multiple stations in multiple audio servers simultaneously and many other non standard features that a customer desires that are unique to or needed for their intercom system.
- QQ. SIP INTERFACE. This interface shall provide the ability for VoIP telephones or telephone systems which support SIP protocol to interface and register to the AlphaCom XE-series audio server. VoIP telephone can be a single IP telephone device or can be a soft phone client running on a PC. This interface allows for point to point calling between any intercom station and SIP telephone devices with call number and text shown on both ends of the call. Requires #9643-XXX SIP license(s) which is dependent on the number of SIP users required. IP SIP capable phone by others, consult Zenitel for recommended models that have been tested for use with the AlphaCom XE system.
- (Note to specifier: Indicate if SIP Protocol is required for system.)
- RR. ACTIVE NOISE CANCELLATION. Shall be provided at the audio edge device. IP stations shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server.
- SS. IP NETWORKING AND SECURITY. Shall be provided at the audio edge device. IP stations shall have the IEEE 802.1X standard for port-based Network Access Control which provides an authentication mechanism to devices that need to attach to the LAN. It either establishes a point-to-point connection on authentication or it prevents such a connection if the authentication fails. IP stations now have a managed data switch supporting VLAN which allows single network connection to be shared for the IP station and IP CCTV camera without disrupting service quality or violating security. IP stations also shall support the spanning tree and rapid spanning tree protocol.
- TT. SCHEDULING OF EVENTS/ACTIONS. AlphaCom XE Audio Server shall have built-in scheduler which allows any event/action(s) to be executed based on time of day, month or year. Multiple scheduled event/action(s) can be programmed as needed. Any feature or function of the AlphaCom can be set to occur using the built-in scheduler.



## 2.5. SYSTEM OPERATION

- A. **MASTER-TO MASTER CALLS.** All masters shall be able to call all other masters individually, point to point, unless blocked through programming, by simply touch dialing a 1-6 digit number, or by using direct access buttons. Once dialed, both stations shall be able to converse "hands free." All standard features listed shall be available to all masters.
- B. **CALL FROM SECURITY SUBSTATION TO CRMIV and CRMV MASTER.** A call request shall be initiated from a substation by activating an alarm button, or the call-in button on the substation. The call request shall indicate to the calling party with a flashing green LED (and an audible call acknowledgment voice message) to comply with ADA (see options). It shall be possible to also start an external strobe light (see options). This call request shall be annunciated at the CRMIV and CRMV Control Room Master station as follows:
1. The LCD will show you have received a call request from a station.
  2. A rapidly repeating tone signal sounds. Call request shall be answered at the CRMIV and CRMV by pressing direct access button preprogrammed to answer all call requests from stations.
  3. When call is answered the following shall occur:
    - a. A connection tone is heard at both the CRMIV and CRMV and the calling station.
    - b. Flashing green LED illuminates "solid" on the appropriate button if direct dial unit (D48) is used.
    - c. The Number and Text of the station that is connected appears in the LCD.
    - d. An in-use LED illuminates on the calling substation.
    - e. Clear, two-way communication shall take place.
    - f. Other calls from substations to the CRMIV and CRMV station shall each flash their appropriate direct access button LED if direct dial unit (D48) is used and sound the call-in tone.
- C. **CALL FROM A CRM STATION TO ANY OTHER STATION.** A call shall be placed from a CRMIV and CRMV station to any other station in the system by simply dialing the station number on the digit keypad. LCD on the CRMIV and CRMV station shall indicate the number and text of the called station. When calling any other master station, "duplex" hands-free communication shall be possible between the two stations. When calling an elevator car, or other security substation, the press-to-talk button shall be used to control the conversation, if needed.
- D. **GROUP CALL FROM A CRMIV and CRMV STATION.** A group call shall be initiated at a CRMIV and CRMV by dialing the number assigned to preprogrammed group of stations. This shall sound an alert tone and allow paging to all stations in the group. There shall be no limitation to the quantity of stations in a group. Group calls shall have priority over other conversations in progress.
- E. **PROGRAMMING BUTTONS ON THE CRMIV and CRMV STATION.** Direct access buttons on the CRMIV and CRMV master station shall be easily programmed and changed by the station user. Once programmed, the button assignments shall remain in memory. This feature is valid if CRMIV and CRMV is equipped with D48 button modules.

(Note to specifier: Describe other desired operations)

## 2.6. EQUIPMENT AND PRODUCTS

- A. **STANDARD DESK MASTER.** Master shall include the following controls: dialing buttons 0-9; Manual "M," button for speech control and other functions; cancel "C" button; privacy slide switch and variable volume control. Shall include 10 direct access buttons. Shall include a 3", 63 ohm, 1.6 watt speaker with a sensitivity 88 dB, mounted in an acoustic baffle. Shall include an electret condenser microphone with 100/300 mV output and sensitivity of -65 dB @1 kHz. Shall include a preamplifier with a 600 ohm output impedance, and greater than 40 dB signal to noise ratio. Frequency response of input and output shall be 300 to 10,000 Hz. Master shall be in a modern gray and black plastic housing, suitable for desk mounting, and have a six foot cord and plug. Shall be STENTOFON #1007036210.



1007036210

- B. **DESK MASTER WITH HANDSET.** Master shall include the following controls: dialing buttons 0-9; Manual "M," button for speech control and other functions; cancel "C" button; privacy slide switch and variable volume control. Shall include 10 direct access buttons. Shall include a 3", 63 ohm, 1.6 watt speaker with a sensitivity 88 dB, mounted in an acoustic baffle. Shall include an electret condenser microphone with 100/300 mV output and sensitivity of -65 dB @1 kHz. Shall include a preamplifier with 600 ohm output impedance, and greater than 40 dB signal to noise ratio. Frequency response of input and output shall be 300 to 10,000 Hz. Master shall be in a modern gray and black plastic housing, suitable for desk mounting, and have a six foot cord and plug with addition of a lightweight handset for confidential conversations. Color shall be black and gray. Shall be STENTOFON #1007034210.



1007034210

- C. WALL MOUNT STANDARD MASTER. Shall function exactly like a standard desk master but with all controls, speaker and microphone mounted on an extruded aluminum face plate, suitable for wall mounting. Shall include a sensitive condenser microphone and a 3" round, 63 ohm speaker with a 5 ounce magnet. Finish shall be anodized aluminum. Mounts on #1000602000 flush or #1000603100 surface backbox. Shall be STENTOFON #1007040000 and #1007042000 or #10070450US.



1007040000



1007042000



10070450US

- D. OPERATING ROOM MASTER. Designed for hospital operating rooms. Master shall include a standard 0-9 keypad, manual "M" button, "C" cancel button and LED call placed indicator. Shall include a sensitive condenser microphone and a 3" round, 63 ohm and 1.6 watt speaker display. The 70366 Model shall have (4) programmable direct access buttons and LCD display. Shall have a Mylar covering for wipe-down sterilization. Mounts on #6020 flush or #6031 surface backbox. Size: 11" H x 4.9" W x 2.6" D; Microphone: 100/300 mV output, -65 dB @ 1 kHz sensitivity; Speaker: 3" round, 63 ohm, 1.6 watt, 88 dB sensitivity; Frequency: Voice range of 300-5,000 Hz; Mounts on #1000602000 flush wall box or #1000603100 surface box. Shall be STENTOFON #1000603660US or #100070366US.



100060366US



100070366US

- E. **DESK DISPLAY MASTER.** Master shall include a standard 0-9 keypad, manual "M" button, "C" cancel button, privacy/open slide switch, LED call placed indicator, variable volume control, (10) programmable direct access buttons and a 2 1/2" x 1/2", and a 16 character LCD alphanumeric display. Shall include a 3", 63 ohm 1.6 watt speaker with a 5 ounce magnet mounted in an acoustic baffle. Shall include an electric condenser microphone with a 100/300 mV output and sensitivity of -65 dB @ 1 kHz. Shall include preamplifier with 1000 ohm output impedance and frequency range of 300 to 10,000 Hz. Housing shall be ABS plastic finished suitable for desk or surface wall mounting. Dimension shall not exceed 3" H x 7" W x 7" D. Shall be STENTOFON #1007071090.



1007071090

- F. **DISPLAY MASTER WITH HANDSET.** Shall be identical to the 7071 Display Master, with addition of a handset, coiled cord and magnetic hook-switch. Shall be STENTOFON #1007072090.



1007072090

- G. **DUAL DISPLAY MASTER.** Master shall include a 10 direct access keys (DAK) keypad, divided into 9 pages with information text for each DAK on a 5-8 character display. Station dialing keys shall have letters used for search facility in the intercom directory and display text editing. The station shall have 4 specific navigation keys for quick access to system menus and directory entries. Status information, guidance and menus are shown on a large 4 line graphic display. Frequency response of input and output shall be 300 to 7,000 Hz. Housing shall be ABS plastic finished suitable for desk mounting. Dimension shall not exceed 2.8" H x 5.5" W x 10.6" D. Shall be STENTOFON #1007007000.



1007007000

- H. **LIGHT INDUSTRIAL MASTER STATION.** The light industrial master station shall be splash proof and designed for humid, dirty and outdoor conditions. The exterior casing shall be comprised of a flame and chip resistant Bayblend plastic with a UV cured, chemical resistant PVC front panel. This station shall have a red LED indicator for incoming calls and station in use indication. This station shall have an IP54 classification. Temperature Range: 0° to +50°C (+32°F to +122°F; Humidity Range: 10% - 85% RH ; Dimensions: 4.9" x 9.5" x 2.5"; Sound Pressure at 1m from internal speaker: 66 db (0.5 mm cable x 100 m, 8.0V on subscriber board, 1 kHz); Max. loudspeaker output - external speaker: 1.5W (20 Ohm) 10W (8 Ohm) w/power amplifier; Frequency Range: 500-5,000 Hz (+ 8 dB) Gland Diameter: 1 x PG9, 1 x PG11; Shall be STENTOFON #1007080000.



1007080000

- I. **NOISE CANCELLING INDUSTRIAL MASTER STATION.** This industrial master station shall be weather resistant designed for humid/dirty conditions. Station shall operate in an ambient temperature range from -20oC to +50oC (-4oF to +122oF) and have an IP65 classification. The exterior shall be comprised of a chip-resistant orange Makrolon with a folio keyboard on the front. Station shall have a red LED indicator for incoming calls and station in use indication. Temperature Range: -20° C to +50° C (-4° F to +122° F); Humidity Range: 10% - 85% RH; Dimensions: 6.24" x 9.36" x 5.34"; Max Loudspeaker Output: 1.5 W (20 Ohm) 10W (8 Ohm) with power amplifier; Frequency Range: 500-5,000 Hz (+ 8 dB); Gland Diameter: 2 x PG9; Shall be STENTOFON #1007082000.



1007082000

- J. CONTROL ROOM MASTER (CRM-IV). Compact desk top console master shall include a 3" speaker, condenser microphone with preamplifier and automatic sensitivity adjustment, handset with coiled cord, dial keypad with manual and cancel button, privacy switch, optional programmable direct access buttons (modules of 48 buttons, with a maximum of two modules), (4) function buttons and a 4 line 20 character alphanumeric, backlit LCD display. Shall allow up to (100) call requests in queue with (256) priority levels, and allow multiple parallel masters with transfer of command. Shall operate with only (3) pair twisted #24 gauge wire. Shall be STENTOFON #1007006102.



1007006102

- K. CONTROL ROOM MASTER. This advanced control room master features a large 4 x 20 character alphanumeric LCD display with backlight. This station shall have a full dialing keypad, 10 programmable single touch keys, answer-next-in-queue key, handset, sensitive electret microphone and a powerful 1W loudspeaker. The station shall have full loud speaking conversation with automatic switching of the speech direction. This station shall be able to manually override the automatic speech switching for a push-to-talk operation. Handset is optional order part # 92497 (Desk) #92495 (Rack). Temperature Range: 0° C +40° C (+32° F to +104° F); Dimensions: 14" x 7" x 3" (Desk) 5 ¼" x 19" (Rack); Finish: Black; Loudspeaker Output: 1 W (63 Ohm) Frequency Range: 300-5,000 Hz. Shall operate with only (3) pair twisted #22 gauge wire. Shall be STENTOFON #1000705300 (Rack) or #1000705301 (Desk).



1000705300 Rack Mount



1000705301 Desk Mount

- L. STAINLESS STEEL SUBSTATION (OUTDOOR/INDOOR). Shall be a tamper resistant, electronic substation with one (1) stainless steel call request push button, a 2.5", 45 ohm speaker, an electret condenser microphone with preamplifier mounted on an 11 gauge, #304 Stainless Steel face plate. The call button shall be programmed to call a specific master. The electronic board shall be encased in epoxy and have built in transient suppression and plate shall include a rubberized gasket. Shall mount on a standard (2) gang deep electrical back box, box provided by others. 6291 series isn't recommend for outdoor installations, but if installed outside installer must drill weep holes in back box. Shall be STENTOFON #10006291SMD or #1000629100 (Optional Red Call Button).



10006291SMD



1000629100

- M. STAINLESS STEEL SUBSTATION (OUTDOOR/INDOOR). Shall be a tamper resistant, electronic substation with one (1) or two (2) stainless steel call request push button(2), a 2.5", 45 ohm speaker, an electret condenser microphone with preamplifier mounted on a 11 gauge, #304 Stainless Steel face plate. The call button shall be programmed to call a specific master. The electronic board shall be encased in epoxy and have built in transient suppression and plate shall include a rubberized gasket. Shall mount on a standard (3) gang deep electrical back box, box provided by others. 6294 series isn't recommend for outdoor installations, but if installed outside installer must drill weep holes in back box. Shall be STENTOFON #10006294SMD or #100062942SMD. Optional #1000629400 (Optional Red Call Button, not shown).



10006294SMD



100062942SMD

- N. EXTERIOR TAMPER-RESISTANT SUBSTATION. This station shall be tamper resistant with one 1.5" red mushroom button. The station shall be mounted on a 1/4" thick aluminum plate designed to withstand extreme abuse. Moisture resistant speaker and microphone shall be mounted behind two offset grills, milled into aluminum block to prevent damage from foreign material or water. The electronic board shall be encased in epoxy and have built in transient suppression and plate shall include a rubberized gasket. The station shall mount on a #1000629700 flush, #1000629800 surface or #1000629910 cast weatherproof backbox. If installed outside installer must drill weep holes in back box. Shall be STENTOFON #10006292SMD. Also available in dual button version #100062922SMD where top button is silver and bottom button is red.



10006292SMD



100062922SMD

- O. HANDSET SUBSTATION. This station shall be a durable master station with handset designed to automatically place a call when the handset is picked up. By software programming you shall have the ability to either have a 10 button substation or unit will call a single location by lifting the handset off hook. This station shall include a red call placed LED. This station shall mount on #1000602000 flush or #1000603100 surface back box as required.; Faceplate: 1/8" (.125) aluminum finished in ultrasonic grey paint; Size: 11" H x 4.9" W x 4" D (280 x 125 x 102 mm). Shall be STENTOFON #10070450US.



10070450US

- P. **ELEVATOR SUBSTATION.** The station shall be functional equivalent of a #6294 series substation, without faceplate. It shall be designed to mount behind appropriate panel provided by elevator company. Elevator kit, model #1000106300 shall consist of an electronic preamplifier board, with necessary screw terminals, a 4" 45 ohm speaker and condenser microphone. Finish shall be black epoxy. When mounted on a sub plate shall be STENTOFON model #1000106400. Call-in button shall be provided by elevator company.



1000106400



1000106300

- Q. **SECURITY/EMERGENCY SUBSTATION.** This station shall have an 11 gauge stainless steel faceplate with a 3" weather resistant speaker, protected electret microphone, high intensity 1/2" LED and a large red mushroom call button. Substation shall operate from -10°F to +120°F. Shall include circuitry for a strobe control board. Shall mount on a #1000104100 (Steel Back box as shown below), #1000104200 (Rolled Steel Back box-Yellow) or standard stanchions and wall units provided by STENTOFON. If installed outside installer must drill weep holes in back box. Shall be STENTOFON #100629267SMD and #1006292792MS.



100629267SMD (in back box)



1006292792MS

- R. **IP DESK MASTER STATION.** Desk master station for use in offices and control rooms. Station shall include a large high contrast display with backlight which allows important information about connections to be shown. The 80010 shall be equipped with 10 DAK keys for single touch access to stations, group calls, etc and handset for confidential conversations. It shall connect directly to IP networks and have an integrated web server for easy configuration, monitoring and remote automatic software updates. IP station shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server. Sound detection shall be an optional feature enabled by software license. Station shall provide wideband audio. Connection must be to a PoE switch. Shall be STENTOFON #1008001000 IP Desk Master w/handset or #1008000000 IP Desk Master.



1008001000



1008000000

- S. **IP OR MASTER.** Master station for use in operating and clean rooms that require chemical resistant and anti-bacterial front surface for easy cleaning. Station features a large high contrast display with backlight and up to 8 lines with 20 characters as well as the added feature of lighting behind each key that provides excellent readability in locations where lighting can be a problem. Station connects directly to IP network making it easy to deploy anywhere at any distance. Station has integrated web server for easy configuration, monitoring and remote automatic software updates are built in features. IP station shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server. Station provides wideband audio and may be powered locally or connected to a POE switch. Station can be mounted in flush #1008098700 back box. Sound detection shall be an optional feature enabled by software license. Optional handset unit #1008097100 is available as an option. Shall be STENTOFON #1008015000 IP OR Master.



1008015000



- T. IP FLUSH MASTER. Flush master station with display is a general purpose intercom station Intended for use where a desktop station is impractical. Station features a large high contrast display with backlight which allows important information about connections to be shown very clearly. Station is equipped with 4 DAK keys that provide single-touch access to stations and features. Station connects directly to IP network making it easy to deploy anywhere at any distance. Station has integrated web server for easy configuration, monitoring and remote automatic software updates are built in features. IP station shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server. Station provides wideband audio and may be powered locally or connected to a POE switch. Station can be mounted in flush #1008098700 back box or surface #1008098600 back box. Sound detection shall be an optional feature enabled by software license. Optional handset unit #1008097100 is available as well as optional gooseneck microphone #1008097500. Shall be STENTOFON #1008031000 IP FLUSH MASTER



1008031000

- U. IP DAK48 UNIT. The IP DAK48 Unit extends the IP Flush Master Station with DAK buttons and visual indicators (LEDs) that provide the ability to have 48 auto dial keys per unit. IP Flush Master can be equipped with 2 IP DAK48 units. This unit opens up a wide range of applications such as advanced call request handling, CCTV and intercom integration, dynamic group call and PA zone selection. IP Flush Master must be equipped with IP CRM-V station license in order to use IP DAK UNIT. Unit can be mounted in flush #1008098700 back box or surface 1008098699 back box. Shall be STENTOFON #1008010100 IP DAK48 UNIT.



1008010100 IP DAK48 Unit

- V. **SOFT CLIENT.** Shall turn your PC into a STENTOFON intercom station providing access and ability to make intercom calls, PA calls and perform any feature that a traditional or IP master provides. Allows direct dialing from the PC keyboard or via mouse as well as M and C keys on the PC from the keyboard. Soft Client shall operate on touch screens. Headset or speakers and microphone for the PC shall be provided by others. Shall be STENTOFON #1009648011.



1009648011 Soft Client

- W. **IP INDOOR TAMPER RESISTANT SUBSTATION.** Shall be a tamper resistant, electronic substation with one (1) stainless steel call request push button, a 2.5", 45 ohm speaker, an electret condenser microphone with IP substation board on a 11 gauge, #304 Stainless Steel face plate. The call button shall be programmed to call a specific master or feature. The IP substation shall be equipped with dual IP ports for possible daisy chaining of IP stations or devices, integrated web server for programming, wideband audio (7kHz), dry relay contact for door opening or strobe control and line monitoring as standard features and mounting plate shall include a rubberized gasket. IP station shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server. Shall mount on a standard (3) gang deep electrical back box, box provided by others. IP6294-1 isn't recommended for outdoor installations, but if installed outside installer must drill weep holes in back box. Sound Detection shall be an optional feature enabled by software license. Shall be STENTOFON #100062941IP.



100062941IP

- X. IP EXTERIOR TAMPER RESISTANT SUBSTATION. This station shall be tamper resistant with one 1.5" red mushroom button. The station shall be mounted on a 1/4" thick aluminum plate designed to withstand extreme abuse. Moisture resistant speaker and microphone shall be mounted behind two offset grills, milled into aluminum block to prevent damage from foreign material or water. The IP substation shall be equipped with dual IP ports for possible daisy chaining of IP stations or devices, integrated web server for programming, wideband audio (7kHz), dry relay contact for door opening or strobe control and line monitoring as standard features. IP station shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server. The station shall mount on a #1000629700 flush, #1000629800 surface or #1000629910 weatherproof back box. If installed outside installer must drill weep holes in back box. Sound Detection shall be an optional feature enabled by software license. Shall be STENTOFON #100062927IP.



100062927IP

- Y. IP SECURITY/EMERGENCY SUBSTATION. This station shall have an 11 gauge stainless steel faceplate with a 3" weather resistant speaker, protected electret microphone, high intensity 1/2" LED and a large red mushroom call button. Substation shall operate from -10°F to +120°F. The IP substation shall be equipped with dual IP ports for possible daisy chaining of IP stations or devices, integrated web server for programming, wideband audio (7kHz), dry relay contact for door opening or strobe control and line monitoring as standard features. IP station shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server. Shall mount on a #1000104100 (Steel Back Box as shown below), #1000104200 (Rolled Steel Back Box-Yellow), #10001043 (Stainless Steel Back Box) or 1600 series stanchions or wall units provided by STENTOFON. If installed outside installer must drill weep holes in back box. Sound Detection shall be an optional feature enabled by software license. Shall be STENTOFON #1000629279IP.



1000629279IP in back box

- Z. IP VANDAL RESISTANT IP SUBSTATION. This station shall have a 2mm stainless steel faceplate and shall be equipped with dual IP ports for possible daisy chaining of IP stations or devices, integrated web server for programming, wideband audio (7kHz), dry relay contact for door opening or strobe control and line monitoring as standard features. IP station shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server. Station shall be equipped with a one call button. Shall flush mount in #1008098100 back box or surface mount in #1008098000 back box. Sound Detection shall be an optional feature enabled by software license. Shall be STENTOFON #1008041100



1008041100

- AA. IP VANDAL RESISTANT IP SUBSTATION. This station shall be have a 2mm stainless steel faceplate and shall be equipped with dual IP ports for possible daisy chaining of IP stations or devices, integrated web server for programming, wideband audio (7kHz), dry relay contact for door opening or strobe control and line monitoring as standard features. IP station shall use an advanced signal processing algorithm to identify and filter out background repetitive noise signal audio. The feature shall be integrated into the IP station onboard DSP and software adjustable from the IP station integrated web server. Station shall be equipped with a red raised red call button. Station shown is mounted vertically in 3-gang electrical flush or surface mount back box for proper installation. 3-gang electrical back box to be provided by others. Sound Detection shall be an optional feature enabled by software license. Shall be STENTOFON #1008051000



1008051000

- BB. IP PAGE ADAPTER. This page adapter shall be IP based and have much the same features as IP substations such as dual IP ports, integrated web server for programming, dry relay contact for possible muting of music on PA amplifier along with line monitoring. Output shall be balanced 600 ohm, 0Db for connection to PA amplifier and speakers to allow for paging of internal or external areas over IP to local or remote sites as required. IP Page Adapter shall be enclosed in a box to allow for easy mounting. Unit requires local 24 VDC power supply #1000111700. Shall be STENTOFON #10001078IP Page Adapter.

CC. CAMPUS EMERGENCY SIGNALLING UNIT. Unit shall include a 50 watt constantly glowing blue identification luminaries, a small 7 watt fluorescent to illuminate the substation and an extremely bright 1.5 million candle power blue flash strobe. Lamps shall have blue prismatic Lexan lenses with clear UV protected polycarbonate outer lenses. Unit shall be a 10 gauge stainless steel wall or pole mount weather proof housing that is 42" high by 12" wide with silk screened "emergency" signs. Shall be STENTOFON #1600 series units. Order Substation #100629267SMD, #1000629279IP or #1006292792MS.



DD. AUDIO SERVER. The AlphaCom XE Audio Server shall provide all control, logic, signaling, "duplex" switching amplification, power and all operating features listed throughout this specification. All circuitry and components shall be arranged on slide-in printed circuit boards that are 100 percent solid-state, employing latest "state-of-the-art" design. Crossbar, relay, or electro-mechanical switching of any type, will not be acceptable.

Expansion to ultimate audio server capacity shall require only the addition of "Hot Plug in/out" type subscriber boards for analog wired stations or IP stations with the necessary software licenses. Station capacity of the audio server shall be increased by (6) and speech paths by (1), each time a single subscriber board for analog wired stations is inserted. All subscriber boards shall be identical and interchangeable. Malfunction of one subscriber board shall not affect more than six stations. Basic audio server shall have capacity for (23) subscriber boards, expandable to (92) boards. No additional hardware boards or proprietary black boxes will be necessary to do the networking via IP between AlphaCom XE audio server to create a single system of up to 254 nodes with a total stations capacity including wired analog stations and IP stations to the maximum of 140,208 stations in total.

The audio server shall support the mix of IP noise cancellation and traditional stations as desired. The audio server shall support SIP protocol to allow for interfacing to VoIP telephones and or systems and equipment. The system shall provide special features such as the capability of redundancy via IP, wideband audio (7kHz), built in firewall, integrated web & SIP server as well as low latency switching. The audio server shall allow for remote programming, logging and maintenance via IP using AlphaPro as well as additional maintenance and statistical information via IP using web browser to interface to AlphaWeb.



Audio server shall have capacity of 30 simultaneous conversations for IP stations and each traditional station card that provides connection for 6 stations shall provide 1 speech channel. There shall be (1) speech channel for every (6) subscribers. System shall assign speech channels in absolute rotation, and all stations shall have access to all speech channels. Malfunction of one speech channel shall not affect operation of the system. Every speech channel shall include “compression” circuits to automatically control and limit sound volume during conversation. Compression circuits shall limit audio distortion and clipping.

The audio server shall include a custom-made software program, stored in FLASH memory, specifically designed for the system. Programming software (AlphaPro) shall operate on a PC with Windows, and include a menu for standard features and directory numbers, which may be entered by one operation. AlphaPro software shall provide unlimited flexible numbering and programmable features. Microprocessor shall include (2) Ethernet IP ports and 2 serial data ports to allow direct transfer of call processing information, to and from other microprocessor controlled equipment.

It shall be possible to reprogram the audio server at the audio server location or remotely through IP, and the programming shall take effect immediately. All programmable information shall be protected against power failure and reset, and maintained in flash memory. Flash memory shall be located on the processor board. It shall be possible to export via AlphaPro the user information as well as AlphaNet audio and data links and open using Microsoft Office Excel. Load sharing, closely regulated power supplies shall power audio server. System shall easily allow for redundancy by adding a power supply to the audio server (XE26 only).

Audio server shall comply with EMC standards EN55022 for electromagnetic emissions, and EN50082 for immunity. System shall include self-diagnostic circuitry and alarms for electronic supervision of boards and wiring.

Audio power output to each station shall be adjustable from 1-1.5 watts of audio at an impedance of 20 ohms. Frequency response for both input and output shall be a smooth curve through the voice range of 200 - 10,000 Hz on intercom, and 200 - 15,000 Hz on audio program channel. Crosstalk shall be less than -80 dB @ 1000 Hz, and S/N ratio shall be >80 dB during conversation. Loop resistance requirements for each station shall be 240 ohms. Traffic capacity shall allow each user 99% chance of connection, at 0.05 Erlang traffic, at all cabinet capacities. If temporarily blocked, system shall allow automatic and immediate connection when free. Audio server shall include all necessary boards, hardware, software, and accessories to support features and functions described herein. Shall be STENTOFON AlphaCom XE Series.



XE1



XE7



XE20



XE26

(Note to specifier: Indicate exact model number of central audio server)



## 2.7. OPTIONS (Available with additional equipment)

(Note to specifier: Indicate options required)

- A. SIP GATEWAY TELEPHONE INTERFACE. System shall include an interface to allow telephone calls to be directed in, and out, of the system for two-way communication between intercom stations and remote telephones via IP using SIP protocol. Selected master stations shall be able to dial an access code [0], receive PABX or Central Office dial tone, and dial any unrestricted telephone number and vice versa. Requires SIP trunking license #10096420xx and license is dependent on how many telephone lines used. Shall be STENTOFON #2200001000 MP-114 SIP Gateway or #2200001008 MP-119 SIP Gateway.
- B. DYNAMIC MICROPHONE PREAMPLIFIER BOARD. Shall provide calling and two-way communication through same loudspeaker. Shall include relay control and adjustments for in/out volume. Shall be STENTOFON #1000107800.
- C. STROBE CONTROL RELAY BOARD. Shall be mounted in security substations that have an associated strobe light. Shall provide necessary contacts to turn on flashing strobe when intercom call button is depressed and program to place a call request call and when the call is answered. Strobe shall turn off when intercom conversation is canceled. Shall be STENTOFON #1000968902.
- D. REMOTE IN/OUT CONTROL (RIO). Electronic board shall be included where ancillary devices need to be operated through relay contacts from the intercom system (outputs), and/or external alarm conditions need to be displayed as text or voice message on LCD intercom masters. Devices like bells, lights, CCTV cameras, electric door releases and amplifiers and other devices may be turned "on" or "off" by actions created by programming. Unit shall be equipped with 8 contact inputs (Standard) and up to 18 contact outputs (When equipped with optional 1009970200 Relay Board (6 contacts per board). It shall be possible to have multiple outputs per station. Shall be STENTOFON #1009970500.
- E. PAGE ADAPTOR. System shall include an interface to allow the STENTOFON AlphaCom XE intercom system to be connected to an overhead paging system. Adapter shall include a relay to control or mute music in an amplifier and shall have a transformer-isolated output of 600 ohms, up to 1 volt. The adapter shall be accessed by dialing the station number assigned to the page adaptor or pressing a direct access button. The page adaptor is required for each zone or page amplifier to be accessed. Shall be housed in a black, ABS plastic box with mounting flange and cover. Shall be STENTOFON #1000107800. Optional Mounting via #63212 card cage.



- F. **AUTOMATIC SOUND DETECTION ALARM BOARD.** The system shall include the necessary number of sound detection relay boards to monitor the audio level in areas such as elevators, selected stairwells and some areas of the parking garage. Each intercom substation that is monitored shall be connected to an individual detection board. Each board shall include (6) controls for manual adjustments of ambient conditions in each area. Each board shall also allow automatic compensation for changes to ambient conditions over a specific time period. Dynamic range shall be over 40 dB, with timing adjustments from 1 - 33 seconds. BOARD. Shall be STENTOFON #1000178300 SDR-115 mounted in card cage series. SDR-DR XX – XX equals number of board positions to multiples of 5 up to 25 slots per card cage.

(Note to specifier: indicate which stations require sound detection)

- G. **VOICE RECORDER BOARD.** System shall include a (6) circuit electronic buffer board with 600 ohm output to match audio recording machines. Shall provide interface to record conversations of six different pairs of intercom stations. Shall be housed in box with cover. Shall be STENTOFON #10001082C VRB Unit
- H. **ATLB TELEPHONE LINE BOARD.** This board shall provide the ability to connect standard DTMF telephones to AlphaCom to act as stations. The board provides 12 telephone connections and 1 voice-switched speech channel. The board also provides 6 remote control outputs signals (RCO's). Each telephone connects to ATLB board with standard 2-wire connection. Any station connected to the telephone board can be included in an open duplex conference. Shall be STENTOFON #1009104000.
- I. **FIBER COUPLER MODULES.** These boards shall allow any 4-wire intercom station, master or substation to be connected to AlphaCom XE Audio Server using 2 multi-mode fibers per station. These modules shall maintain system and station supervision. The fiber modules will support LCD and non-LCD master stations along with substations. Fiber modules shall be wall or rack mounted. Shall be STENTOFON #100092860M (Audio server Module) and #100092860F (Field Module). LCD stations require fiber couplers #100092860MD (Audio server Module) and #100092860FD (Field Module).
- J. **REMOTE CONTROL RELAY BOARD.** This board shall provide 6 dry relay contacts which shall be programmable from AlphaPro software and triggered by events such as door/gate openings, CCTV control and strobe control. Shall be STENTOFON #1009970200
- K. **IP/STATION ADAPTER UNIT.** This unit shall allow a traditional copper wired AlphaCom substation to work via IP. Connection to the IP network is via CAT5 and screw terminals for connection to traditional copper substations. Traditional copper wired stations can be up to 4,500 feet from the unit using 24AWG wire. Unit provides line monitoring and is enclosed in a metal box for mounting to a flat surface. Unit requires local 24VDC power and IP station license. Shall be STENTOFON #10006295IP IP/Station Adaptor Unit.



10006295IP Station Adapter Unit



- L. IP DECT SERVER 6000. This unit shall provide, via SIP protocol, an interface to IP DECT wireless phones to the AlphaCom XE, allowing calls to and from intercom stations. The unit allows for the connection of up to 256 base stations to offer an extended wide area on site coverage so calls are not lost. Provides encrypted radio communication as well as centralized radio planning, configuration and monitoring. Using the IP DECT Server will require the use of #1009643006 SIP station licenses which is dependent on how many IP DECT wireless phones are required. Unit requires local 24 VDC power supply #1000111700 and IP station license. Shall be STENTOFON #2210020002 IP DECT Server.



2210020002 DECT Server



2211100500 DECT Phone



2211100501 DECT Phone



2211100502 DECT Phone

## 2.8. ALPHACOM SOFTWARE LICENSES

- A. ALPHACOM ALPHANET & MULTI-MODULE VOIP LICENSE. This software license makes it possible to establish audio communication between AlphaCom XE audio servers that are connected in an IP configuration. Each AlphaCom XE audio server will require a software license. Software license shall be part number #10096400xx where xx is determined depending on the design scope of the system on a node by node basis.

(Note to specifier: Indicate if 10096400xx license(s) are required)

- B. ALPHACOM IP STATION LICENSE. This software license makes it possible to connect and register IP stations (masters & substations) via IP to an AlphaCom XE audio server. Once IP station is registered it can then place intercom calls just like traditional copper wired stations. Depending on the number of IP station(s) that are required for the job then multiples of IP station license #1009641006 will be required. Software license shall be part number #1009641006 which is good for registering 6 IP stations.

(Note to specifier: Indicate if 1009641006 license(s) are required)



- C. **ALPHACOM SIP TRUNKING LICENSE.** This software license makes it possible to connect AlphaCom XE to VOIP IP Phone systems or traditional PBX that aren't IP capable if combined and used with a MP-114 or MP-118 SIP Gateway. SIP trunking gives a seamless integration between the AlphaCom XE and other telecom systems supporting SIP which allows for advanced functions. Software license shall be part number #10096420xx where xxx is determined depending on the design scope of the system.  
(Note to specifier: Indicate if 10096420xx license(s) are required)
- D. **ALPHACOM SIP STATION LICENSE.** This software license makes it possible to connect and register SIP based phones via IP with the AlphaCom XE system. Once the SIP based phone is registered it can then place and receive intercom calls must like a traditional intercom station. Depending on the number of SIP phones that are required for the job then multiples of the #1009643006 will be required. Software license shall be #1009643006 which will allow 6 SIP phones to register.  
(Note to specifier: Indicate if 1009643006 license(s) are required)
- E. **ALPHACOM OPC LICENSE.** This software license makes it possible to connect and register details regarding events occurring in the AlphaCom XE intercom system to external OPC based management system. Using this software license greatly reduces the need to write specific interface protocol as OPC is an industry standard based on OPC and Microsoft .Net. Software license shall be #100964990X where x is determined by how many stations you wish to monitor.  
(Note to specifier: Indicate if 100964990X license(s) are required)
- F. **AUDIO MESSAGING LICENSES-BASIC AND ENHANCED.** This software license makes it possible to store and play audio messages from the AlphaCom XE audio server. The messages are stored in flash memory on the AMC-IP board. The licenses are compatible with the feature set of the ASVP card but offer some important functionality possibilities such as allowing the modification of default messages as well as adding new messages. New and modified messages can be entered via any intercom station. In addition, it is possible to make messages on a PC and upload to the audio server via AlphaWeb. Using this license will allow for pre-recorded messages to be played during emergency or scheduled times based on the application of the system. Software license shall be #1009648500 Basic Audio Messaging License or #1009648501 Enhanced Audio Messaging License.  
(Note to specifier: Indicate which license is required)
- G. **PA RECALL LICENSE.** This software license makes it possible to delay PA broadcasts using recall to prevent acoustic audio feedback issues. Software license shall be #1009648502 PA Recall License.
- H. **CRMV LICENSE.** This software license makes it possible to expand the ability of the #1008031000 IP Flush Master by using up to two #1008010100 IP DAK-48 units for auto dial-up to a maximum of 96 directory numbers or features. Software license shall be STENTOFON #1009648001.



## PART III: EXECUTION

### 3.

#### 3.1. INSTALLATION

- A. Shall be installed by qualified technicians who have been factory trained and certified.
- B. Wiring shall be uniform and in accordance with national electric codes and manufacturers' instructions.
- C. Equipment shall be firmly secured, plumb, and level.
- D. All splices shall be in easily accessible junction boxes or on terminal boards.
- E. All cable runs at the main terminal board and in all junction boxes shall be tagged and identified.
- F. Coordinate all work with other effected trades and contractors.

#### 3.2. SYSTEM INITIALIZING AND PROGRAMMING

- A. System shall include all software necessary for system configuration.
- B. System shall be turned on and adjustments made to meet requirements of specifications and on-site conditions.
- C. System shall be programmed to function as specified.
- D. Directory numbers, feature codes, and special programming shall be documented, printed and made available to owner.

#### 3.3. SYSTEM TEST PROCEDURES

- A. System shall be completely tested to assure that the audio server and all components, stations, speakers, and accessories are hooked-up and in working order.
- B. System shall be pre-tested by contractor and certified to function in accordance with plans and specifications.
- C. System shall be tested in presence of owner's representative.

#### 3.4. OWNER INSTRUCTIONS

- A. Installation contractor shall conduct up to (4) hours of instruction in use and operation of the system to designated owner representatives, within (30) days of system acceptance. Owner will print and distribute directory number plan to users.
- B. Installation contractor shall conduct up to (4) hours of technical training, in programming, troubleshooting, and service of the system, to designated owner representatives within (90) days of system acceptance.
- C. Manufacturer shall conduct periodic technical training seminars and make them available to those responsible for on-going maintenance of the system.



### 3.5. ON-SITE SPARES

- A. The following items shall be included in the system package and turned over to owner within (30) days of system acceptance.
1. (1) Central audio server spare parts kit.
  2. (1) Desk master Station.
  3. (1) Tamper resistant security substation.
  4. (1) Wall master station.

(Note to specifier: Indicate exact items required)

### 3.6. MANUALS AND DRAWINGS

- A. Contractor shall provide owner with (2) copies of standard factory prepared operation, installation and maintenance manuals. Manuals shall include typical wiring diagrams.
- B. Contractor shall provide owner with (2) copies of any risers, layouts, and special wiring diagrams showing any changes to standard drawings, if required on project.