



PRO-ALERT™ 640 SYSTEM

GUIDELINE SPECIFICATIONS

Version 1.0

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Specifications for the JERON Pro-Alert™ 640 Nurse Call System

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1.0 GENERAL

- 1.1 The Contractor shall furnish and install all equipment, accessories and materials necessary for a complete operating system in accordance with the specifications and applicable drawings.
- 1.2 The equipment furnished under this specification shall be the standard product of one manufacturer and shall be equal in performance and quality to that manufactured by Jeron Electronic Systems, Inc.
- 1.3 All components and the system as a whole shall meet or exceed the minimum standards issued by the EIA. All work in conjunction with this installation shall meet the provisions of the National Electrical Code.
- 1.4 The system shall conform to the current NFPA standards and shall be listed as a total system by Underwriters Laboratories Inc. Listing shall be under NBRZ Hospital Signaling and Nurse Call Equipment, conforming to UL 1069/CSA 1992 standards. Proof of such listings shall be made by submitting the UL Listing cards describing the equipment by model number, with the bid documents. Alternate manufacturers shall submit the listing cards as part of prior approval, ten days before the bid date.
- 1.5 Each major component shall bear the manufacturer's name, catalog number and UL label.
- 1.6 Alternate equipment shall be considered only when the following have been submitted and approved in writing to the Architect/Engineer ten (10) days prior to opening of bids:
 - a. A list of such alternate equipment and materials.
 - b. Three (3) copies of working and shop drawings
 - c. The base bid shall be on the equipment as specified. Alternate equipment must be so noted on a separate bid form with an add or deduct to the base bid.
- 1.7 The Contractor shall be responsible for providing a complete functional system including all necessary components, whether included in this specification or not.
- 1.8 The Contractor shall guarantee availability of local service by factory trained personnel from an authorized distributor of the equipment manufacturer. The distributor shall have available a stock of the manufacturer's standard parts. On-the-premise maintenance shall be provided, at no cost to the purchaser, for a period of twelve (12) months from date of completion of installation, unless damage or failure is caused by misuse, abuse or accident.
- 1.9 On-the-premise demand service at other than normal working hours shall also be available and may be charged for by the manufacturer's distributor at prevailing labor rates.

2.0 SYSTEM DESCRIPTION

The system shall be a Jeron Pro-Alert™ 640 series or approved equivalent. Operation shall be accomplished simply and easily with little or no training. All operations shall be initiated by activating a single button. Systems requiring shift keys or the simultaneous operation of two, or more, buttons shall not be acceptable. The system shall provide at least the following features and functions:

- 2.1 Microprocessor controlled Main Control, Nurse Master Stations, and Zone Lights and Duty Stations.
- 2.2 System shall be modular and expandable by means of Main Control Expander Modules and the inter-connection of Main Controls. Each non-expanded Main Control shall have a capacity for four (4) Nurse Master Stations and 96 Rooms. Use of a Main Control Expander Module shall increase the capacity to 192 Rooms. By linking two (2) Main Controls equipped with Expander Modules, the maximum capacity shall be six (6) Nurse Master Stations and 384 Rooms.
- 2.3 Digital display in full English language at the Nurse Master Station of the highest priority call placed on the system.
- 2.4 Three (3) call status levels at the Nurse Master Stations, Duty Stations and Zone Lights: ROUTINE, URGENT and EMERGENCY.
- 2.5 Provision for programmable alert tones at Nurse Master Stations and Duty Stations permit selection of standard tone or chime.
- 2.6 Incoming calls display by room number and an English language call type with automatic arrangement of calls by priority and time of placement. Direct select systems without alpha-numeric digital display and auto-answer of the highest priority call shall not be acceptable.
- 2.7 Master Stations shall include a minimum of fifty (50) direct-select touchpoints and LED indicators for simultaneous annunciation display of all incoming calls at the Nurse Master Station.
- 2.8 Automatic sequencing of calls by priority and/or time of call placement.
- 2.9 Automatic call holding by simply picking second call; use of 'hold' or 'recall' buttons shall not be acceptable.
- 2.10 A minimum of two independent audio channels per Main Control shall provide simultaneous two-way audio communications between Nurse Master Station(s) and patient rooms, staff locations and other Nurse Call Master Stations.
- 2.11 Choice of Nurse Master Station communications by VOX handset or

by TALK button using the console's built-in loudspeaker and electret microphone.

- 2.12 Display of BUSY message when attempting to call, page, or monitor a location already using an audio line.
- 2.13 Patient privacy can be set at time of installation.
- 2.14 PRIVACY indication on Nurse Master Station display when attempting to monitor rooms set to privacy.
- 2.15 Priority status set at Nurse Master Station.
- 2.16 Ability to set priority status for rooms to three (3) levels.
- 2.17 Ability to display simultaneously all rooms set to priority.
- 2.18 Ability to simultaneously monitor one, or several, operator selected rooms.
- 2.19 Calls shall be answered by single button selection of any call placed indicator displays on the LED field.
- 2.20 Ability to select and page up to four (4) different external P.A. page zones.
- 2.21 Provision for manual call forwarding (staff follower) to multiple operator selected rooms.
- 2.22 Provision for night transfer of calls from any Nurse Master Station(s) to any other designated Nurse Master Station. Normal operation shall be restored by the Nurse Master Station whose calls were taken to ensure that an operator is present.
- 2.23 Ability to expand Master Station's annunciation display in increments of fifty (50) rooms to the system maximum capacity.
- 2.24 Programmable pre-announce tone to alert patient or staff of monitoring.
- 2.25 Digital volume control buttons at the Nurse Master Station. Systems that use knobs or slide-type controls to adjust volume shall not be acceptable.
- 2.26 Ability to operate up to four Nurse Master Stations independently, jointly (in Parallel) or in any combination using one main Control. When two main Controls are linked, up to six Nurse Master Stations can be accommodated.
- 2.27 Continuous system supervision of wiring and automatic diagnostic displays with location information.
- 2.28 Provision for simple on-site changing of room numbers, establishing or re-configuring Duty or Zone Areas, adding

Nurse Master Stations and Remote Stations, and assigning rooms independently to Nurse Master Stations, Duty Areas, Zone Areas, or Page Groups; configuration is retained in non-volatile memory.

- 2.29 Provisions for expanding or adding optional features/ functions by simply installing the appropriate system components. Software changes or special software shall not be required. Programming may be done on operating systems.
- 2.30 Provision for programming Nurse Master Stations, Duty Stations and Zone Lights to annunciate only emergency levels calls.
- 2.31 Provision for using a Program Keyboard to do on-site programming of the following functions:
 - a. Room Numbers
 - b. Nurse Master Station Identification and Ward Name
 - c. Room to Nurse Master Station assignment
 - d. Room to Duty Area assignment
 - e. Room to Zone Area assignment
 - f. Main Control Identification
 - g. Tone Silence enable
 - h. Acknowledge Tone enable
 - i. Locking Calls enable
 - j. Programmable Call messages
 - k. Alert Tones

All of the above on-site programmable functions shall be stored in non-volatile memory and shall not require any additional components and/or wiring changes. Systems with volatile memory requiring battery back-up shall not be acceptable.

- 2.32 If optional Battery Back-up Main Control is provided, full operation (including intercom and page) shall be maintained for up to five (5) minutes during power failure.
- 2.33 Plug-in terminations on all Nurse Master Stations, Patient, Staff and Duty Stations.
- 2.34 Solid-state modular construction.
- 2.35 Spillproof membrane touch-pad on Nurse Master Stations.
- 2.36 Provision for Computer/Data Interface to provide two RS232C ports with accommodations for:
 - a. serial printer
 - b. video display terminal
 - c. PC with Jeron Nurse Call Executive Information System
 - d. radio pocket paging terminal.

When interfaced with the appropriate Pocket System, the Computer/Interface (in conjunction with the Pro-Alert™ 640 Nurse Call System) shall provide the features as described in Section 4.18.

- 2.37 Provisions for interfacing with a Pocket Page system through the Computer/Data Interface, to provide the following features:
- a. Automatic mode setting which transmits pages with no operator intervention.
 - b. Automatic page on CODE calls to special pager group regardless of mode setting.
 - c. Individual user programmable patient/pager assignment for all patient rooms.
 - d. automatic page of all system diagnostic calls to a special pager group.
 - e. Programmable pager assignment utilizing direct pager identity number.
 - f. Alpha-numeric pagers display room and call type.
- 2.38 Provision for Electrical Supervision Stations that continuously monitors the power supply of the system and instantly activates a visual and audible indication of power problems including primary power fail, ground fault or master/room station failure. (Optional)
- 2.39 Provision for placement of CORDOUT call on system when Patient Station callcord is disconnected from its receptacle.
- 2.40 Provisions shall be provided for the connection of the Nurse Call System to the facility's PBX equipment. When provided the Telephone Interface shall allow Staff to answer calls placed on the system from any DTMF (Dual Tone Modulated Frequency) PBX telephone.

3.0 SYSTEM OPERATION

The specified Pro-Alert™ 640 Nurse Call System operate in the following manner:

3.1 PATIENT STATION -- NORMAL CALL

Normal calls shall be placed at the Patient Station by momentarily pressing the nurse call button on the patient callcord or pillow speaker (of a callcord type patient station) or by pulling the cord (of a pullcord type patient station), or by momentarily pressing the button (of a push-button type patient station. This action shall cause the following to occur:

- a. The Patient Station CALL placed LED indicator shall illuminate to assure the patient that the call has been properly placed.
- b. The associated corridor Dome Light shall illuminate

- steady white.
- c. A routine alert tone shall sound and the ROUTINE call status LED indicator shall illuminate at all assigned Duty Stations.
- d. Associated Zone Lights shall illuminate steady white.
- e. At the Nurse Master Station(s), the routine alert tone shall sound and the ROUTINE call status indicator shall illuminate. The room LED on the Nurse Master Stations' LED display shall flash at a slow rate. The patient's room number and the preprogrammed call message shall display steadily on the LCD display screen. The default call message shall be NORMAL.

3.2 PATIENT STATION -- LOCKING ROUTINE CALL

When programmed to a locking routine status, a call shall be placed at the Patient Station by pressing the call button on the patient callcord or pillow speaker, or pulling the pullcord of a pullcord type patient station. This action shall cause the following to occur:

- a. The Patient Station CALL placed LED indicator shall illuminate.
- b. The corridor Dome Light shall illuminate steady white.
- c. A routine alert tone shall sound and the ROUTINE call status LED indicator shall illuminate at all assigned Duty Stations.
- d. Associated Zone Lights shall illuminate steady white.
- e. At the Nurse Master Station(s), the routine alert tone shall sound and the ROUTINE call status LED indicator shall illuminate. The room LED on the whole system display shall flash at a slow rate. The patient's room number and the pre-programmed call message shall display steadily on the Nurse Master Stations' LCD screen. The default call message shall be NORMAL.

Locking routine calls shall be answered in the same manner as normal calls. Answered locking routine calls shall display the preprogrammed call message followed by the word ANSWERED at Nurse Master Station(s). It shall not be possible to cancel locking routine calls other than by resetting the call at The calling station.

3.3 PATIENT STATION -- PRIORITY CALL

When programmed to priority status, a patient priority call shall be placed at the Patient Station by pressing the nurse call button on patient callcord, pillow speaker, or pulling the cord of a pullcord type patient station. This action shall cause the following to occur:

- a. The Patient Station CALL placed LED indicator shall illuminate.
- b. The corridor Dome Light shall illuminate steady white.

- c. An urgent alert tone shall sound and the URGENT call status LED indicator shall illuminate at all assigned Duty Stations.
- d. Associated Zone Lights shall illuminate steady white.
- e. At the Nurse Master Station(s), the urgent alert tone shall sound and the URGENT call status LED indicator shall flash. The room LED on the whole system display shall flash at a moderate rate. The patient's room number and preprogrammed callmessage shall display steadily on the Nurse Master Stations' LCD screen. The default call message shall bePRIORITY.

Priority calls shall be answered in the same manner as normal calls. Answered priority calls shall display the preprogrammed call message followed by the word ANSWERED at the Nurse Master Station. It shall not be possible to cancel priority calls other than by resetting at the calling station.

3.4 PATIENT STATION -- CORDOUT CALL

Removal of a patient's callcord shall automatically place a cordout call on the system. This action shall cause the following to occur:

- a. The Patient Station CALL placed LED indicator shall illuminate.
- b. The corridor Dome Light shall flash white.
- c. An urgent alert tone shall sound and the URGENT call status LED indicator shall illuminate at all assigned Duty Stations.
- d. Associated Zone Lights shall flash white.
- e. At the Nurse Master Station(s) the urgent alert tone shall sound and the URGENT call status LED indicator shall flash at a moderate rate. The room LED on the whole system display shall flash at a moderate rate. The patient's room number and preprogrammed call message shall display steadily on the Nurse Master Stations' LCD display screen. The default call message shall be CORDOUT.

Cordout calls shall be answered in the same manner as normal calls. Answered cordout calls shall display the preprogrammed call message followed by the word ANSWERED at the Nurse Master Stations. It shall be possible to cancel cordout calls only by reinstalling the cord at the Patient Station. It shall not be possible to cancel cordout calls by any other means.

3.5 CANCELLING PATIENT STATION CALLS

All Patient Station calls except cordout calls shall be cancelled in the patient's room by pressing the CANCEL button on the originating Patient Station. It shall be necessary to replace the cordset in its receptacle in order to cancel a cordout call.

Routine calls shall automatically be cancelled at the Nurse Master Station(s) when the communication is terminated. Locking Routine and Priority calls shall only be cancelled at the originating Patient Station. Systems that allow priority calls to be cancelled at the Nurse Master Station shall not be acceptable.

3.6 CALLS FROM STAFF STATIONS

Normal (routine level) staff calls shall be placed at Staff Station by momentarily pressing the CALL button. This action shall activate the same sequence of events that occur when a normal patient call is placed. The default call message displayed at the Nurse Master Station(s) shall be NORMAL. Staff calls shall be cancelled at the Nurse Master Stations when the communication is terminated or at the originating Staff Station by pressing the CANCEL button.

3.7 CALLS FROM STAFF EMERGENCY STATIONS

Staff emergency calls shall be placed at Staff Emergency Stations by pressing the top of the button. This action shall cause the following to occur:

- a. The Staff Emergency Station call placed LED indicator shall illuminate.
- b. The Dome Light shall flash at the urgent rate.
- c. An alert tone shall sound and the URGENT call status LED indicator shall illuminate at all associated Duty Stations.
- d. Associated Zone Lights shall flash at the urgent rate.
- e. At the Nurse Master Station, the urgent alert tone shall sound and the URGENT call status indicator shall illuminate. The room LED on the whole system display shall flash at a moderate rate. The room number shall display steadily and the preprogrammed call message shall flash at a moderate rate on the Nurse Master Stations' LCD screen. The default call message shall be EMER. Staff emergency calls can only be cancelled by pressing the bottom of the button on the Staff Emergency Station.

3.8 CALLS FROM AUDIO-VISUAL DUTY STATIONS

Normal calls from Audio-Visual Duty Stations shall be placed in the same manner as normal staff calls at Staff Stations and shall initiate the same sequence of events. Calls from Audio-Visual Duty Stations shall be cancelled by the Nurse Master Station when communication is terminated, or at the originating Audio-Visual Duty Station by pressing the CANCEL button.

3.9 CALLS FROM BATH STATIONS

Pulling the cord (of a pullcord type station) or pressing the button (of a pushbutton type station) on a Bath Station shall cause the following to occur:

- a. The Bath Station call placed LED indicator shall illuminate steady to assure the patient that the call has been placed properly.
- b. The corridor Dome Light and associated Zone Lights shall flash at the urgent rate.
- c. An urgent alert tone shall sound and the URGENT call status LED indicator shall illuminate at all assigned Duty Stations.
- d. At the Nurse Master Station(s) the urgent alert tone shall sound and the URGENT call status LED indicator shall illuminate. The room LED on the whole system display shall flash at the urgent rate. The patient's room number and the preprogrammed call message shall display steadily on the Nurse Master Stations' LCD screen. The default call message shall be BATH.

Bath Station calls can only be cancelled at the originating Bath Station by resetting the switch.

3.10 CALLS FROM CODE STATIONS

Activating the button on a Code Station shall cause the following to occur:

- a. The Code Station call placed LED indicator shall illuminate.
- b. The corridor Dome Light and associated Zone Lights shall flash at the emergency rate.
- c. A code alert tone shall sound and the CODE call status LED indicator shall illuminate at all associated Duty Stations.
- d. At the Nurse Master Station(s), the code alert tone shall sound and the EMERGENCY call status LED indicator shall flash. The room LED on the whole system display shall flash rapidly. The patient's room number shall display steadily and the call message CODE shall flash rapidly on the Nurse Master Stations' LCD screen.

Code calls can only be cancelled at the originating Code Station by resetting the switch.

3.11 ANSWERING A CALL AT A NURSE MASTER STATION

It shall be possible for the operator to answer the call displayed on the Nurse Master Station's LCD screen by simply lifting the handset and having a two-way voice communication with the party at the calling station. It shall not be necessary to operate the TALK button when using the handset. The operator may use the TALK button, listen over the console loudspeaker and talk over the console's built-in microphone. Alternatively, the operator may press the direct select room button on the whole system display of the calling station to answer the call.

Answering a station call shall cause all audio and visual signals associated with the calling station at the Master

Station to cease. The room LED and call priority shall continue to display and the LCD screen shall continue to display the room number, and call message. Hanging up the handset or pressing the Nurse Master Stations' CANCEL button shall cancel the non-locking routine level call.

When a call is answered by a Nurse Master Station, a pre-announce tone shall sound at the Patient Station and the MONITOR LED shall light. The patient shall then be able to have a two-way voice communication with the Nurse Station Master attendant without having to operate any switches or having to turn toward the speaker/microphone. Calls from Staff or Audio-Visual Duty Stations shall be handled in a like fashion.

It shall be possible to answer a call at the Nurse Master Station using the TALK button and then transfer to the handset mode by simply lifting the handset.

ROUTINE LOCKING and PRIORITY patient, BATH, CORDOUT, STAFF EMER. FIRE and CODE calls, when answered by the Nurse Master Station, shall automatically be placed in the ANSWERED mode. These calls can not be cancelled at a Nurse Master Station and shall require the dispatching of personnel to the calling station.

The Nurse Master Station(s) LCD screen shall display the highest priority unanswered call on the system. Displayed calls shall be capable of displaying 16 characters, consisting of the room number, call priority number and an English language word or phrase denoting the specific call type.

The LED display panel shall present the whole system display. The LED indicator for the rooms placing calls shall flash at a rate (slow, moderate or fast) corresponding to the priority of the call placed. When more than one call has been placed, calls may be answered in any sequence.

Systems that do not indicate call types in English, Systems using only numbers, letters or symbols to indicate call types, Systems that do not simultaneously display all rooms and Nurse Master Stations in the system, Systems that use discrete lamps, or cathode ray tubes to annunciate calls; shall not be acceptable.

Systems that do not give the operator a choice between using the handset and the manual push-to-talk operation, that require pushing a button to control the direction of handset communication, that do not automatically select the highest priority call, or that require calls to be answered in a prescribed sequence shall not be acceptable.

Systems that permit the Nurse Master Station operator to cancel routine locking, priority, emergency, or code calls shall not be acceptable.

3.12 ORIGINATING CALLS FROM A NURSE MASTER STATION

The Nurse Master Station operator shall be able to originate calls to rooms by simply pressing the desired room number direct select room button on the display panel. It shall be possible to select the desired room button with handset either on or off hook.

It shall be possible to call other Nurse Master Stations and Staff or Audio-Visual Duty Stations in a like manner. Incoming calls from other Nurse Master Stations shall display the originating Nurse Master Stations' architectural address followed by the message MASTER.

Originated calls shall be cancelled by either hanging up or pressing the CANCEL button on the Nurse Master Console. Master-to-Master calls shall be cancelled by hanging up at either station.

3.13 PLACING A CALL ON HOLD

It shall be possible for a Nurse Master Station operator to place the current call on hold without terminating it, by simply selecting and answering another call. Holding calls shall display the message HOLDING alternating with the call type on the call line. Systems that do not allow calls to be placed on hold shall not be acceptable.

Systems that require the attendant to remember to push 'hold' or 'recall' buttons to switch calls without losing a call shall not be acceptable. Systems that allow only one call to be on hold at a time shall not be acceptable.

3.14 PLACING THE SYSTEM IN SYSTEM CAPTURE (NIGHT TRANSFER) MODE

It shall be possible to transfer all calls from any Nurse Master Station(s) to any other pre-designated Nurse Master Station. The Nurse Master Station attendant shall affect a night transfer by pressing the SYSTEM CAPTURE button. When transfer is made, the Nurse Master Station taking the calls shall accept all calls normally reporting to the other Nurse Master Station(s).

The display screen on the Nurse Master Station whose calls have been taken shall display the message TRANSFERRED. System Capture (Night Transfer) shall be cancelled at the 'taken' Nurse Master Station to ensure that an operator is present to take the calls. Systems that permit calls to be transferred to an unattended Nurse Master Station shall not be acceptable.

3.15 PAGING PATIENT ROOM(S)

It shall be possible for the Nurse Master Station attendant to selectively make voice announcements to individual rooms or to preprogrammed room groups.

3.16 SETTING PATIENT STATIONS TO PRIORITY

The Nurse Master Station attendant shall be able to change room call status from ROUTINE to PRIORITY or vice versa while acknowledging to a room call by pressing the NORMAL/PRIORITY button.

Systems that cannot change status while receiving a call from a room without losing the call shall not be acceptable.

Systems that do not permit three (3) levels of status (ROUTINE, ROUTINE LOCKING and PRIORITY) or that allow, or require, setting or canceling priority from patient rooms shall not be acceptable.

3.17 SETTING SYSTEM TO PRIVACY OR ROUTINE LOCKING MODE

It shall be possible to set all patient rooms to Locking Routine or Privacy from any Nurse Master Station by using the Program Keyboard.

Systems that allow, or require, setting or cancelling patient privacy and locking routine from the patient room shall not be acceptable.

3.18 REVIEWING PRIORITY STATUS

It shall be possible to review all rooms set to priority at any time while not acknowledged by depressing the PRIORITY button. All rooms programmed for the priority mode shall illuminate on the display panel. Systems that sequentially display rooms or that require the operator to scroll through rooms shall not be acceptable.

3.19 MAKING PUBLIC ADDRESS ANNOUNCEMENTS

It shall be possible for the Nurse Master Station operator to selectively make voice announcements over an external paging system.

3.20 RADIO POCKET PAGE

The Pro-Alert™ 640 System shall function in same manner whether or not the Pocket Page feature is used. When utilized, the Pocket Page System shall be preprogrammed to provide an Automatic mode of operation.

In the Automatic mode pagers shall be activated by simply placing a call on the system. This single action shall cause the following to occur:

- a. Incoming calls shall continue to annunciate in the normal fashion at the Nurse Master Station.
- b. The Pocket Page receiver assigned to the calling patient shall automatically be accessed when a call is placed.
- c. The Pocket Page receiver shall display the room number

of the calling patient, an English word indicating the priority of the call and shall emit a tone signal (if so equipped)

3.21 POCKET PAGE MISCELLANEOUS FUNCTIONS

The Pocket Page System shall be capable of the following additional functions:

- a. Automatic Code Group
It shall be possible to assign a separate Code Group pager number which shall automatically be transmitted in the event a code call is placed. This transmission shall be independent of any other room to pager assignment.
- b. Diagnostic Calls
It shall be possible to assign a Diagnostic Call Group pager number which shall automatically be transmitted in the event a diagnostic call is placed on the system.
- c. Unassigned Rooms
It shall be possible to assign a separate Unassigned Rooms pager number which shall automatically be transmitted in the event a call is placed from a room which has not been assigned a separate pager number.
- d. Non-Volatile Memory
Systems that do not retain pager assignments the current shift and operating mode in non-volatile memory to prevent loss during power failure or system re-configuration shall not be acceptable.

3.22 PLACING THE SYSTEM IN THE CALL FORWARDING (STAFF FOLLOWER) MODE

In the event that the Nurse Master Station is unattended, it shall be possible to re-route incoming call tones to room(s) where Staff will be located by utilizing the Call Forward mode.

Call Forward shall annunciate incoming calls by priority tone on the Patient, Staff and Audio-Visual Duty Station(s) that the operator selected at the Nurse Master Station. A maximum of ten (10) locations can be set in this mode. The selected stations shall display on the LED display. When the Call Forwarding mode is activated the integral LED indicator on the CALL FORWARDING button shall illuminate

Incoming calls shall continue to activate alert tones, call status indicators and LED field room indicators at the Nurse Master Station in the usual manner.

3.23 MONITORING PATIENT ROOM(S)

It shall be possible for the Nurse Master Station attendant to choose any room or, group of up to ten (10) rooms, at random and monitor them. The Nurse Master Station LED field shall show such selected rooms. Stations selected for monitoring shall sound a preannounce tone and the MONITOR indicator shall illuminate to indicate that the station is being monitored.

It shall not be possible to monitor a room with a Patient Station set for privacy; PRIVACY shall appear on the display screen in place of the room number.

3.24 TELEPHONE INTERFACE

Provisions shall be provided for the connection of the Nurse Call System to the facility's PBX equipment. When provided the Telephone Interface shall allow Staff to answer calls placed on the system from any DTMF (Dual Tone Modulated Frequency) PBX telephone.

When notified of a call, the assigned staff member by using any PBX telephone can dial the Telephone Interface number, enter an access code and answer the call placed with a two-digit interrogation code.

It shall also be possible for a staff member to originate a call to a patient or staff station by accessing the Telephone Interface and dialing the room number of the station to whom the call is being originated.

3.25 SUPERVISED SYSTEM OPERATION

The Pro-Alert™ 640 System shall provide the following supervised features:

- a. Notification of open direct wiring between the Main Control and any room or Nurse Master Station. The room number of with the wiring problem shall be annunciated at the Nurse Master Station.
- b. An Electrical Supervision Station shall be provided which will constantly monitor the power supply of the system and immediately indicate any power failure, and master/room station fail condition. Both a visual and audible indicator shall be provided. It shall be possible to silence the tone by pressing the TONE SILENCE button. It shall not be possible to cancel the visual display until the fault has been corrected.
- c. A building ground monitor unit shall be provided as part of the Electrical Supervision Station which shall constantly monitor the system for shorts between building ground and any conductor. Both visual and audible indication of a building ground short shall be provided. It shall be possible to silence the tone by pressing the TONE SILENCE button. It shall not be possible to cancel the visual display until the fault has been

corrected.

4.0 EQUIPMENT

To provide the preceding features and functions, the following equipment shall be provided:

4.1 NURSE MASTER STATION

The Nurse Master Station shall be a Jeron Model 6465 or approved equal. It shall be housed in a white molded plastic console with a moisture-proof membrane control panel providing the following buttons:

- a. Fifty (50) direct select room buttons
- b. TONE SILENCE
- c. TALK
- d. CANCEL
- e. VOLUME UP
- f. VOLUME DOWN
- g. CALL FORWARD
- h. NORMAL/PRIORITY
- i. SYSTEM CAPTURE
- k. PUBLIC PAGE

The Nurse Master Station shall have the following indicators:

- a. Fifty (50) room LED indicators
- b. One-line, 16 character LCD display
- c. Green ROUTINE call status LED
- d. Amber URGENT call status LED
- e. Red EMERGENCY call status LED
- f. Yellow CALL ENGINEER LED

The Nurse Master Station shall incorporate:

- a. Lightweight, high impact, Cyclolac ABS telephone handset
- b. Built-in electret microphone
- c. Combined audio loudspeaker/tone transducer
- d. One (1) line, sixteen (16) character LCD

The construction of the Nurse Master Station shall be all solid-state. The flat panel display shall have a 50,000 hour minimum operational life. Systems providing displays with a shorter operational life shall not be acceptable. The console shall require no more than 133 sq. in. (334 sq. cm) of desk space.

Systems using cathode ray tubes for call information shall not be acceptable. Systems not providing both handset and intercom loudspeaker/microphone shall not be acceptable.

The Nurse Master Station shall provide two-way voice communication and signaling between nursing unit locations and patient rooms or staff locations as indicated on the plans. The Nurse Master Station shall indicate the following

default call messages:

- a. CODE
- b. FIRE
- c. EMERGENCY
- d. MASTER FAIL
- e. POWER FAIL
- f. BATTERY LOW
- g. PRIORITY
- h. BATH
- i. ALARM
- j. CORDOUT
- k. MASTER call
- l. STAFF
- m. NORMAL
- n. FAILED
- o. HOLDING call
- p. ANSWERED call
- q. ORIGINATE

It shall be possible to monitor one, or more, rooms simultaneously in any combination.

It shall be possible to operate as many as four Nurse Master Stations simultaneously in the same system using one Main Control. In systems with two linked Main Controls, up to six (6) Nurse Master Stations shall be accommodated.

4.2 MAIN CONTROL

The Main Control shall be a Jeron Model 6450 or Model 6451 with battery back-up, or approved equal. Main Control shall be located as indicated on the plans. It shall be microprocessor based, modular in construction and provided with quick disconnect circuitry. Built-in diagnostics shall indicate wiring or component failure.

In the event of power failure, the Nurse Master Station display screen shall display a POWER FAIL/CALL ENGINEER message. If Model 6451 Main Control with battery back-up is employed, the battery backup shall provide full operation including intercom and paging for up to five (5) minutes to allow the hospital to switch to auxiliary power.

It shall be possible to expand the system capacity to a total of 6 Nurse Master Stations and 384 Rooms by installing Model 6452 Main Control Expander Modules and linking two Main Controls.

4.3 EXTENDER MASTER

Nurse Call Systems shall be expandable in increments of fifty (50) LED annunciation indicators. The first fifty (50) calling station shall utilize the Jeron Model 6465 Nurse Master Station. Subsequent groups of fifty (50) calling stations shall utilize Model 6466 Extender Masters. Model 6466 Extender Master Stations shall display calls from all

room stations reporting to it. Each 6465 Nurse Master Station can be equipped with up to seven (7) 6466 Extender Masters.

The Extender Master shall provide the following facilities:

- a. Fifty (50) Red LED indicators
- b. Fifty (50) room buttons
- c. Fifty (50) room label areas

The Extender Master shall be microprocessor controlled, of modular design, and shall provide the following minimum features and functions:

- a. Model 6466 Extender Master shall be housed in a white colored, cabinet constructed of high-impact, flame-retardant, plastic which shall incorporate a moisture-resistant membrane control with clear acrylic lenses.
- b. Operation at the Extender Master shall be accomplished simply and easily with little or no training. All operations shall be initiated by activating a single button on the 6466 Nurse Master Extender.
- c. Room LED indicators shall be identified by a paper label strip protected by a clear acrylic lens.

All calls from patient rooms and staff locations shall be individually annunciated at the Extender Master to which they have been assigned by the illumination of the room LEDs. Room numbering shall be programmable.

A tone signal for calls placed to the 6466 Extender Master will be sounded at the 6465 Nurse Master Station to alert the attendant of an incoming call. Room number, time of call placement, priority, and type of call shall be displayed on the 6465 Nurse Master Station LCD screen. Subsequent higher priority calls shall automatically move ahead of lower priority calls.

4.4 TELEPHONE INTERFACE

If the Pro-Alert™ 640 Nurse Call System includes a 6862 Telephone Interface, it shall be possible to establish a connection between the Nurse Call System and the facility's PBX Equipment.

The 6862 Telephone Interface shall be connected between the 6450 Main Control and an analog port on the facility's UL Listed PBX or Key System Telephone equipment. The Telephone Interface shall provide total isolation (including isolated ground) between the telephone equipment and the Nurse Call System in accordance with UL 1069.

4.5 INSTALLER PROGRAMMING

All installation programming shall be menu-driven with on-screen prompts. It shall be possible to do all programming prior to on-site installation.

It shall be possible to re-program room numbers, Nurse Master Stations, Duty Areas, Zone Areas and Page Groups in solid-state non-volatile memory whenever changes are dictated. It shall be possible to assign a room number an alpha-numeric designator. It shall not be necessary to change components or order new programming from the factory to accomplish any of the changes described above.

It shall be possible to de-select the following optional system functions:

- a. TONE SILENCE
- b. ACKNOWLEDGE TONE
- c. LOCKING CALLS ONLY

It shall be possible to re-configure an operating system at any time from any Nurse Master Station through use of a 6264 Programming Keyboard to allow system expansions or diagnostic procedures. Entry of a security access code shall be required. There shall be no interruption of system operation (except for display at the Nurse Master Station being used for programming) until the programming procedure is concluded.

Systems requiring back-up battery to retain any installer programmed configuration, shall not be acceptable.

4.6 ROOM STATIONS

Room Stations shall provide control circuitry and panel indicators which are all solid-state for maximum reliable operation. Mechanical devices requiring periodic maintenance shall be used and stations using such mechanical devices shall not be acceptable.

Room Station hook-up shall be made by push-on connectors; soldered, wire-nut connectors, or separate screw terminals blocks shall not be acceptable. The push-on connectors shall accommodate individual wires for increased reliability and flexibility. Ribbon cables shall not be permitted.

It shall be possible to replace or interchange all room stations of the same type, without wiring or hardware alterations.

Room Station faceplates shall be manufactured of high-impact molded ABS plastic in accordance with UL 1069.

Room Station speaker/microphones shall be high-efficiency 2.75 in. oval units with Alnico magnets for clear voice communications.

4.7 CALLCORD PATIENT STATIONS

Patient Stations shall be Jeron Model 6420 (single non-muting type), 6422 (dual non-muting type), or approved equal and shall provide the following facilities:

- a. Momentary action CANCEL button with integral MONITOR indicator
- b. A CALL placed indicator for each bed
- c. A callcord jack for each bed
- d. A speaker/microphone

All Patient Stations shall accept approved callcords, pillow speakers with TV controls, or approved pneumatic callcords. Removal of a callcord shall place an automatic CORDOUT call on the system. It shall be possible to cancel cordout calls only by reinstalling the cord and resetting the calling station. A 6836 Dummy Plug may be used to preclude cordout calls from idle Room Stations.

Priority status shall be set at the Nurse Master Station to ensure staff approval and prevent the possibility of accidental or intentional change by visitors or patients. It shall be possible to set the priority of each room independently.

Privacy status shall be set at the time of installation to ensure staff approval of this status for patients.

Model 6420 and 6422 Callcord Patient Stations shall mount in a Raco 2-gang 951 back-box with Raco 821 raised, 2-gang cover or a UL recognized equivalent.

4.8 PULLCORD PATIENT STATIONS

Pullcord Patient Stations shall be Jeron Model 6421 or approved equal and shall provide the following facilities:

- a. One six (6) foot nylon pullcord with metal cord guide
- b. CALL placed indicator
- c. One momentary action CANCEL button with integral LED monitor indicator
- d. Speaker/Microphone

Priority or Locking Routine status shall be set at the Nurse Master Station to ensure staff approval and prevent the possibility of accidental or intentional change by visitors or patients.

Privacy status shall be set at the time of installation to ensure staff approval of this status for the patients.

Model 6421 Patient Stations shall mount in Raco 2-gang 951 back-box with Raco 821 raised 2-gang cover or UL recognized equivalent.

4.9 PUSHBUTTON STAFF STATION AND PUSHBUTTON PATIENT STATIONS

Pushbutton Staff and Patient Stations shall be Jeron 6412 or approved equal and shall provide the following facilities:

- a. One momentary action CALL button with integral green LED call placed indicator
- b. One momentary action CANCEL button with integral red

- LED monitor indicator
- c. Speaker/microphone

Model 6412 Staff and Patient Stations shall be able to control a Dome Light and accept peripheral inputs and alarms.

Model 6412 Room Stations shall mount in a Racco 2-gang 951 back-box with a 821 raised 2-gang cover, or UL recognized equivalent.

4.10 VISUAL DUTY STATIONS

Visual Duty Stations shall be Jeron Model 6417 or approved equal and shall provide the following facilities:

- a. Three LED call status indicators -- ROUTINE, URGENT, EMERGENCY
- b. One TONE SILENCE button
- c. One piezo-electric alert tone generator (installer adjustable tone level)

The Visual Duty Station shall annunciate all calls within its Duty Area by three distinct tone and light signals. Visual Duty Stations that do not indicate call priority level shall not be acceptable.

Model 6417 Duty Stations shall connect to a common system bus without need for direct wiring or factory programming. Locations reporting to Duty Areas shall be programmed at time of installation and such programming shall be independent of programming for reporting to Nurse Master Stations, Zone Areas or Page Groups. Systems that 'slave' Duty Stations to a particular Nurse Master Station or use a common 'zone' for all station group assignments shall not be acceptable.

Duty Stations shall be capable of being installer programmed to receive only EMERGENCY calls.

Model 6417 Visual Duty Stations shall mount in a 1-gang Racco 670 back-box or UL recognized equivalent.

4.11 AUDIO-VISUAL DUTY STATIONS

Audio-Visual Duty Stations shall be Jeron Model 6427 or approved equal and shall provide the following facilities:

- a. Three LED call status indicators -- ROUTINE, URGENT, EMERGENCY
- b. One TONE SILENCE button
- c. One momentary action CANCEL button with integral monitor LED indicator
- d. One momentary action CALL button with integral green call placed LED indicator
- e. Speaker/microphone

- f. One piezo-electric alert tone generator (installer adjustable tone level)

Audio-Visual Duty Stations shall meet the above Duty Station criteria and, in addition, have two-way voice communication capability. They shall be able to control a Dome Light.

Systems that do not provide choice of Duty Stations with or without voice communications shall not be acceptable.

Model 6427 Audio-Visual Duty Stations shall mount in a Racco 952 3-gang back-box with 822 raised 3-gang cover or UL recognized equivalent.

4.12 ZONE LIGHTS

Zone Lights shall be Jeron 6810 or approved equal. They shall be capable of annunciating all calls in the zone.

Zone Lights shall have a temperature resistant, translucent lens of non-yellowing polystyrene and three T 3.25 wedge base long life bulbs: White, red and green. The lens shall snap fit to the back plate to allow for changing bulbs without tools.

Zone Lights shall connect to a common system bus without need for direct wires or factory programming. Locations reporting to zones shall be programmed at time of installation and such programming shall be independent of programming for reporting to Nurse Master Stations, Duty Area or Page Groups. Systems that use a common 'zone' for all station group assignments shall not be acceptable.

Model 6810 Zone Lights shall be capable of being installer programmed to display only emergency calls.

Model 6810 Zone Lights shall mount in a Racco 190 2-gang back-box with Racco 772 raised 2-gang cover or UL recognized equivalent.

4.13 PUBLIC ADDRESS PAGE CONTROLS

P.A. Page Controls shall be Jeron 6816 or approved equal. They shall be capable of interfacing the Pro-Alert™ 640 Nurse Call System with existing public address page systems and shall contain muting, load matching and isolation circuitry.

Model 6816 P.A. Page Controls shall mount in a Racco 2-gang 951 back-box with Racco 821 2-gang raised cover or UL recognized equivalent.

4.14 BATH STATIONS

Pullcord Bath Stations shall be Jeron Model 6432 or approved equal and shall have the following facilities:

- a. A six (6) foot nylon pullcord with metal cord guide
- b. A reset switch
- c. One red call placed LED indicator.
- d. The words 'PULL FOR HELP' shall be engraved on the stainless steel faceplate

Pushbutton Bath Stations shall be Jeron Model 6446 or approved equal and shall have the following facilities:

- a. A re-settable, rocker-action pushbutton
- b. One red call placed LED indicator
- c. The pushbutton shall have a positive detent action to prevent accidental or partial operation
- d. The words 'PUSH FOR HELP' shall be printed on the station's sub-plate.

Pullcord Shower Stations shall be Jeron Model 6458 or approved equal and have the following facilities:

- a. A six (6) foot nylon pullcord with metal cord guide
- b. A reset switch
- c. One red call placed LED indicator
- d. The words 'PULL FOR HELP' shall be engraved on the stainless steel faceplate.

Pullcord Shower Stations shall utilize waterproof construction and shall withstand direct water spray exposure without wetting of electrical parts. It shall be approved for shower stall installation in accordance with UL 1069 Sec. 38 'water spray test'.

Models 6432, 6446 and 6458 Bath Stations shall mount in a Raco 1-gang 670 back-box or UL recognized equivalent.

4.15 STAFF EMERGENCY STATIONS

Staff Emergency Stations shall be Jeron Model 6431 or approved equal and shall have the following facilities:

- a. A re-settable, rocker-action pushbutton
- b. One red call placed LED indicator
- c. The pushbutton shall have a positive detent action to prevent accidental or partial operation

Model 6431 Staff Emergency Station shall mount in a Raco 1-gang 670 back-box or UL recognized equivalent.

4.16 CODE STATIONS

Code Stations shall be Jeron Model 6449 or approved equal and shall have the following facilities:

- a. A re-settable, rocker-action pushbutton
- b. One green call placed LED indicator
- c. The pushbutton shall have a positive detent action to prevent accidental or partial operation

- d. The word 'CODE' shall be printed on the station's sub-plate

Model 6449 Code Station shall mount in a Raco 1-gang 670 back-box or UL recognized equivalent.

4.17 DOME LIGHTS

Corridor Dome Lights shall be Jeron 6400 Series or approved equal. Dome Lights shall have a temperature resistant, translucent lens of non-yellowing polystyrene and up to three (3) T 3.25 wedge base long life bulbs: white, red and green. The lens shall snap fit to the back-plate to allow for changing bulbs without tools.

Dome Lights shall mount in a Raco 2-gang 190 backbox with Raco 772 raised 2-gang cover or UL recognized equivalent.

4.18 COMPUTER/DATA INTERFACE

Computer/Data Interface shall be Jeron 6861 or approved equal and shall have the following facilities:

Two RS232C port to allow interfacing with:

- a. serial printer
- b. video display terminal
- c. radio paging terminal
- d. computer equipped with Jeron 6893 Nurse Call Executive Information System
- e. Other serial data devices

All system activity shall be transmitted in standard ASCII code. It shall be possible to select which Nurse Master Station(s) shall report activity to the Computer/Data Interface.

- a. PORT J1 It shall be possible to user-select one of two modes of operation:

Elapsed Time Mode

No information on a particular call/transaction is transmitted until the transaction is complete. The first time listed for any transaction is real time of day and the date on the Computer/Data Interface. All subsequent times of events shall be elapsed time relative to the time of the first event.

Continuous Time Mode

Information on each particular call/event is transmitted as soon as the activity occurs. The real time of day and the date on the Computer/Data Interface is listed for each event.

It shall be possible to user designate whether the printer, video display terminal, or other serial data device shall respond to all system activity

or only Code Call Activity.

- b. PORT J2 Serial data on port J2 shall be in the continuous time mode.
 - a. Jeron Nurse Call Executive Information System
It shall be possible to interface with computer equipped with Jeron 6893 Nurse Call Executive Information System for computer archiving, analysis and print-out of room call activity and response times.
 - b. Pocket Page Interface
When a Jeron 6861 Data Interface is equipped with Jeron 6891 Software, it shall be possible to interface with a Pocket Page System (i.e., Motorola, Visiplex, etc.) at Port J2 without requiring any additional hardware or software changes. This pocket page interface shall operate as described in Sections 3.22/23.

4.19 ALARM INTERFACE

The Alarm Interface shall be a Jeron Model 6443 or approved equal. It shall be employed to interface a room smoke detector to a Pro-Alert) 640 Nurse Call Patient or Staff Station.

When the room smoke detector operates it shall place an EMERGENCY call on the system. The visual indicators and alert tones at the Nurse Master Station, area Duty Stations and Zone Lights shall flash and sound at the emergency rate. The default message on the Nurse Master Station shall be FIRE.

The use of 6443 Alarm Interface shall be supplementary signaling and shall not be used as a primary fire alarm signaling system. Smoke detectors shall be connected to an approved and Listed Fire Alarm Control Panel.

4.20 ELECTRICAL SUPERVISION STATION

Electrical Supervision Station shall be a Jeron Model 6818 or approved equal and shall provide the following facilities:

- a. One yellow MASTER/POWER FAIL diagnostic LED indicator
- b. One red GROUND FAULT diagnostic LED indicator
- c. One blue TROUBLE diagnostic indicator
- d. One momentary action TONE SILENCE button
- e. One piezo-electric alert tone generator

Control circuits and indicators shall be solid-state for reliable operation; no mechanical devices which require periodic maintenance shall be employed. Electrical Supervision Stations shall be manufactured of high-impact, flame-retardant, molded plastic in accordance with UL 1069.

Model 6818 Electrical Supervision Stations shall mount in a Raco 1-gang 670 back-box or UL recognized equivalent.

4.21 MULTI-GANG ADAPTER TRIM-PLATES

It shall be possible to gang Remote Stations by using modular, plastic sub-plates in a common opening by means of Jeron Multi-gang Adaptor Trim-plates.

4.22 CALLCORDS

Callcords shall be Jeron Model 6833 (6 ft.) and/or 6835 (10 ft.) or approved equal. They shall be equipped with a white thermoplastic pendant with a momentary contact nurse call pushbutton, a vinyl jacketed cord, electro-static discharge protection, metal bed clip, strain relief at both ends and a 8-pin connector.

4.23 DUMMY PLUGS

Dummy plugs shall be Jeron Model 6836 or approved equal. It shall consist of a molded white thermoplastic housing and a 8-pin connector.

Dummy Plug with pushbutton shall be Jeron Model 6848 (6 in.) with pushbutton, molded white thermoplastic pendant, call button and vinyl insulated cord.

4.24 PILLOW SPEAKERS

Pillow Speakers shall be Jeron Model 6838/6839 or approved equal and have the following facilities:

- a. molded white ABS plastic case
- b. ABS plastic controls in contrasting colors
- c. a integral grill for the Alnico magnet equipped speaker/microphone
- d. a TV control button
- e. a nurse call button
- f. TV and nurse call buttons shall respectively be clearly marked with 'TV' and nurse call symbols to avoid confusion
- g. a vinyl insulated cord with electro-static discharge protection
- h. strain relief at both ends
- i. plated spring-type metal bed clip
- j. molded plastic plug with 8-pin connector.

Model 6839 Pillow Speaker shall have, in addition to the above, an additional momentary contact pushbutton for control of auxiliary functions.

4.25 PILLOW SPEAKER HANGER

Pillow Speaker Hangers shall be Jeron Model 6809 or approved equal. It shall be furnished with a metal wall clip and hardware for wall mounting.

4.26 TERMINAL BLOCKS

Terminal Blocks shall be Jeron 6671 (48 connections) and/or 6171 (96 connections) or approved equal. Terminal Blocks shall be employed for the interconnection of room field direct wiring, Nurse Master Stations and to Main Controls.

Model 6671 and 6171 Terminal Blocks shall have, respectively 48 or 96 insulation displacement terminal clips pre-wired to 1 (6671) or 2 (6171) 25 pair Centronic™ ribbon-type connectors.

5.0 TRAINING OF PERSONNEL

Nursing Staff and other staff members of the Health-Care facility that will be involved in the operation and maintenance of the Nurse Call System shall be thoroughly instructed in the use of the Pro-Alert™ 640 Nurse Call System. Instruction shall be provided by the authorized distributor responsible for the installation of the system. Such in-service training shall be provided in conjunction with the Nurse Call equipment as installed.

The Nurse Call System supplier shall provide instructions to the staff by means of a portable demonstration system. The demonstration system shall be set-up in the conference room or similar training facility as designated by the facility's administration to provide the staff with hands-on experience without disrupting normal activities.

The demonstration system shall consist of at least the following minimum equipment:

- a. Main Control Equipment
- b. Nurse Master Station
- c. Dual Jack Callcord Patient Station
- d. Staff/Pushbutton Patient Station
- e. Pullcord Patient Station
- f. Bath/Emergency Station
- g. Staff Emergency Station
- h. Visual Duty Station
- i. Dome Lights
- j. Callcords

The in-service training instructor shall demonstrate each function of the system with all indicators and audible tones in operation.

Training schedules shall be arranged so that staff members on all shifts are provided with in-service training of the Nurse Call System.