

HERITAGE MEDCALL™

VNS

Visual Nursecall System

**Description,
Specifications,
and
Installation
Manual**

Heritage Medcall, Inc
202 East Virginia Avenue
Tampa, FL 33603
813-221-1000 (voice)
813-223-1405 (fax)
email@heritagemedcall.com
www.heritagemedcall.com

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SYSTEM DESCRIPTION AND FEATURES

1. INTRODUCTION

Hospitals and other types of healthcare facilities depend on modern communications to provide the basic coordination and information needed to assure each patient optimum medical care.

The Heritage Visual Nurse Call System (VNS) is a basic nurse and patient communication system. It is an attractively styled, economically designed system that is suited for use in ancillary departments within larger hospitals (such as CCU/ICU, physical therapy, radiology, etc.), small hospitals, private clinics, nursing homes, private and group practices as well as dental and chiropractic offices.

The system installs quickly, thus cutting the cost of installation labor.

Each system, regardless of size, has the basic features that are required for a patient to gain access to the nursing staff, and for the staff to monitor the various patient areas.

1.1 Basic System

A basic Heritage system consists of an annunciator panel which would be located conveniently to staff members and/or work stations, single patient stations, dual patient stations (both one gang and two gang versions), call origination devices, dome lamps, toilet stations, duty stations, tone units, flasher unit, power supply, and installation materials such as wire, cable, terminal blocks and connector assemblies.

A typical system can have as many station units and annunciator panels as the power supply or power supplies will allow. This means that by adding additional power supplies, the system can be expanded for increased call coverage.

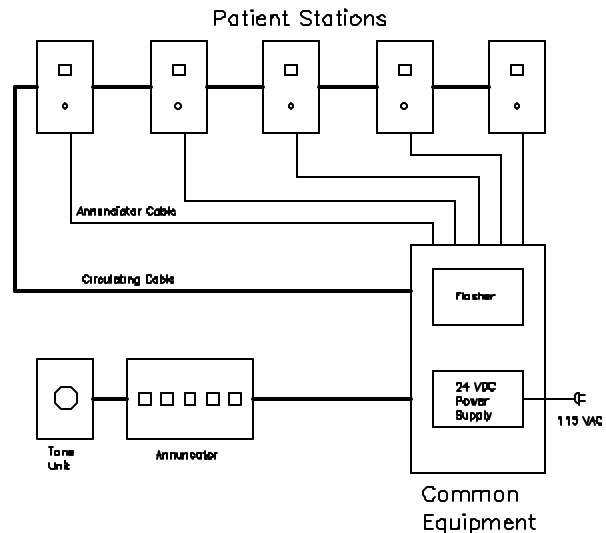


Figure 1. Typical System

All calls are displayed at the annunciator panels. Each annunciator panel provides the necessary visual call signalling with independent indicators for each location of call origination. Additionally, Heritage has the ability to display up to three priorities of patient call origination. This gives the healthcare staff the ability to distinguish between a variety of call types, such as:

- code blue calls from code blue emergency stations
- emergency calls from toilet emergency stations or remote staff assist type switches
- normal calls from patient stations

Each annunciator panel requires a separate tone unit for the audible signalling. The benefit of the independent tone unit is that it can be installed remotely, away from the annunciator panel in a location that may be more desirable and practical.

Calls are originated by several different types of station units. There are single patient stations and dual patient stations for originating normal calls. For emergency call origination, there are toilet stations and to cover extreme emergencies, the code blue emergency station provides for code blue call origination.

Dome lamps can be used in conjunction with the station units for added signalling. This additional call signalling will assist in locating the origin of call placement as well as the priority.

1.2 Additional Equipment

The system can include additional equipment for increasing the effectiveness of the system. Such equipment may include code blue and staff presence stations. Also, the Heritage CliniComm System can be interfaced to the Visual Nurse Call System, allowing full Microprocessor control.

2. FEATURES

A visual system provides reliable visual signalling for the basic nurse/patient communications required in healthcare institutions. The system's design, the station units, and the user features are all designed as a unit insuring that the healthcare staff are always aware of the patient's needs.

2.1 System Design

The system provides many features upon installation.

Solid State Technology

The basic design of solid state circuitry for all major components in the Visual Nurse Call System assures a high degree of reliability.

Call Prioritizing

Simultaneous visual indication of patient calls are provided on the patient station, dome lamp, duty stations as well as at the annunciator panels and zone lamps according to a three-level priority sequence. In addition to the visual signalling, tone signals are also provided.

Equipment Variety and Quality

Heritage has a variety of stations to fulfill many functions, for example: single and dual patient stations (dual stations are available in both one gang and two gang versions), and emergency stations.

To complement the variety of station units, there is a choice of patient call origination devices (cordsets), available from Heritage.

Straightforward Installation Concepts

The system's functionality is supported by the central equipment. The central equipment is located in an equipment cabinet and includes the necessary terminal blocks and junction box, a flasher unit and a power supply.

The station units are designed for mounting into standard electrical backboxes supplied with a one gang or two gang adapter. For system connections, the station units are provided with color coded terminations for easier troubleshooting and replacement.

2.2 Annunciator Panel Design

The annunciator panels are compact and are available for wall flush or surface mounting. Along with a separate remote tone unit, the annunciator panel provides for incoming call signalling as well as other system conditions.

Call Processing

Lamp indicators for each location identify calling patient and the priority of call. Each incoming call is accompanied by visual and audible tone signalling for quick and accurate identification.

The attendant at the nursing station has the ability to scan patient calls quickly using the annunciator panel, and then initiating the proper and timely action.

Call Acceptance

Calls are automatically received and displayed according to the priority status which is determined by the system configuration.

Emergency type calls and lower ranked calls are indicated by distinctively different visual and audible call indications.

Annunciator Panel Capacity

To meet a variety of installation applications, the annunciator panels are available in 10, 20, 30, 40, 50 and 60 lamp versions.

NOTE: A separate tone unit is required for these annunciator panels. This tone unit must be ordered separately.

2.3 Patient Station Design

The system's single and dual patient stations are designed to operate in conjunction with the annunciator panel and auxiliary signalling equipment such as dome lamps. The patient stations are designed with many unique features for optimum patient communications.

Call Origination and Communications

A patient call is originated by the push of a single button.

Visual indication of a patient call, occurs both on the patient station and the corridor dome lamp, as well as zone lamps (if provided), and the annunciator panels.

A call is automatically originated if the cordset is removed from the patient station receptacle. This type of call can only be cancelled by replacing the cordset.

For use with the patient stations, there is a choice of patient call origination devices, such as push-button, geriatric and pillow cordsets available from Heritage.

Installation

Patient station faceplates are constructed of punched aluminum or flame retardant, high impact, molded thermoplastic which results in microshock-proof safety. See Technical Specs. for exact specifications on the various models.

Pre-wired, color coded terminations are used for ease of installation and maintenance.

3. SYSTEM COMPONENTS

The following paragraphs provide a brief description of the various stations used in the Visual Nurse Call System.

3.1 Central Equipment

Housing the major electronic circuitry and related equipment, the central equipment supports all the stations in a system. This is where the power supply for the system is located as well as terminal blocks for terminating the zone common cables and the annunciator panel cables.

The typical central equipment installation is housed in an equipment cabinet and consists of:

- Power supply (one or two, as required)
- Flasher unit
- Junction box
- Terminal block

For installation flexibility, there are a variety of equipment cabinets available for different installation circumstances such as wall or surface mounting.

3.2 Annunciator Panels

The Heritage annunciator panels are designed to operate in conjunction with the patient stations and auxiliary signalling equipment such as dome lamps, toilet and shower stations, code blue stations, and staff presence indicator stations.

Annunciator panels are available in 10, 20, 30, 40, 50 or 60 lamp versions. Each version features individual lamp and lens positions for visual signalling, announcing placement of calls or other system functions such as staff presence indication. The lenses, which snap onto the panel, are available in a variety of colors. In addition to having colored lenses, the lenses may be customized by labeling of up to three characters.

To allow for easier servicing, the lamps are accessible from the front of the panel (without the need for removing the panel).

Tone signalling is provided by a separate tone unit. This tone unit can be mounted remotely, in any convenient location.

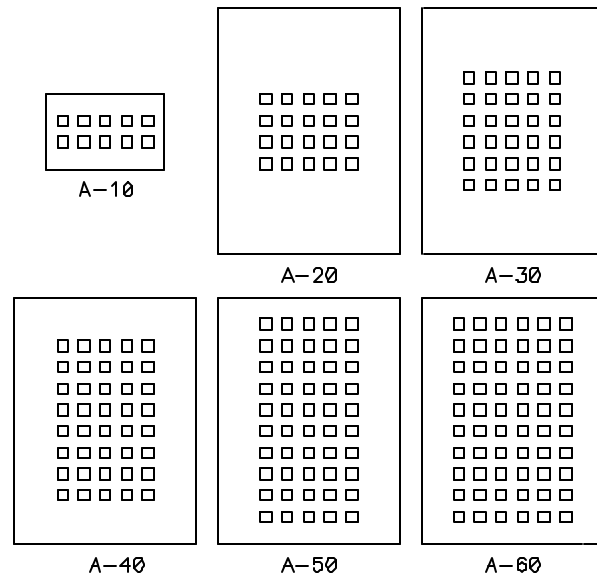


Figure 2. Annunciator Panels

3.3 Patient Stations

The wall recessed or, surface mounted, single and dual type patient stations are designed to operate in conjunction with the annunciator panel(s) and auxiliary signalling equipment, such as dome lamps. Patient stations are available for use with a 1/4" phone jack cordset only.

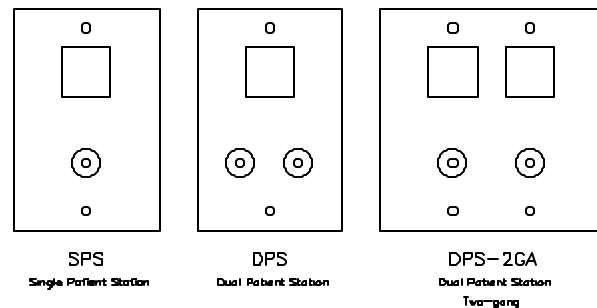


Figure 3. Patient Stations

Located at the patient's bedside, the patient stations contain at least one combination white call placement indicator and cancel button as well as a cordset receptacle.

The white call indicator illuminates when the patient places a call. The white call indicator extinguishes when the call is cancelled at the patient station. The cancel button allows only cancellation of the call at the patient station.

One important safety aspect of the cordset receptacle is that if the cordset is removed, a call will be originated. This call can only be cancelled by actually going to the patients room and reinserting the cordset into the patient station receptacle, and then pressing the CANCEL Button.

There are a variety of patient stations available for the system. You can choose from the following stations:

- a single patient station for use with a single prong cordset
- a dual patient station, single gang, for use with two single prong cordsets but with one combination white call placement indicator and cancel button (this station provides only one identity to the annunciator panel)
- a dual patient station, two gang, for use with two single prong cordsets but with two combination white call placement indicators and cancel buttons (this station provides two separate identities to the annunciator panel)

3.4 Call Origination Devices

As mentioned in paragraph 3.3, several types of patient stations are available for the system. For the variety of patient stations, there is also a choice of call origination devices which interface

with the patient stations available from Heritage.

All call button cordsets and the call origination button are compatible with patient stations with the single prong receptacle.

Cordsets provide a means of originating a nurse call by the use of a button. There is a rugged call button cordset, a geriatric call button featuring a light pressure switch, and a multipurpose cordset for use in such situations as oxygen tents.

NOTE: Most of the cordsets withstand ethylene oxide sterilization procedures.

If desired, a rather simple call origination button is available to allow for placing a call on the patient station itself (instead of a call origination cordset).

3.5 Duty Station

The wall recessed or surface mounted duty station provides both visual and audible signalling. Typical locations in which the duty station may serve includes: pantry, utility, staff lounge and operating rooms.

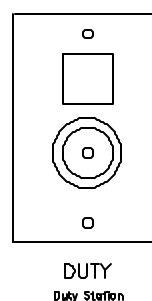


Figure 4. Duty Station

Each duty station is equipped with one white patient call indicator and one adjustable tone module. These components allow the duty station to provide the distinct signalling for determining not only call placement, but the type

- continues -

of call as well. Higher priority call indications take precedence over lower priority call indications. (As higher priority calls are cancelled, the indications for lower priority calls resume.)

3.6 Emergency Stations

The wall recessed or surface mounted code blue and toilet emergency station allows for origination of an emergency type call from a wall switch, toilet or shower area. A blue combination call and reset button with "Code Blue" nomenclature and indicator lamp is provided for code blue emergency call origination. A red combination call and reset button with nurse symbol and/or nomenclature for excellent visibility (pullcord is available on toilet and shower station) and indicator lamp is provided for emergency call origination.

Emergency call is only cancellable at call button or pullcord where it originated.

Heavy duty contacts are specifically designed for long life and trouble-free operation.

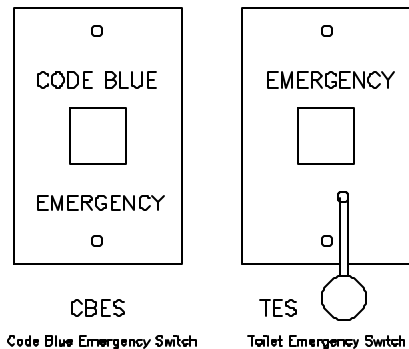


Figure 5. Emergency Stations

Constructed of punched aluminum or high impact, molded thermoplastic, the station faceplate has non-shattering and low water absorption characteristics as well as flame retardant properties rated 94V-0 by UL.

3.7 Staff Presence Indicator Station

The staff presence indicator station can be used for registering the presence and location of the healthcare staff throughout the facility. Equipped with one, two or three indicator switches, the staff presence indicator station provides the input facility for the nurses and staff members to register their presence at specific locations.

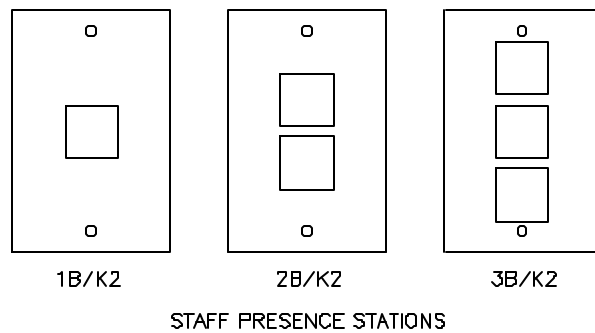


Figure 6. Presence Indicators

As the hospital personnel uses the staff presence indicator stations, a nurse at the nursing station can scan the location of the personnel via illuminated lamps on the annunciator panel.

3.8 Dome Lamp

The dome lamp is capable of displaying visual call indications through the use of lamp indicators.

The multi-sectional dome lamp has the ability to indicate different types of call originations and system conditions through the use of up to four colored lenses over the lamps and various lamp indications (steady or flashing). The various indications are presented in Table 1.

The dome lamps are constructed of punched aluminum or high impact, molded ABS faceplate with flame retardant properties rated 94V-0 by UL.

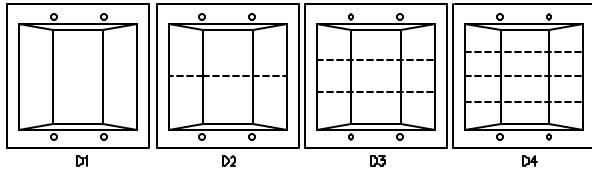


Figure 7. Dome Lights

Typically, the multi-sectional dome lamp is associated with a station in a room and installed just outside that room. In addition, the dome lamp can be set up to provide visual signalling for a zone of patient stations.

TYPE OF CALL	INDICATION
Code Blue	Fast Flashing Red or Blue
Staff Assist, Toilet or Shower Patient Assist	Flashing White
Patient Normal	Steady White
Staff Registration	Steady Green
Staff Registration	Steady Amber
Staff Registration	Steady Red

Table 1. Typical Dome Lamp Indications

The multi-sectional dome consists of a faceplate, with provisions for up to four colored bulbs (white, green, amber, red, and blue available), lamps, lamp sockets, and the lenses.

3.9 Wire and Cable

Heritage recommended cable specifically designed for the Visual Nurse Call System assures optimum operating performance and must be used in all installations. This includes new installations and for replacing other systems with the system.

Use only approved wire and cable necessary for the installation. Using the correct wire and cable will ensure proper system performance and increased reliability.

NOTE: Heritage cannot support or warranty any product/system or its performance if installed using non-approved wire and cable.

3.10 Installation Accessories

Components such as connectors, terminal blocks, plug assemblies and other installation materials are employed throughout the system. These items have been especially designed to allow the Visual Nurse Call System to operate effectively, efficiently, and reliably.

4. SUMMARY

After reviewing the information in this Section, System Description and Features, you should know about the features that the Heritage Visual Nurse Call System provides for a healthcare facility, and the type of equipment that makes up a system.

Operating Instructions

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OPERATING INSTRUCTIONS

1. INTRODUCTION

Since the VNS system is based on visual signaling, system operation is accomplished through easy-to-use features. The biggest advantage of this is that the time spent on learning how to use the system is kept to a minimum.

1.1 Call Priorities

VNS can provide up to three levels of signaling for call prioritizing. Simultaneous signaling occurs throughout the system via annunciator panels, tone units, duty stations, dome lamps, and on the patient stations themselves. The three levels allow for immediate identification of the following types of calls:

Code blue calls from code blue emergency stations.

Emergency calls from toilet and/or shower emergency stations or remote staff assist type switches.

Normal calls from patient stations

NOTE: The call priority for a given station device is determined by the system wiring. Typically, patient stations are wired such that they originate normal calls, emergency stations are wired to originate emergency type calls, and code blue stations are wired to originate a code blue type of call. For installation and wiring specifics, see Section 600 (installation instructions).

2. ANNUNCIATOR PANELS

The annunciator panel represents the primary annunciation point for the VNS Visual Nurse Call System. Using the annunciator panel, the nurse can respond efficiently to the needs of the patients. It provides a complete overall view of the system status.

Several annunciator panels are available to support different system sizes. Available are the following:

- 10 Lamp Annunciator Panel
- 20 Lamp Annunciator Panel
- 30 Lamp Annunciator Panel
- 40 Lamp Annunciator Panel
- 50 Lamp Annunciator Panel
- 60 Lamp Annunciator Panel

2.1 Components

Serving as a monitoring device, the only components on the annunciator panels are lamps and corresponding lenses. No hands-on operation is required.

NOTE: For audible signaling, an annunciator panel must be supplemented with a separate tone unit.

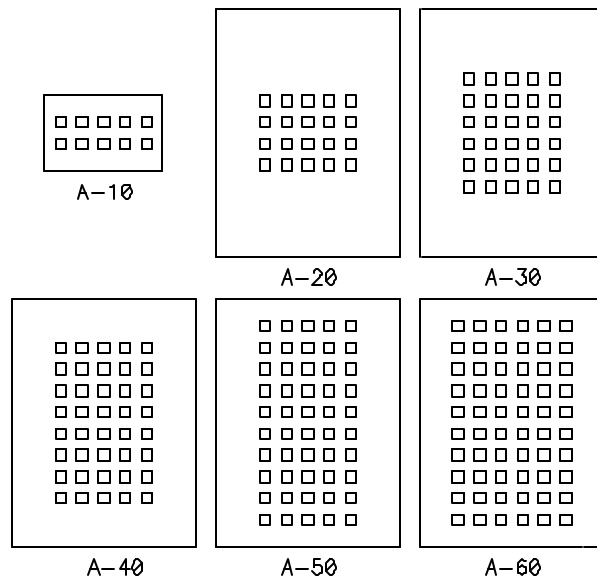


Figure 1. Annunciator Panels

2.2 Call Processing

- a. At the annunciator panel, an incoming call is announced by both visual and audible indications.

- b. The nurse observes which location the call originated from and dispatches personnel accordingly.
- c. The call is cancelled at the point of origin.

Normal patient calls are announced by a tone burst signal. Until the call is answered, the tone burst will be repeated approximately every 10 seconds. The lamp indicator on the annunciator panel illuminates to identify the room where the call originated.

An incoming emergency call is announced at the annunciator panel by an intermittent tone and flashing lamp indicator associated with the calling emergency station.

Code blue calls are announced at the annunciator panel by a fast intermittent tone and fast flashing lamp indicator associated with the calling code blue emergency station.

The nurse can only cancel calls displayed at the annunciator panel by going to the particular station that originated the call and pressing the cancel button or reset the call switch.

If a cordset is removed from a patient station, the call cannot be cancelled by pressing the cancel button on the patient station. It can only be cancelled by inserting the cordset into the receptacle on the station and then pressing the cancel button.

3. PATIENT STATIONS

Several patient stations are available for the VNS Visual Nurse Call System. Different configurations provide functions, which can meet a variety of patient to nurse communications needs. The patient stations available are:

Single Patient Station with One ¼" Jack Receptacle (Single Gang)

Dual Patient Station with Two ¼" Jack Receptacles (Single Gang)

Dual Patient Station with Two ¼" Jack Receptacles (Two Gang)

3.1 Components

Single and dual patient stations incorporate the same basic functions using common elements. Common to both types are:

Combination Call Placement Indicator and CANCEL Button

¼" Jack Receptacle

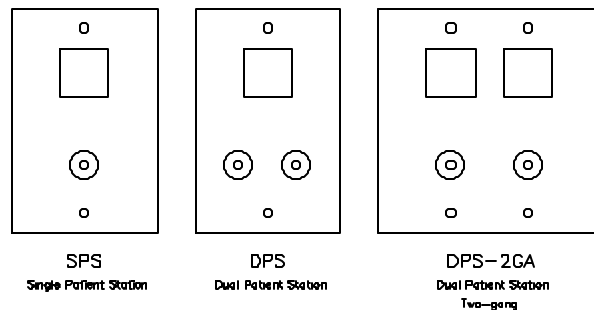


Figure 2. Patient Stations

The patient's bedside station is provided with a combination white Call Placement Indicator and CANCEL Button in the upper part of the front panel. One indicator is provided on the single patient stations and the single gang dual patient station; two are provided on the two-gang dual patient stations.

The Call Placement Indicator illuminates when a patient originates a call to the nurse control station, confirming that the call has been placed. When the call is cancelled, the illuminated white Call Placement Indicator at the patient station will extinguish.

The Call CANCEL Button is used to cancel calls placed from the patient station.

One receptacle is provided on a single patient station, and two receptacles are provided on a dual patient station. Each ¼" jack receptacle will accept a call origination button.

When a call origination button is removed from the patient station's receptacle, a call is placed.

3.2 Placing a Call By Removing the Call Origination Device

- a. Pull the call origination button out of the patient station receptacle.
- b. To cancel the call, the call origination button must be replaced into its patient station receptacle.

Placing this type of call automatically performs several functions. The white Call Placement Indicator on the patient station illuminates. The white section of the corridor dome lamp and associated zone lamps are illuminated. Additionally, the call is displayed at the annunciator panel(s) and duty station(s) in accordance with normal call parameters.

NOTE: When a cordset is removed from a patient station, a noncancelable type of patient call will be generated. This call cannot be cancelled at the annunciator panel or by pressing the cancel button on the patient station. It can only be cancelled by inserting the cordset into the receptacle on the station and then pressing the cancel button.

3.3 Placing a Call Using a Call Origination Device

- a. Press the nurse call button on the cordset or call origination button connected to the patient station.
- b. To cancel a normal call, press the combination white Call Placement Indicator and CANCEL Button on the patient station that originated the call.

Placing a normal call automatically performs several functions. The white Call Placement Indicator on the patient station illuminates. The white section of the corridor dome lamp and associated zone lamps are illuminated. Additionally, the call is displayed at the annunciator panel(s) and duty station(s) in accordance with normal call parameters.

NOTE: A normal call must be cancelled by going to the particular patient station that originated the call and pressing the cancel button.

4. DUTY STATION

The duty station, by means of a tone signal and its illuminated patient call indicator, can alert the staff members in the area it serves that a patient has placed a call.

When a staff member hears the tone signal and sees the illuminated patient call indicator on the duty station, he/she checks the dome lamps in the corridor to see which is illuminated.

The duty station is also vital during times of the day when the annunciator panel may not be closely attended. At these times, the duty station will alert staff members to a patient call by its tone signal and illuminated patient call indicator. A staff member can then go to the annunciator panel to see which patient placed the call.

NOTE: This duty station does not incorporate any call origination capabilities.

4.1 Components

PATIENT Call Indicator located in the upper center portion of the duty station, is the white PATIENT Call Indicator. This indicator illuminates when a call is originated by a patient station. Additionally, audible tone signaling for call originations supplements the visual indications.

The purpose of the visual and audible signals is to alert the staff in the area of the duty station

that a patient has placed a call. Personnel at the duty station should then observe the corridor dome lamps to see which is illuminated and go to that room to render assistance.

The PATIENT Call Indicator extinguishes when all patient calls in the system are cancelled.

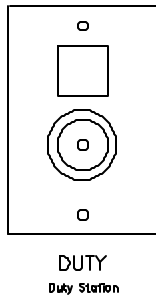


Figure 3. Duty Station

Located at the bottom portion of the faceplate, an adjustable tone module is provided. The adjustable tone module is used for audible tone signaling to alert healthcare staff of all calls placed from the zone.

4.2 Responding to Patient Calls

- a. Observe the PATIENT Call Indicator to determine the type of call (see below).
- b. Note the corridor dome lamps in the zone to see which one is illuminated and go to that patient's room to render service.
- c. Take the appropriate action at the location and cancel the call.

Incoming Call Visual and Audible Indications

Fast flashing (approximately twice per second) of the indicator accompanied by a fast intermittent tone signal indicates a code blue call. The indications on the duty station will extinguish only when a staff member resets the

button on the originating code blue emergency station to its non-call position.

Flashing (approximately once per second) of the indicator accompanied by an intermittent tone signal indicates an emergency call originated via a toilet or shower emergency station call. The indications on the duty station for these call priorities will extinguish only when a staff member resets the call at the point of origin.

Steady indicator illumination accompanied by an intermittent tone indicates a normal call placed from a patient station. The indications on the duty station for this call priority will extinguish only when a staff member cancels the call.

5. EMERGENCY STATIONS

The toilet emergency stations are designed to provide emergency call origination facilities in a shower or toilet location. Pulling the cord provided on the emergency station activates emergency visual and audible signals throughout the VNS Visual Nurse Call System.

Canceling the emergency call is accomplished only by a staff member responding to the call and manually resetting the switch on the station that originated the call.

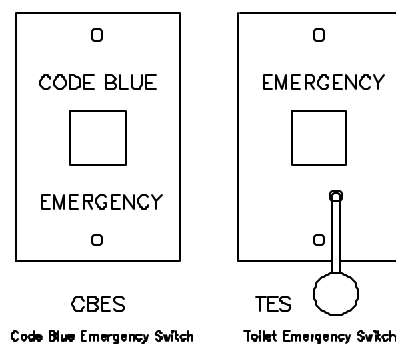


Figure 4. Emergency Stations

5.1 Emergency Station Components

A slide type switch with pullcord and indicator is provided on both the toilet and shower emergency stations. When the nylon cord of an emergency station is pulled, an emergency call is established (see below).

5.2 Placing a Call From a Toilet or Shower Emergency Station

- a. Pull down on the nylon cord provided on the emergency station.

Upon placing the call, the red indicator lamp on the activated toilet or shower emergency station slowly flashes. This indication assures the patient originating the call, that the emergency situation has been registered within the system.

The white section of the corridor dome lamp above the room door of the patient originating the emergency call, and the associated zone lamps flashes.

At the annunciator panel, the associated lamp indicator flashes and an intermittent tone signal sounds.

At duty stations, an intermittent tone signal sounds and the white PATIENT Call Indicator flashes.

Once the nylon cord on an emergency station is pulled, all visual signals continue to flash and all tone signals continue to sound. The call indications terminate when a staff member responds to the patients need and cancels the call at the point of origin.

5.3 Canceling a Call at a Toilet or Shower Emergency Station

- a. Reset the slide switch on the activated station to its up position.

This action terminates all visual and audible signals associated with the emergency call.

Since an emergency call can only be cancelled by going to the emergency call device, toilet station or shower station where it originated, it insures immediate attention to what could be a critical situation.

6. CODE BLUE EMERGENCY STATION

These stations are installed at various strategic areas throughout the hospital. Pressing the blue button on this station activates emergency visual and audible signals throughout the VNS system. By taking this step when faced with an extreme medical emergency (primarily cardiac arrest situations), hospital staff members may summon help to assist in handling and treating a patient.

Canceling the emergency call is only accomplished by a staff member (or members) responding to the call and manually resetting the blue switch on the station that originated the call.

6.1 Components

A combination push-button and indicator is provided on the code blue emergency station. This button allows for call and reset features with an indicator lamp that illuminates the button.

6.2 Placing a Call From a Code Blue Emergency Station

- a. Push once on the blue call button, locking the button in position.

After pushing the button, the indicator rapidly flashes (approximately twice per second). This flashing indication verifies the call has been placed.

When an emergency call is originated from a code blue emergency station, the red (or blue) section of the applicable corridor dome lamp rapidly flashes (approximately twice per

- continues -

second). In addition, all associated zone lamps rapidly flash at the same rate.

At the annunciator panel, the associated lamp indicator rapidly flashes and a fast intermittent tone signal sounds.

At duty stations, a fast intermittent tone signal sounds and the white PATIENT Call Indicator rapidly flashes. Once the staff call button on a code blue emergency station is pushed, all visual signals continue to flash and all tone signals continue to sound repeatedly, until that call has been answered by responding staff personnel and cancelled at the point of origin.

6.3 Canceling a Call at a Code Blue Station

- a. Push the Blue Button on the activated code blue emergency station a second time to cancel the call.

This action cancels the call and terminates all visual and audible signals associated with the Code Blue Call.

7. STAFF PRESENCE INDICATOR STATIONS

These stations are designed to provide the nurses and staff with a means to register their presence at specific locations. Staff presence indicators are typically installed in patient rooms and staff areas.

Refer to Figure 5 for the layout of the available staff presence indicator stations.

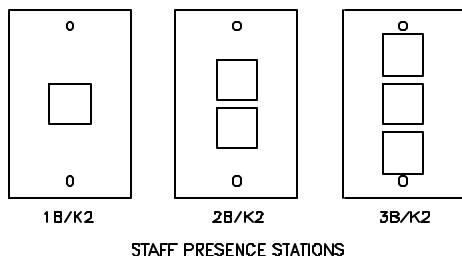


Figure 5. Staff Presence Indicator Station

7.1 Components

One, two and three button staff registration panels are available depending on the requirements of the installation. Each button is push-on for registering presence, and push off for canceling the presence indication. Unique color coded buttons can be specified for each switch for easy identification of the proper switch to register on. When a button has been pressed, the location of that station and staff member classification (nurse or staff) is displayed on the designated annunciator panels, and the button indicator illuminates. When the illuminated button is pressed again, the button indicator and the annunciator panel lamp indicator extinguishes.

7.2 Nurse or Staff Registration

- a. A nurse or staff presses the appropriate color button staff registration station upon entering a patient room or staff area.

This action causes the following indications to occur: the appropriate color indicator in the station illuminates, the matching color section of the dome lamp illuminates, and the appropriate lamp indicator on the annunciator panel illuminates.

7.3 Canceling Nurse or Staff Registration

- a. The nurse or staff presses the button on the station upon leaving the station area.

This causes the appropriate color light on the station and the matching color on the dome lamp to be extinguished as well as the corresponding lamp indicator on the annunciator panel extinguishing.

8.0 Dome Lights and Zone Dome Lights

Dome lights are used outside of patient rooms or areas to signal calls placed at devices connected to the dome light. Dome lights will

- continues -

light or flash based on the type or priority of call. Colored lights may also be used to indicate staff presence. Zone dome lights are installed in appropriate locations to allow a single lamp to indicate calls or staff presence in a group of rooms or areas usually at the head of a hallway so staff can readily see if a call is originating from a room down that hallway. The zone lamp will usually contain enough lamps and colors to allow signaling of any function in the referenced group.

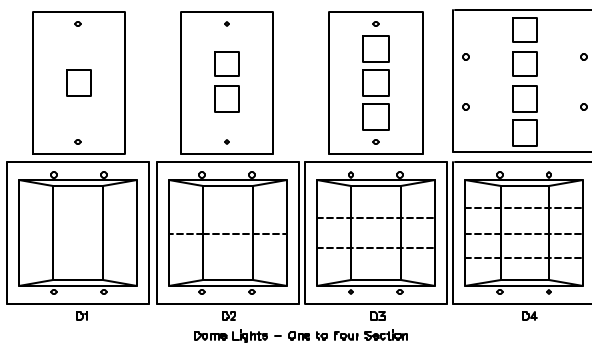


Figure 6. Dome Lights

8.1 Components

Dome lights are available with one to four sections and colored bulbs (or lenses) may be installed to properly signal the type of call placed or the staff presence to be indicated. Two different styles of Dome Lights are available, a one to four section domed lens device with colored bulbs used as necessary for maximum visibility from distance, or a one to four lamp device with small colored lenses used where a more discreet display is desired.

Guide to Specification Writing

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GUIDE TO SPECIFICATION WRITING

1. HOW TO USE THIS GUIDE

The information contained in the Guide to Specification Writing is furnished as a guide to prepare a construction specification for a Heritage MedCall Visual Nurse Call System (VNS).

The guidelines presented within this section, are just that - guidelines. For more comprehensive information, the technical manual should be consulted. Additionally, it is strongly suggested that anyone specifying a system should contact their Heritage MedCall sales office for assistance as well as the most up-to-date information concerning product availability, specifications, etc.

Specifications should be prepared following the sequence of information found in this section.

1.1 General Requirements

Include all the paragraphs in the General Requirements for the system being specified.

1.2 System Definition

Carefully read the System Definition. Include all material which is applicable to the system that is being specified. Delete any part of the description which is not incorporated as part of the complete system being specified. Add any additional information pertinent to the particular job being specified.

1.3 System Components and Operation

Carefully read the System Components and Operation. Include all paragraphs which are applicable to the particular job being specified. Delete any parts which are not incorporated as part of the complete system being specified.

Add any additional information pertinent to the particular job being specified.

1.4 Equipment Specifications

Note: A section containing individual technical specification sheets pertaining to each model used in the system should be added after the section on System Components and Operation.

2. GENERAL REQUIREMENTS

2.1 Contractor

The contractor shall furnish all equipment, accessories and material complete and in strict accordance with specifications and applicable drawings as required for an electronic visual nurse call system. All material and/or equipment necessary for proper operation of the system specified or described herein shall be deemed part of the specifications.

2.2 Standard Products

The equipment furnished under this specification shall be the standard product of one manufacturer and shall be equal in every way to that manufactured by Heritage MedCall. Catalog and model numbers are intended to indicate type and quality of design and material as well as exact operating features required.

All items of equipment including wire and cable shall be designed or designated by the manufacturer to operate as a complete system and shall be accompanied by the manufacturers complete service notes and drawings detailing all interconnections.

2.3 Qualifications

Any system proposed as an equal to that herein

- continues -

specified shall be proven to be such by the contractor who shall, with his bid, attach the manufacturer's name and model numbers of such substitute equipment and material, together with three copies of working and shop drawings. Contractor shall obtain architect's and/or electrical contractor's approval in writing prior to substitution of materials as specified. Each major component shall bear the manufacturer's name and catalog number.

2.4 Service Facilities

Contractor shall make available to the purchaser a local service department of a duly authorized distributor of the equipment manufacturer which shall stock the manufacturer's standard parts as well as reference information such as technical manuals. On-the-premises maintenance shall be provided during normal working hours at no cost to the purchaser for a period of twelve (12) months from date of completion of installation unless damage is caused by misuse, abuse or accident. On-the-premises service furnished at other than normal working hours shall also be available and shall be charged for by the manufacturer's distributor at current labor rates.

2.5 Training of Personnel

Nursing staff of the hospital, as well as maintenance staff, shall be thoroughly instructed in the use of the system by authorized distributor personnel. Such service shall be provided in conjunction with the system equipment.

2.6 Maintenance Staff School

Every year, the contractor shall conduct a series of technical training schools where factory trained experts shall acquaint the customer's own technicians in basic care and maintenance procedures. These schools shall be effective in achieving lower service costs and maximum customers satisfaction.

3. SYSTEM DEFINITION

The contractor shall furnish and install a Heritage MedCall Visual Nurse Call System (VNS).

The system shall provide basic visual and audible signalling for the coordination of nursing personnel for optimum patient care.

The Heritage MedCall VNS shall feature single and dual patient stations, duty stations and unique annunciator panels with separate tone units. The annunciator panel shall provide instant indication of patient-to-nurse calls.

For ease of installation and maintenance, system components shall be provided with pre-wired, color coded terminations.

3.1 System Capacities

The typical system shall have the capacity for a combined total of 10 to 60 patient stations, duty stations, independent toilet/shower emergency stations, and code blue emergency stations depending on the annunciator panel selected.

Due to the flexible design of the system, it shall be possible to specify a system to accommodate even larger applications by including additional power supplies and annunciator panels.

3.2 Equipment Requirements

The specified Heritage MedCall System shall consist of at least one annunciator panel, single and/or dual patient stations, dome lamps, call cords, toilet and shower emergency call stations, duty stations, power supply, flasher unit and installation materials such as wire, cable and terminal blocks to provide a complete operating system.

3.3 Additional Equipment Requirements

Additional equipment as required shall consist of code blue emergency stations, staff presence indicator stations, zone lamps and zone control modules.

3.4 Auxiliary Systems

It shall be possible to interface the Heritage MedCall system with other auxiliary systems such as a Heritage CliniComm indicator systems.

3.5 Call Originations

The specified system shall provide for the following call origination capabilities:

- Patient to annunciator panel
- Toilet or shower station to annunciator panel
- Staff presence station to annunciator panel

3.6 Visual and Audible Signals

The specified system shall provide for lamp and tone signals as follows:

Visual Indications

- Interrupted at 60 Pulses Per Minute (PPM)
- Interrupted at 30 PPM
- Steady

Audible Indications

- Intermittent at 60 Pulses Per Minute (PPM)
- Slow intermittent at 30 PPM
- Slow intermittent at 6 PPM

3.7 Priority Sequence

The specified Visual Nurse Call System shall provide the following call priority indications:

- High
- Medium (Toilet or Shower Emergency Call)
- Low (Patient Normal Call)

3.8 Wire and Cable Requirements

The Heritage Visual Nurse Call System shall be specified to be installed using only wire approved by Heritage MedCall. The approved wire and cable shall facilitate proper installation via color coded wiring.

4. SYSTEM COMPONENTS AND OPERATION

4.1 Annunciator Panel

The annunciator panel shall be provided for wall mounting. In addition, the annunciator panel shall be capable of the following functions:

- complete display of system status
- individual lamp indicator for each patient station, independent toilet and/or shower emergency station
- interface with independent tone unit for tone signalling
- individual lamp indicator for each staff presence location (registered via staff presence indicator stations)

Components

The annunciator panel shall be equipped with individual lamp indicators to display the call status of all required locations throughout the system as well as staff presence status as required.

NOTE: Tone signalling shall be provided by a separate tone unit to be installed independently of the annunciator panel.

Annunciator Panel Parameters

The annunciator panels shall be able to provide visual signalling with 10 to 60 lamp positions. The following configurations shall be available:

- 10 Lamp Annunciator Panel
- 20 Lamp Annunciator Panel
- 30 Lamp Annunciator Panel
- 40 Lamp Annunciator Panel
- 50 Lamp Annunciator Panel
- 60 Lamp Annunciator Panel

Call Acceptance From Patient

When a patient originates a call, a tone signal shall sound at the tone unit(s) and the appropriate patient station indicator shall illuminate steady on the annunciator panel according to the designated priority level. All lights shall remain illuminated until the call is cancelled at the point of origin.

Call Announcement Tone

All incoming calls shall be announced by a tone signal, which continues until the call is cancelled.

Call Reminder Tones

Unanswered high priority calls shall be announced by a tone signal of 60 PPM.

Unanswered medium priority (toilet or shower emergency) calls shall be accompanied by a 30 PPM tone signal.

For unanswered low priority (normal type) calls, a tone shall be repeated every 10 seconds.

Call indications (audible and visual) shall remain until the call is cancelled at the point of origin.

Call Acceptance From Corridor

Nurse observing an illuminated corridor dome lamp over patient's door shall enter the patients room, render services and press the call cancel button at the patient's station. This operation shall automatically and simultaneously extinguish all illuminated signals in the system corresponding to that call, thus eliminating duplicate call acceptance by other nursing personnel.

4.2 Patient Station

The patient stations shall be designed to operate within the overall system in conjunction with an annunciator panel and auxiliary signaling equipment such as dome lamps, zone lamps, etc.

Mounting depth of the patient bedside station shall permit mounting into a three-inch deep backbox. For ease of installation and maintenance, the patient station shall use color coded terminations.

Single and dual patient stations shall be available. Each patient bedside station shall contain a combination white call placement indicator and a call cancel button.

Call Origination From Patient's Station

Patient presses the bedside call button on the cordset. This one operation shall automatically perform the following functions:

- a. The white call indicator lamp on the patient station shall illuminate steady.
- b. The white section of the corridor dome lamp shall illuminate steady.
- c. Associated zone lamps (if provided) shall illuminate steady.

- d. The patient indicator at the duty station shall illuminate steady.
- e. An intermittent tone signal (approximately every ten seconds) shall sound repeatedly at the associated tone units (located near annunciator panels), and at the duty stations.
- f. The patient station call indicator on the annunciator panel shall illuminate steady.

Until the call is cancelled, the tone signal is repeated every 10 seconds as a reminder.

Automatic Call Circuit

When a cordset is either inadvertently or intentionally pulled out of the receptacle on any patient station, the system shall automatically register a call at the annunciator panel and duty stations. Removal of a cordset from the patient station receptacle shall automatically and simultaneously perform the following functions:

- a. The white indicator lamp(s) on the patient station shall illuminate steady.
- b. The white section of the corridor dome lamp or care-light shall illuminate steady.
- c. Zone lamps (where provided) shall illuminate steady.
- d. The patient indicator on the duty station shall illuminate steady.
- e. An intermittent tone signal (approximately every ten seconds) shall sound repeatedly at the associated tone units (located near annunciator panels), and at the duty stations.
- f. The patient station call indicator on the annunciator panel shall illuminate steady.

Until the call is cancelled, the tone signal is repeated every 10 seconds as a reminder. This type of call shall be cancellable only by replacing the cordset or pillow speaker in its receptacle and then pressing the CANCEL Button.

Call Origination Indicator

The patient bedside station shall have a white call placement indicator which shall automatically illuminate when the patient originates a call to the nurse. The indicator shall remain illuminated until the call is cancelled at the patient station.

Cordsets

Several types of cordsets are available from Heritage. All cordsets shall be interchangeable within the same receptacle on all patient stations.

4.3 Call Origination Devices

As mentioned in the previous paragraph, there are several types of cordsets available. Each cordset shall provide the patient with a means to contact the nurse at the nurse control station.

Furthermore, all call origination devices (except the geriatric call button cordset and the call origination button) shall be able to withstand ethylene oxide sterilization procedures.

4.4 Duty Station

The duty station shall be designed to operate in conjunction with auxiliary signalling equipment such as dome lamps and zone lamps in order to display patient calls. The duty station shall consist of a patient call indicator and an adjustable tone module.

Patient Call Indicator and Tone Signal

The staff/duty station, through its patient call indicator and tone signal, shall alert the staff in the area it services, both audibly and visually, that a patient is requesting assistance. The nurse shall check the dome lamps in the hallways to see which is illuminated.

4.5 Toilet and Shower Emergency Stations

The toilet/shower station shall consist of a pull cord operated slide switch, which when activated, shall automatically originate an emergency call.

Call Origination

When the emergency call is originated, the following functions shall automatically occur:

- a. The lamp on the toilet or shower station shall flash at 30 PPM, indicating that the call has been registered.
- b. The white patient call indicator at the associated duty stations shall flash at 30 PPM.
- c. The white section of the corridor dome lamp shall flash at 30 PPM.
- d. The white section of the associated zone lamps shall flash at 30 PPM.
- e. An intermittent tone signal shall sound repeatedly at 30 PPM, at the associated tone units (located near annunciator panels), and at the duty stations.
- f. The toilet or shower station call indicator on the annunciator panel shall flash at 30 PPM.

All signals shall continue to flash and all tone signals shall continue to sound repeatedly until

the call has been answered and cancelled. Calls from the toilet or shower station shall only be manually cancelled by resetting the toilet or shower button at the point of origin.

4.6 Code Blue Emergency Stations

The code blue station shall consist of a push button switch, which when activated, shall automatically originate an code blue call.

Call Origination

When the code blue call is originated, the following functions shall automatically occur:

- a. The lamp on the code blue station shall flash at 60 PPM, indicating that the call has been registered.
- b. The white patient call indicator at the associated duty stations shall flash at 60 PPM.
- c. The appropriate section of the corridor dome lamp shall flash at 60 PPM.
- d. The appropriate section of the associated zone lamps shall flash at 60 PPM.
- e. An intermittent tone signal shall sound repeatedly at 60 PPM, at the associated tone units (located near annunciator panels), and at the duty stations.
- f. The code blue indicator on the annunciator panel shall flash at 60 PPM.

All signals shall continue to flash and all tone signals shall continue to sound repeatedly until the call has been answered and cancelled. Calls from the code blue station shall only be manually cancelled by resetting the button at the point of origin.

4.7 Staff Presence Indicator Station

The staff presence indicator station shall consist of a single gang plate with one, two or three color coded illuminating push-on/push-off buttons.

The staff presence indicator station shall provide the input facilities for hospital personnel location and job category.

NOTE: The system shall also be able to interface with the Heritage CliniComm Patient Flow System for nurse and staff presence registration.

Upon entering a patients room, the staff person shall press the appropriate button on the Staff Presence indicator Station. This shall cause the following to happen:

- a. The activated button on the Staff Presence Indicator Station shall illuminate.
- b. The appropriate section of the dome lamp shall illuminate.
- c. The appropriate section of the associated zone lamp shall illuminate.
- d. The corresponding staff presence lamp indicator on the annunciator shall illuminate.

Upon leaving the patients room, the staff person shall press the lit button on the Staff Presence Station. This shall cause the appropriate button on the Staff Presence Station and the appropriate section of the dome lamp and associated zone lamp to be extinguished.

4.8 Dome Lamp

The surface, wall or ceiling mounted dome lamp shall be of modular construction to permit the

greatest flexibility in terms of application and installation. The dome lamp shall be clearly visible from all directions. The multi-sectional dome lamp shall be able to accommodate up to four colored lamps. Five colored lamps (red, amber, green, white and blue) shall be available. The dome lamps shall be available in 1, 2, 3 and 4 sections.

NOTE: The dome lamp shall be for use as a dome lamp above the patients door as well as a zone lamp.

The faceplate shall be made of punched aluminum, with a baked epoxy finish or off-white molded thermoplastic and be flame retardant with a UL rating of 94V-0.

It shall be possible to mount the dome lamp into an existing standard vertically mounted two-gang electrical box.

5. EQUIPMENT SPECIFICATIONS

Included with this section are individual technical specification sheets pertaining to the equipment used in the Heritage VNS system. (Note to specification writer: determine the equipment to be used and specify required equipment from the following information.)

5.1 Central Equipment

Note to specification writer: Specify as required for each system.

Model HM-F3 - Three Level Flasher Unit (refer to Technical Specification No. HM-F3).

Model R66B425MH - Terminal Block

Zone Control Module

Note to specification writer: When zone lamps are provided, one zone control module is required per zone.

Model HM-ZCM - Zone control module.

Power Supply

Note to specification writer: Specify at least one power supply per system.

Model HM-24V-3.6A - Power Supply (refer to Technical Specification No. HM-24V-3.6A).

Equipment Cabinets

(Note to specification writer: Specify single door surface mounted cabinet.)

Equipment cabinet, Hoffman A-TC30246S

5.2 Annunciator Panel and Accessories

(Note to specification writer: Include any of the following specifications, as required.)

Model HM-A10 - Wall type annunciator panel with 10 lamp positions, three gang backbox, (refer to Technical Specification No. HM-A10).

Model HM-A20 - Wall type annunciator panel with 20 lamp positions, W2 backbox, (refer to Technical Specification No. HM-A20).

Model HM-A30 - Wall type annunciator panel with 30 lamp positions, W2 backbox, (refer to Technical Specification No. HM-A30).

Model HM-A40 - Wall type annunciator panel with 40 lamp positions, W2 backbox, (refer to Technical Specification No. HM-A40).

Model HM-A50 - Wall type annunciator panel with 50 lamp positions, W2 backbox, (refer to Technical Specification No. HM-A50).

Model HM-A60 - Wall type annunciator panel with 60 lamp positions, W2 backbox, (refer to Technical Specification No. HM-A60).

Model HM-CTU/TCU - Tone Control Unit,

(refer to Technical Specification No. HM-CTU/TCU).

5.3 Patient Station and Accessories

(Note to specification writer: Include the models required for the job.)

Model HM-SPS - Single patient station for single prong cordsets, (refer to Technical Specification No. HM-SPS).

Model HM-DPS - Dual patient station for single prong cordsets, (refer to Technical Specification No. HM-DPS).

Model HM-DPS/2GA - Dual patient station for single prong cordsets, (refer to Technical Specification No. HM-DPS/2GA).

5.4 Call Origination Devices.

(Note to specification writer: Specify call cords as required for each patient station.)

Model HM-PBCC-08 - 8' Pushbutton call cord, (refer to Technical Specifications No. HM-PBCC-08).

Model HM-GER-0x - x' Geriatric Call Cord, (refer to Technical Specifications No. HM-GER-0x).

Model HM-OXY-0x - x' Oxygen Call Cord, (refer to Technical Specifications No. HM-OXY-0x).

Model HM-CCP - Call Cord Plug, (refer to Technical Specifications No. HM-CCP).

Model HM-PPB - Plug Pushbutton, (refer to Technical Specifications No. HM-PPB).

5.5 Duty Station

Note to specification writer: Specify one duty station for each service room such as pantry, utility, staff lounge, or operating rooms and other rooms used by staff.

Model HM-DUTY - Duty station, (refer to Technical Specification No. HM-DUTY).

5.6 Toilet and Shower Emergency Stations

Note to specification writer: Specify as required for special emergency calls.

Model HM-TES - Toilet Emergency Station (refer to Technical Specification No. HM-TES).

Model HM-CBES - Code Blue Emergency Station (refer to Technical Specification No. HM-CBES)

5.7 Staff Presence Indicator Station

Note to specification writer: Specify for installation in patient rooms for nurse and staff locate operation.

Model HM-1B/K2 - Single Staff Presence Indicator Station (refer to Technical Specification No. HM-1B/K2).

Model HM-2B/K2 - Dual Staff Presence Indicator Station (refer to Technical Specification No. HM-2B/K2).

Model HM-3B/K2 - Triple Staff Presence Indicator Station (refer to Technical Specification No. HM-3B/K2).

NOTE: For technical information on CliniComm staff presence indication, see the technical

literature relating to the CliniComm System.

5.8 Corridor Multi-Sectional Dome Lamp

(Note to specification writer: Specify one dome lamp per each patients room and other locations as required.)

Model HM-DM1 thru HM-DM4 - Multi-Sectional Dome Lamp, (refer to Technical Specification No. HM-DM#).

Model HM-D1 thru HM-D4 - Multi-Lamp Dome Lamp, (refer to Technical Specification No. HM-D1 to HM-D4).

5.10 Wire and Cable

(Note to specification writer: Specify the wire and cable required for system being specified.)

5.11 Housings and Backboxes

(Note to specification writer: Specify the appropriate housings and backboxes as per model designations of equipment specified. All dimensions are in inches).

*Standard electrical backboxes not provided by Heritage. To be supplied locally.

Design and Configuration

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DESIGN AND CONFIGURATION

1. INTRODUCTION

This Design and Configuration section contains important information for configuring a Heritage MedCall Visual Nurse Call System (VNS) and providing the signaling features of the VNS. Specific information is presented such as which equipment is needed as well as environmental considerations. This information along with the planning guidelines should be reviewed during the systems design stages.

Accurate planning will allow for a smooth installation, which will minimize time and overall cost, and will prevent disruption of the facility's activities. Additional benefits of a well planned and executed installation include flexibility for changes and expansion at minimum cost,

efficient maintenance, and increased customer satisfaction.

Also contained in this section are diagrams depicting typical system configurations. Consult these diagrams to become familiar with the VNS equipment.

1.1 Installation Sequence

Table 1 summarizes the major stages of a typical VNS system installation. Use the table as a guide towards planning and coordinating the work flow so that optimum use of time and labor is accomplished.

Table 1. Typical System Installation Sequence

STEP	DESCRIPTION
1	Site survey and data collection. Review existing floor plans
2	Plan system layout with the cable and conduit routing (include plenum cable if necessary) and use corridor "J" boxes (6" x 6" x 4") above the ceiling where possible).
3	Allow for proper backbox sizes (include adapter plates if necessary.)
4	Finalize documentation of system layout on plans or drawings
5	Finalize the system database worksheets.
6	Site work: Mount equipment cabinets, backboxes and conduit. Run station cables (no more than 10 stations per common cable run). Install central equipment. Connect stations and connectors to system wiring (using the correct methods). Test system for shorts and groundings (ground tests, power & voltage test). Install stations in backboxes (using the appropriate hardware) and again test for shorts, etc.
7	Initialize system and check operation.
8	Customer introduction and training.

2. SYSTEM PLANNING

The basis for an efficient VNS Visual Nurse Call System installation lies in careful planning. There are guidelines and general precautions that must be considered by the salesperson, as well as the installer, during the planning stages of the VNS system. In addition, certain specific requirements and limitations must be observed so as to not impair the reliability of the entire system.

2.1 System Database

The system database plays an important role in a VNS installation. Each system being installed (or serviced) should have its own complete and accurate database. With an accurate database, you can tell at a glance the exact equipment utilized in the system, the location of the equipment, as well as other important facts about the system.

A complete system database should include the following items:

1. System Layout sketch
2. Hardware Configuration Worksheets
3. System Directory
4. Service Log
5. Other notes pertaining to the system (quick quote, etc.)

Within this manual are worksheets for generating the system database. The next few paragraphs explain how to use them.

System Layout

This page is provided for sketching the layout of the system to be installed. The idea is to have a pictorial reference of what the system is comprised of.

Hardware Configuration

The hardware configuration worksheets should be filled out as the system is initially being laid

out. A blueprint, floor plan or similar document should be used as reference. When filled out, the hardware configuration worksheets can be used as a system directory.

System Directory

After the system has been installed, complete the worksheets for the system directory. You should discover that these worksheets provide a condensed version of the information found on the hardware configuration worksheets. This is so that the directory can be used efficiently by the nursing staff.

Service Log

The service log should be filled out for each service call in order to serve as an accurate maintenance record for the system. Providing the maintenance history for the system, the service log can show patterns of repetitive service calls developing within the system.

Quick Quote Worksheets

Along with the system database, enhanced quick quote worksheets are included to assist in quoting a system to be installed.

2.2 Site Surveys

A well conceived survey of a hospital is the trademark of professionalism and provides immediate and long term benefits to both the customer and yourself.

The original survey of a hospital facilities, executed for the purpose of estimating the cost of a nurse call system, may not develop sufficient data to help you plan an effective installation.

In addition to equipment data, you need accurate information for the location and exact dimensions of the rooms or areas allocated for equipment. This information will allow you to determine the lengths of cabling runs between the station units and to determine backbox and

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conduit requirements, etc. If the original survey does not provide sufficient information, make a second visit to obtain the necessary data.

As you conduct your survey of the healthcare facility, you will be developing a system database. As mentioned previously, the system database includes all the information pertaining to the particular system being installed (this includes the worksheets, blueprints, floorplans, etc.). Remember, your survey(s) will provide the basis for planning an orderly and efficient installation.

2.3 Equipment Locations

Installation of a nurse call system is seldom a straight forward procedure. The uniqueness of each customers situation requires a "tailored" approach to each job.

Whatever the nature of any adverse circumstances encountered, the installer will be faced with the necessity of designing a layout in which no harmful factors pose a threat to the system's performance. The information included in this section provides guidelines and general precautions to assist in planning the layout of a system. Additionally, a summary of environmental factors is presented in Table 2.

It should be noted that there are certain specific requirements and precautions which, if not observed, will impair the reliability of the entire system. These important points are specifically emphasized.

CAUTION: Certain conditions may not initially impair the operation of newly installed equipment, but over a period of time could cause major damage.

Table 2. Environmental Considerations

ENVIRONMENTAL PARAMETER	APPLICABILITY TO VNS EQUIPMENT
Ambient Light	Sufficient light should be readily available to enable inspection, testing, and other functions to be performed at the central equipment location.
Temperature	The equipment contains semiconductors and other electronic components that are very sensitive to heat. Adequate ventilation is required to allow upward circulation of air through the cabinet grills. The central equipment does not require any special cooling considerations except to avoid mounting it near any heat generating objects such as heat registers. Sustained average temperature should not be greater than 90F (32C), nor less than 32F (00C). The stations also contain semiconductors; care must therefore be taken to avoid placement in areas producing excessive amounts of heat.
Humidity	Avoid excessive humidity which may cause condensation on metal surfaces and consequently produce corrosion. The maximum permissible humidity is 80% (relative).
Dust and Airborne Contaminants	Avoid placing the central equipment in areas where dust or other airborne contaminants are present. Chemical fumes or vapors will cause corrosion or oxidation of electrical contacts.
Water damage	Avoid placing the central equipment where the possibility of water damage exists; for instance, directly under overhead plumbing.
Accessibility	The central equipment must be located where sufficient working room is available for two men. Locations where the equipment may be inadvertently hidden or blocked by placement of bulky items (such as packing cases) should be avoided.
Vibration	The equipment should be installed in a location free of vibration to avoid disconnecting or loosening components.

2.4 Periodic Maintenance

Each VNS should be maintained and tested according to the defined maintenance procedures:

- a. Test all stations.
- b. Test all switches (code blue, toilet, shower).
- c. Verify operation of all lamps.

Additionally, make sure that all equipment locations are of an acceptable level of cleanliness and ventilation.

3. SYSTEM PARAMETERS

The VNS Visual Nurse Call System incorporates both visual and audible signaling which provide complete and consistent call status within the system.

3.1 Basic System Capacities

The very basic VNS system consists of one annunciator panel, and a combination of up to 60 single patient stations, dual patient stations and duty stations.

3.2 Maximum Capacities

By adding additional equipment such as power supplies and annunciator panels, the basic floor system may be expanded as required per the installation.

3.3 System Interfacing Capabilities

Through the use of certain optional equipment, the VNS Visual Nurse Call System can be interfaced to other equipment.

4. CENTRAL EQUIPMENT

The central equipment is housed in an equipment cabinet with mounting plate, and is comprised of: a power supply (one or two as required), a flasher unit, a junction box, and a terminal block (one or two as required). For installation flexibility, there is a variety of equipment cabinets available for different installation circumstances such as wall and surface mounting.

The terminal block and junction box are mounted on the mounting plate and are for connecting the cables from the annunciator panel(s), patient stations, and duty stations as

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Table 3. VNS Central Equipment List

DESCRIPTION	MODEL NUMBER	MANUFACTURER
Single Equipment Cabinet (surface mount) (30" x 24" x 6")	A-TC30246S	Hoffman
Single Equipment Cabinet (flush mount) (30" x 24" x 6")	A-TC30246F	Hoffman
Power Supply 24VDC 3.6A	HM-24V-3.6A	Heritage MedCall
Three Level Flasher Unit	HM-F3	Heritage MedCall
Junction Box (w/24P terminal block)	HM-J13	Heritage MedCall
Terminal Block	66M125	Siemens
Zone Control Module	HM-ZCM3	Heritage MedCall

well as other equipment required for the VNS system. Also on the mounting plate assembly are the power supply and the flasher unit as well as AC receptacles.

The central equipment required for a VNS system varies with the size of the system. Based on the number and types of devices the current requirements may dictate the a requirement for two power supplies. The number of devices and annunciator panels may also increase the number of terminal blocks required for termination and cross-connecting the annunciator leads.

4.1 AC Power Requirements

A 117 volt, 60 Hz, 20 ampere service line is required at the central equipment cabinet. The power source must be wired to the receptacles provided at the lower left side of the mounting panel.

4.2 Housing the Central Equipment

Two types of single equipment cabinets are available to house the system's central equipment and terminal block(s). One model is provided with a hinged door for surface wall mounting and a second model is provided with hinged door for flush wall mounting. The housings specified here available from local electrical suppliers.

4.3 Power Supply

The HM-24V-3.6A Power Supply mounts on the mounting plate assembly and supplies the VNS with +24 volts. One power supply is required per system with up to sixty stations. The system can be expanded beyond sixty stations by adding additional HM-24-3.6A Power Supplies and annunciator panels as required.

4.4 Flasher Unit

The HM-F3 Flasher mounts on the mounting plate assembly and provides the flash rates for system signaling. One flasher unit is required per system. The HM-F3 Flasher Unit provides

three output rates to the annunciator panel, with associated duty line. The three rates are:

Rate	Annunciator	Duty Line
High	60 PPM	60 PPM
Medium	30 PPM	30 PPM
Low	Steady	6 PPM

4.5 Junction Box

The HM-J13 Junction Box is used for connections between the power supply with the flasher and the common runs. One junction box is required per system.

4.6 Terminal Block

The Terminal Block is used for connections between the power supply, the flasher, the annunciator panel(s) and the call origination device annunciator leads. One terminal block is required per system minimum.

4.7 Mounting Plate Assembly

The Mounting Plate Assembly is a backboard mounted in the Central Equipment Cabinet designed to allow for mounting the various equipment required for the Heritage MedCall Visual Nurse Call System. The mounting plate is provided with the equipment cabinets specified in this manual.

4.8 Zone Control Module

The HM-ZCM3 Zone Control Module is used in conjunction with zone lamp(s) in locations where the annunciator panel and specific dome lights are not visible to alert nursing personnel of calls placed by patients.

The nursing floor is divided into zones. A nurse in one zone can tell from lamps controlled by the zone control module that a nurse call has been placed in another zone. The nurse proceeds directly to the indicated zone to look for the illuminated dome lamp at the door for the patient room where the nurse call was initiated.

One zone control module and one zone lamp are required per zone. The Model HM-ZCM3 Zone Control Module is mounted in a standard two gang flush or surface backbox provided separately.

5. ANNUNCIATOR PANEL

The Heritage MedCall VNS annunciator panels can either be surface or wall mounted. Being of modular design, the VNS system offers several models of annunciator panels. The model number and lamp capacity of the panels is

shown in Table 4. Each annunciator panel requires certain cabling between the annunciator panel and the central equipment cabinet is as indicated in Table 4. The required connectors each annunciator panel is also shown in Table 4.

NOTE: For tone signaling at the annunciator panel, the HM-CTU/TCU Tone Control Unit is required.

Table 4. Cable and Connector Requirements

ANNUNCIATOR	LAMPS	CABLE	CONNECTOR	QUANTITY
HM-A10	10	6 pr - 22 AWG	HM-11P	1
HM-A20	20	12 pr. - 22 AWG	HM-11P	2
HM-A30	30	25 pr. - 22 AWG	HM-11P	3
HM-A40	40	25 pr. - 22 AWG	HM-11P	4
HM-A50	50	(2) 25 pr. - 22 AWG	HM-11P	5
HM-A60	60	(2) 25 pr. - 22 AWG	HM-13P	5

6. PATIENT STATIONS

The VNS patient stations can be either wall surface or wall flush mounted using the appropriate one or two gang backbox. Paragraph 11 provides detailed information on backboxes used throughout the VNS system.

For call origination, a number of devices are available.

Model HM-SPS

The Model HM-SPS is a single gang patient station with a one 1/4" phone jack to accept a patient call cord or call button. The station is equipped with a combination white call placement indicator and cancel button.

Model HM-DPS

The Model HM-DPS is a single gang patient station with a two 1/4" phone jacks to accept two patient call cords or call buttons or one of each. The station is equipped with a combination white call placement indicator and cancel button. This station provides only one identity to the annunciator panel.

Model HM-DPS/2GA

The Model HM-DPS/2GA is a two-gang patient station with two 1/4" phone jacks to accept two patient call cords or call buttons. The station is equipped with combination white call placement indicators and cancel buttons for each call cord. This station provides two unique identities to the annunciator panel.

Common run wiring is used to connect call origination and duty stations to the central equipment cabinet. Maximum number of stations per common run is 10. In addition, a separate home run of 2 conductor 22 AWG wire of the approved style is required from each station to the central equipment cabinet.

NOTE: Additional wires may be required for a station installed in a large facility. See Table 5 to determine the specific requirements.

Table 5. Common Run Wiring Requirements

WIRE FUNCTIONS	Central EQ. to Last Station	
	Up to 500'	500 to 1000'
+24 VDC	1 - 18 AWG	2 - 18 AWG
Steady (24VH-)	1 - 18 AWG	2 - 18 AWG
Slow Flash (24VS-)	1 - 18 AWG	2 - 18 AWG
Fast Flash (24VF-)	1 - 18 AWG	2 - 18 AWG
Duty Bus (24VD-)	1 - 18 AWG	2 - 18 AWG

NOTE: For distances of more than 1000 Ft. contact Heritage MedCall.

6.1 Call Origination Devices

As mentioned in paragraph 6, several types of patient stations are available for the VNS system. For further flexibility, there is a choice of call origination devices which interface with those patient stations.

All call button cordsets (and the call origination button) which utilize a single 1/4" phone jack and momentary switch are compatible with all station types.

Most styles of call cords are available in lengths from 6' to 15'.

Care should be taken to use only UL Listed Call Origination Devices suitable for the conditions and environment in which they will be placed.

Examples of available styles are:

- Call Button Cordset
- Geriatric Call Button Cordset
- Cordset (for Combustible Atmospheres)
- Call Origination Button

For each patient station, select the appropriate call origination device.

If you have any questions concerning the compatibility of any call origination device with the Heritage MedCall VNS, please contact Heritage for assistance

7. DUTY STATION

The HM-DUTY Duty Station unit can be either wall surface or wall flush mounted using the appropriate one gang backbox. Paragraph 11. provides detailed information on the backboxes used throughout the VNS.

Used to provide signalling of patient calls, the duty station uses both visual and audible signalling.

Each duty station unit requires connections to the common cable.

NOTE: Additional wires may be required for a station installed in a large facility. See Table 5 to determine the specific requirements.

8. PERIPHERAL EQUIPMENT

The Heritage MedCall VNS is designed to operate with peripheral equipment for expanded effectiveness. Such equipment includes the multi-sectional dome lamp, toilet and shower emergency stations, code blue emergency stations, and staff presence indicator stations. Each of these require specific considerations when planning the VNS installation.

8.1 Dome Lamp

One 2-conductor 22 AWG wire of the approved style is used to connect each patient station to its associated dome light when using station to station wiring. One 4-conductor 22 AWG wire of the approved style is used to connect each dome light to its associated patient station when using the dome-to-dome cabling method. One 4-conductor 22 AWG wire of the approved style is required to connect a zone control module to a multi-sectional dome lamp.

Heritage MedCall Dome Lamps can be provided with up to four separate lamp sections and mounts in a one or two gang backbox, depending on model. For each lamp section, five distinct colored bulbs or lenses are available: red, blue, white, green and amber. For multiple lamp dome lights wiring will have to be specified based on the function of the light and the device or devices controlling it.

The dome lamps are required in the corridors to provide visual indications of all patient calls.

Table 6. VNS Standard and Multi-Sectional Dome Lamp List

MODEL	DESCRIPTION	CONFIGURATION
HM-D1	One lamp with white lens	1 gang with annunciator style lamp
HM-D2	Two lamp with white/red lenses	1 gang with annunciator style lamps
HM-D3	Three lamp with white/red/green lenses	1 gang with annunciator style lamps
HM-D4	Four lamp with white/red/green/amber lenses	2 gang with annunciator style lamps
HM-DM1	Dome lamp with one white lamp	2 gang with single dome cover
HM-DM2	Dome lamp with white/red lamps	2 gang with single dome cover
HM-DM3	Dome lamp with white/red/green lamps	2 gang with single dome cover
HM-DM4	Dome lamp with white/red/green/amber lamps	2 gang with single dome cover

The multi-sectional dome lamp provides visual call signalling for a room when used as a dome lamp; and it provides visual call signalling for a zone when used as a zone lamp.

8.2 Toilet and Shower Emergency Stations

Toilet emergency stations are provided for call origination in toilet and shower areas. Table 7 shows the available toilet and shower station models with descriptions. These toilet and shower stations are mounted using the appropriate single gang backbox.

Toilet and shower emergency stations can be either connected to patient stations or connected as independent stations.

A toilet station and/or shower station which is connected to an associated patient station require one 22 AWG 4 conductor cable of the approved style in both dome-to-dome and station-to-station cabling applications. Additional toilet stations and shower stations can be interconnected by connecting to the patient station using the same style cable.

Independent toilet or shower stations connect to the system via dome-to-dome cabling or station-to-station cabling. In dome-to-dome applications, a toilet or shower station requires one 22 AWG 4 conductor cable of the approved style for dome lamp connections to the common run, and one 2-conductor 22 AWG wire of the approved style for the home run. When using station-to-station cabling, each

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toilet or shower station requires connections to the common run, along with one 2-conductor 22 AWG wire of the approved style for connecting to the dome lamp, and one 2-conductor 22 AWG wire of the approved style for the home run. Additional toilet stations and shower stations can be interconnected by 22 AWG 4 conductor cable of the approved style and connected to the first toilet or shower station using a common 22 AWG 4 conductor cable of the approved style.

Table 7. Emergency Stations

MODEL	DESCRIPTION
HM-TES	Toilet Pull Station
HM-CBES	Code Blue Pushbutton Station

8.3 Code Blue Emergency Station

Code blue emergency stations are provided for emergency call origination in such extreme situations as cardiac arrest. The code blue emergency station is mounted using the appropriate single gang backbox and is connected to the Heritage MedCall VNS as an independent station.

These independent code blue stations connect to the system via dome-to-dome cabling or station-to-station cabling. In dome-to-dome applications, a code blue station requires one 22 AWG 4 conductor cable of the approved style for dome lamp connections to the common run, and one 2-conductor 22 AWG wire of the approved style for the home run. When using station-to-station cabling, each code blue station requires connections to the common run, along with one 2-conductor 22 AWG wire of the approved style for connecting to the dome lamp, and one 2-conductor 22 AWG wire of the approved style for the home run. Additional code blue stations can be interconnected by 22 AWG 4 conductor cable of the approved style and connected to the first code blue station using a

common 22 AWG 4 conductor cable of the approved style.

8.4 Staff Presence Indicator Station

The staff presence indicator station allows for manual staff presence registration. Each staff presence indicator station is mounted using the appropriate single gang backbox and is connected to the system as an independent station device.

One, two, and three button stations are available for up three classes of staff, such as nurse, aid, and housekeeping. Table 8 shows the stations available and the common colors used.

Table 8. Staff Presence Stations

MODEL	DESCRIPTION
HM-1B/K2	One Button Staff Presence Indicator
HM-2B/K2	Two Button Staff Presence Indicator
HM-3B/K2	Three Button Staff presence Indicator

9. WIRE AND CABLE

9.1 Home Run Cables

A large portion of a VNS installation consists of connecting various equipment using cables and wires. It is very important that all wiring and cabling requirements are met. Use only the recommended wire and cable necessary for the installation. Using the correct wire and cable will ensure proper system performance and increased reliability.

Heritage MedCall cannot support or warranty any product/system or its performance if installed using non-approved wire and cable.

The specified cable has been chosen specifically for the Heritage MedCall VNS to assure optimum operating performance and must be used in all installations. This includes new installations and for replacing other systems with the VNS.

One 2-conductor 22 AWG wire of the approved style is required to provide the individual identity for each patient station, and independent emergency stations. One 22 AWG 6 conductor cable of the approved style is used for indicating the staff locations as registered via one and two position staff presence indicator stations. One 22 AWG 8 conductor cable of the approved style is used for indicating the staff locations as registered via three position staff presence indicator stations.

In dome-to-dome applications, the home run is connected inside the corridor dome lamp backbox and then interfaces to the station via one 22 AWG 6 conductor cable of the approved style. In station-to-station applications, the one 2 or 4 conductor 22 AWG wire of the approved style connects to the station through the station's backbox.

Once the system is installed, the home runs should be thoroughly tested.

9.2 Common Cable Routing

The common cabling for a zone may be routed to the central equipment cabinet by either of two ways, or by a combination of both ways. The two methods of cable routing are: dome-to-dome cabling and station-to-station cabling.

NOTE: The recommended cabling method is the dome-to-dome method; see the paragraphs below.

For proper system performance, cabling should be routed through the proper conduit as per paragraph 10.

Dome-To-Dome Cabling

This is the recommended method of cabling. The common cabling is routed through the dome lamp backboxes. Separate cable lengths are installed between each dome lamp and its respective station unit.

Dome lamp junctions are closer together on average than the station units. This means the total continuous length of the zone common cabling to the last station is much shorter in the dome-to-dome cabling method than in the station-to-station method (excluding the cable lengths between dome lamps and stations).

Station-To-Station Cabling

In this method, the common cabling is routed through each station unit in the zone. Therefore, the total continuous length of the common cabling for the zone is usually longer. Also, the cabling running in and out of the station unit requires more backbox space.

9.3 Common Cable Capacity

VNS stations and independent emergency stations are connected to the equipment panel in a configuration consisting of zones.

A maximum of 10 station units can be physically connected to a zone common run cable (consisting of #18 AWG wires).

WARNING: Exceeding the capacity of the zone common cable could result in permanent damage to certain pieces of equipment.

Once the system is installed, the zone common cable run(s) should be thoroughly tested.

9.4 Cable Terminations

One of the most important aspects to consider when planning an installation is terminating the cable properly. A few guidelines to follow are:

- All cables should be marked to facilitate future troubleshooting and servicing.

- All cable wires should be stripped using an appropriate stripping tool.

NOTE: Recommended tools include: Klein Wire Stripper-Cutter, part numbers 11045 and 11046; Ideal Wire Stripper, part number T-6.

All connections need to be made using a crimp type connector and appropriate crimping tool.

NOTE: Recommended crimp connectors include: Panduit Insulated Crimp Type Wire Joints, see Panduit catalog. For larger gauge connections (#14 AWG or larger wires), use Panduit Screw-On Wire Connectors (P-Conn Series).

NOTE: Recommended crimping tools include: Klein Crimping Tool, part number 1005 or 1006; Ideal Crimp Tool, part number 429; Ideal Electricians Pliers, part number 30-420.

All cables must be taped to prevent shorts between foil of cable and backbox of patient station.

All unused conductors of all cables and connectors must have a connector crimped onto the end or be taped back. Shield and drain wire should be insulated with a dielectric tubing, "spaghetti" type material and held in place by the cable tape.

By adhering to these basic guidelines a VNS installation should be trouble-free and provide for easy servicing in the future thereby increasing overall customer satisfaction.

10. CONDUIT REQUIREMENTS

The Heritage MedCall VNS plays a crucial role as a healthcare communications system. It is recommended that all VNS system cabling be run through metallic conduit. Conduit will help prevent accidental cable cutting, as well as provide increased protection from fire.

For proper system performance, the correct conduit must be used for the cabling runs. Use Table 9 to determine the conduit requirements

when running the cabling for a particular installation. The following paragraphs explain how to read Table 9. Again, system cabling must not be placed in the same pipe, conduit or compartment containing other electrical wiring. Listed across the bottom of the table are conduit sizes ranging from 1/2" to 3". Next to each conduit size is the appropriate conduit factor number for the conduit area based on 40% fill.

10.1 Choosing Conduit Size for Same Type of Cable or Wire

Above each conduit size is the maximum recommended number of cables and wires which will fit into the particular conduit size. Use this value for the particular cable needed. This may be exceeded slightly where absolutely necessary, since number of cables or wires is based on 40% fill.

10.2 Choosing Conduit Size for a Combination of Cables and Wires

To determine the conduit size required for a combination of different cables and wires, proceed as follows:

- a. Refer to the factor numbers of the particular cables and wires going into the conduit. Add all the cable and wire factor numbers. When more than one large cables (factor 6 or greater) are used in the same conduit, add a factor of 4 to the sum of cable and wire number factors.
- b. With this figure, refer to the conduit factor numbers given for the various conduits. Choose the next conduit size which is larger than the total sum of cable and wire factor numbers you have computed.

Listed to the left of Table 9, reading from top to bottom, are the recommended cables and wires with factor numbers. The factor numbers are based on the area within the circumference of each cable and wire.

Table 9. Conduit Size Chart for Recommended Cables and Wires

Wire Description	Part Number	Factor	Maximum Number of Same Wire or Cable in a Conduit								
			3	7	10	19	25	42	75	100	
22 AWG - 1 pr. - solid	WPW 220	2	3	7	10	19	25	42	75	100	
22 AWG - 2 pr. - solid	WPW 240	2	3	7	10	19	25	42	75	100	
22 AWG - 3 pr. - solid	WPW 570	2	3	7	10	19	25	42	75	100	
22 AWG - 4 pr. - solid	WPW 571	2	3	7	10	19	25	42	75	100	
22 AWG - 6 pr. - solid	Comtran 3599	6	1	1	3	6	8	14	25	33	
22 AWG - 12 pr. - solid	Comtran 3602	11	-	1	1	3	4	7	13	18	
22 AWG - 25 pr. - solid	Comtran 3604	12	-	1	1	3	4	7	12	16	
18 AWG - 5 conductor - stranded	WPW 280	3	2	4	7	12	17	28	50	66	
18 AWG - 6 Conductor - stranded	WPW 752	5	1	2	4	7	10	16	30	40	
18 AWG - 1 Conductor - stranded	Type F, TF, or TW	.75	9	18	28	50	68	112	200	266	
16 AWG - 1 Conductor - stranded	Type F, TF, or TW	1	7	14	21	38	51	84	150	200	
14 AWG - 1 Conductor - stranded	Type F, TF, or TW	1.5	4	9	14	25	34	56	100	133	
12 AWG - 1 Conductor - stranded	Type F, TF, or TW	2	3	7	10	19	25	42	75	100	
For multiple cables with a factor of 6 or above add 4 to the total factor	Conduit Size Conduit Factor Capacity		1/2" 7	3/4" 14	1" 21	1 1/4" 38	1 1/2" 51	2" 84	2 1/2" 150	3" 200	

Example:

Choose the conduit size for:

- 4 - WPW 220 cables (4 * 2 = 8) 8
- 2 - WPW 280 cables (2 * 3 = 9) 9
- 2 - 14 AWG wires (2 * 1.5 = 3) 3
- Total Cable / Wire Factor 20

Refer to Conduit Factor Capacity numbers on the bottom of Table 9. A 1" conduit (Factor 21) would be required

10.3 Additional Conduit information

In order to run cables in conduit, several methods are available:

- a. Rigid metal, intermediate metal, or nonmetallic conduit

- b. Flexible metal conduit
- c. Electrical metallic tubing
- d. Wireways
- e. Cable tray

Rigid Metal, Intermediate Metal, or Nonmetallic Conduit

Using this method, the cables are supported and protected from mechanical injury and fire by being installed in ferrous or nonferrous types of rigid metal conduits. Ferrous conduits are manufactured from wrought iron or steel with coatings such as black enamel, electrogalvanizing, hot-dip galvanizing, or similar material. Nonferrous conduits are manufactured from aluminum or brass (silicon bronze).

Nonmetallic conduits are manufactured from a suitable material which is resistant to moisture

- continues -

and chemical atmospheres. For the VNS, the nonmetallic conduit must be flame-retardant and resistant to impact and crushing or distortion due to heat, low temperature or sunlight. The only type of nonmetallic conduit suitable is the heavy-wall type constructed of polyvinyl chloride (PVC).

Flexible Metal Conduit

Flexible metal conduit is used to a limited degree in frame buildings in which rigid conduit would be difficult to install and when a pull-in/pull-out conduit system is desirable. The NEC states that flexible metal conduit may be used as a grounding means in 6-foot lengths, or if both conduit and fittings are approved for the purpose. If the conduit and fittings are not approved, each run of flexible metal conduit must contain a bare or insulated grounding conductor. This grounding conductor must be attached to each box or other equipment supplied with such conduit.

Electrical Metallic Tubing

When using electrical metallic tubing, cables are installed in a thin-walled metallic tube or thin-walled conduit. Electrical metallic tubing is similar to rigid conduit except that the tubing is constructed of much thinner material.

Wireways

When wireways are used, cables are supported and protected in a sheet metal trough. The trough is installed exposed, mounted on the ceiling or wall, or supported from the roof structure. The trough is fitted with a sheet metal cover which provides access to the cables inside. Knockouts are provided for branch conduits, etc.

Cable Tray

A cable tray system consists of a unit or assembly of units or sections and associated fittings and is made of metal or other noncombustible material. The cable tray system

forms a rigid structure which supports the cables. This rigid structure includes ladders, troughs, channels, etc. After the cable has been installed, a cover is installed.

11. BACKBOXES AND MOUNTING HEIGHTS

The type and size of backbox used for mounting each unit in the Heritage MedCall VNS is based on the equipment and whether the unit is wall recessed or surface mounted. See Table 10 to determine the appropriate backbox required for each model specified.

Recommended sources for backboxes are: Steel City for wall flush mounting, and Wire Mold for wall surface mounting.

11.1 Backbox Mounting Heights

Table 10 also contains the most commonly used and recommended backbox mounting heights. All dimensions shown are in feet, normally measured from floor level to center of backbox.

NOTE: All mounting heights are measured from center of backbox to floor level, except for units installed in hazardous anesthetizing locations. For additional information, see the warning below.

WARNING: The mounting heights given on Table 10 do NOT apply for stations used in hazardous anesthetizing locations. The bottom of such stations must be located over five feet (at least 5.5 feet recommended) above the floor level, as per codes 213 and 214 of the National Fire Protection Association. Consult local code requirements which may be more stringent.

12. VNS PLANS

Pictorial representations are provided on the next several pages in order to show the interfacing of various system components. Refer to these plans as necessary.

Wire Description	Part Number	Manufacturer	Rating	Color Code
22 AWG - 1 pr. - solid	WPW 220	West Penn Wire	CMR	Blk-Red
22 AWG - 2 pr. - solid	WPW 240	West Penn Wire	CMR	Blk-Red-Wht-Grn
22 AWG - 3 pr. - solid	WPW 570	West Penn Wire	CMR	Blk-Red-Wht-Grn-Brn-Blu
-22 AWG - 4 pr. - solid	WPW 571	West Penn Wire	CMR	Blk-Red-Wht-Grn-Brn-Blu-Org-Yel
22 AWG - 6 pr. - solid	Comtran 3599	Comtran Corporation	CMR	Western Electric Standard
22 AWG - 12 pr. - solid	Comtran 3602	Comtran Corporation	CMR	Western Electric Standard
22 AWG - 25 pr. - solid	Comtran 3604	Comtran Corporation	CMR	Western Electric Standard
18 AWG - 5 cond. - stranded	WPW 280	West Penn Wire	CMR	Blk-Red-Wht-Grn-Brn
18 AWG - 6 cond. - stranded	WPW 752	West Penn Wire	CMR	Blk-Red-Wht-Grn-Brn-Blu

Table 10. Recommended Wire and Cable

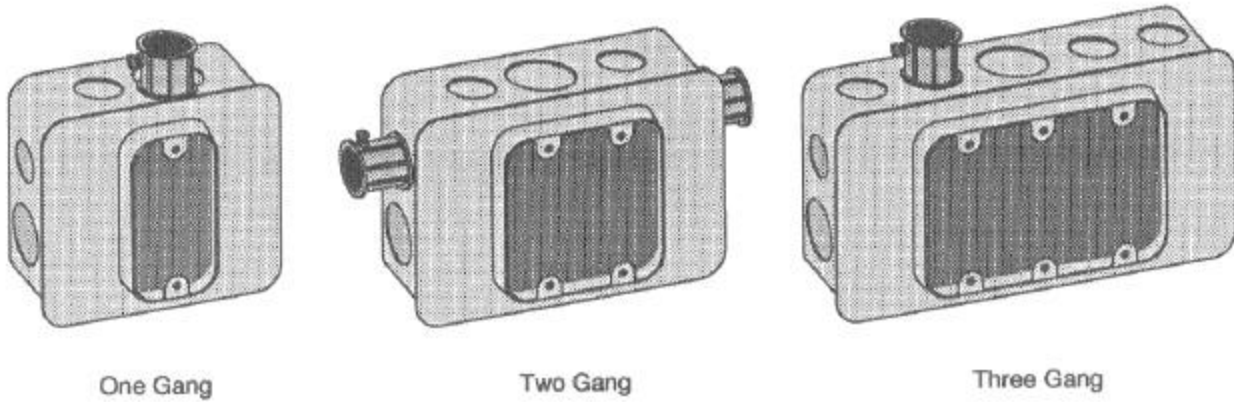
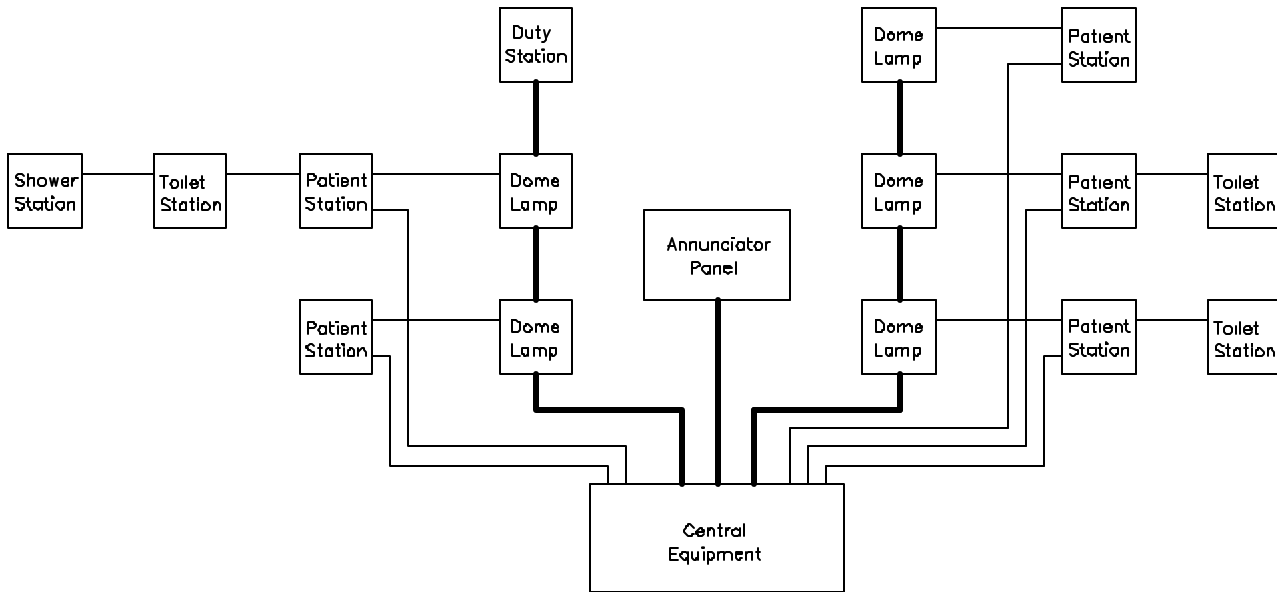


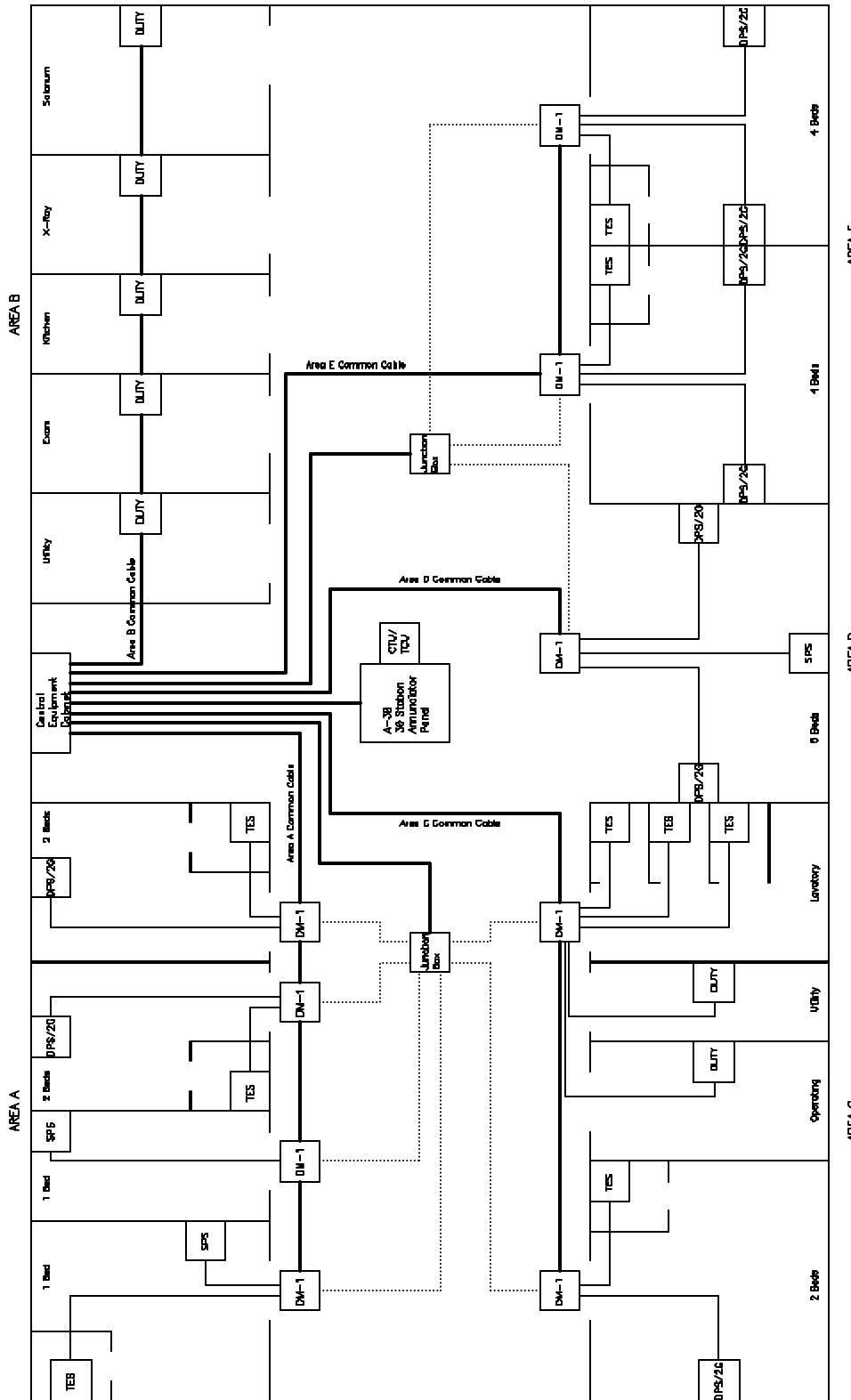
Figure 1. Typical Backboxes (One, Two, and Three Gang)

Table 11. Recommended Backboxes and Mounting Heights

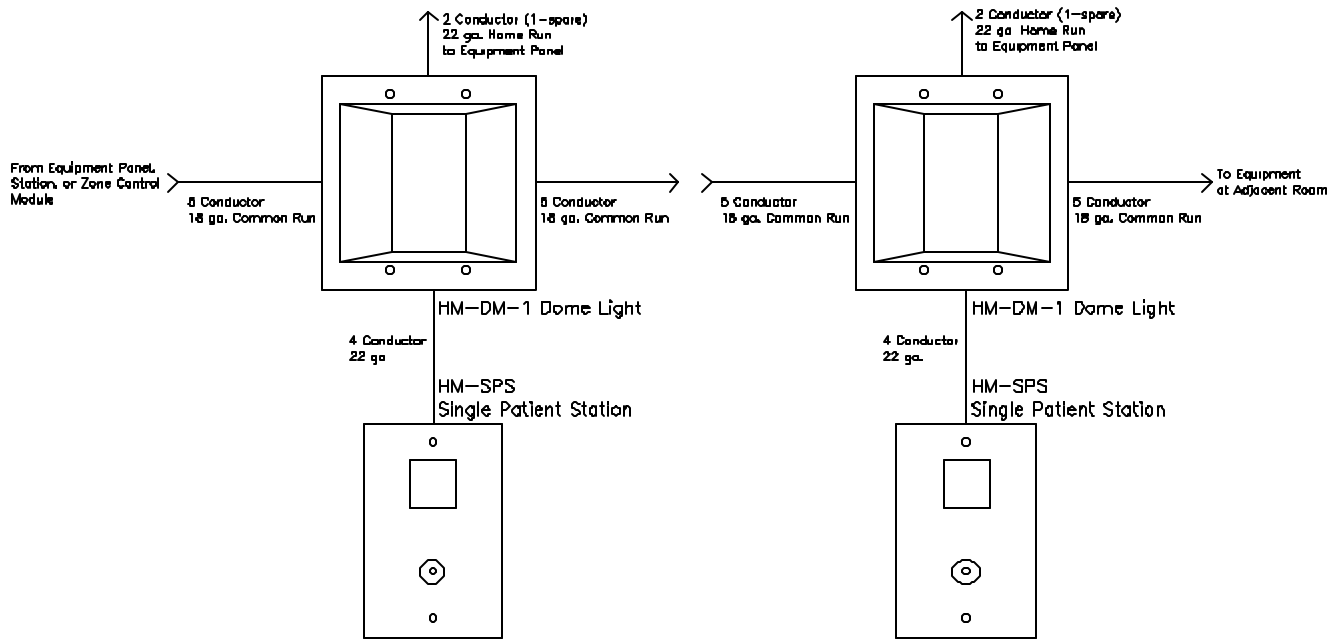
EQUIPMENT MODEL	DESCRIPTION	RECOMMENDED MOUNTING	
		BACKBOX SIZE	HEIGHT
	Central Equipment Cabinet		4.5 Ft..
HM-A10	10 Lamp Annunciator Panel	Three-Gang	4.5 Ft.
HM-A20	20 Lamp Annunciator Panel	W2	4.5 Ft.
HM-A30	30 Lamp Annunciator Panel	W2	4.5 Ft.
HM-A40	40 Lamp Annunciator Panel	W2	4.5 Ft.
HM-A50	50 Lamp Annunciator Panel	W2	4.5 Ft.
HM-A60	60 Lamp Annunciator Panel	W2	4.5 Ft.
HM-CTU/TCU	Tone Unit	Two-Gang ¹	4.5 Ft.
HM-SPS	Single Patient Station	Two-Gang ¹	4.5 Ft.
HM-SPS/O	Single Patient Station (Octal)	Two-Gang ¹	4.5 Ft.
HM-DPS	Dual Patient Station	Two-Gang ¹	4.5 Ft.
HM-DPS/2GA	Dual Patient Station	Two-Gang	4.5 Ft.
HM-DUTY	Duty Station	Two-Gang ¹	4.5 Ft.
HM-CBES	Code Blue Emergency Station	Two-Gang ¹	3.5 Ft.
HM-TES	Shower Pull Station	Two-Gang ¹	6.5 Ft.
HM-TES	Toilet Emergency Pull Station	Two-Gang ¹	3.0 Ft.
HM-1B/K2	One Position Staff Presence Switch	Two-Gang ¹	3.5 Ft.
HM-2B/K2	Two Position Staff Presence Switch	Two-Gang ¹	3.5 Ft.
HM-3B/K2	Three Position Staff Presence Switch	Two-Gang ¹	3.5 Ft.
HM-D1	One Lamp Dome Annunciator Lamp	Two-Gang ¹	7.5 Ft
HM-D2	Two Lamp Dome Annunciator Lamp	Two-Gang ¹	7.5 Ft
HM-D3	Three Lamp Dome Annunciator Lamp	Two-Gang ¹	7.5 Ft
HM-D4	Four Lamp Dome Annunciator Lamp	Two-Gang ²	7.5 Ft
HM-DM1 thru HM-D4	Multi-Section Dome Light (1 to 4 lamp)	Two-Gang ²	7.5 Ft
Notes			
1 - Electrical Backbox (4-11/16" wide x 4-11/16 high x 2-7/8" deep) with one-gang cover plate			
2 - Electrical Backbox (4-11/16" wide x 4-11/16 high x 2-7/8" deep) with two-gang cover plate			



Plan 1. VNS Basic block diagram

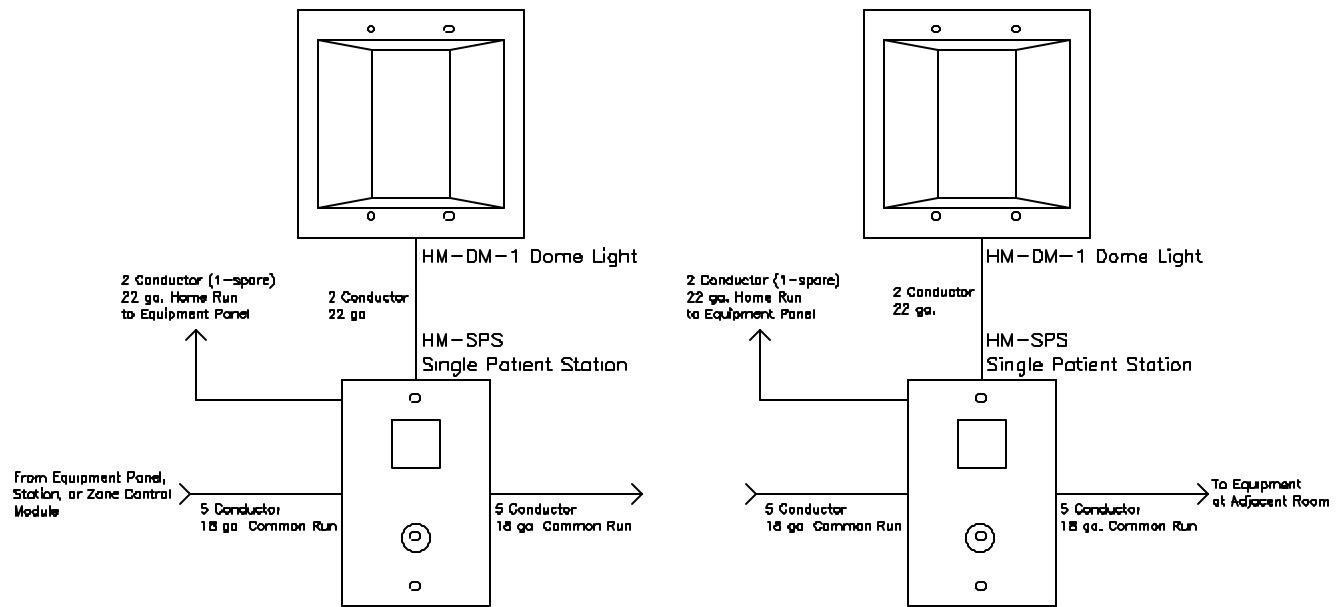


Plan 2. VNS One Line Drawing



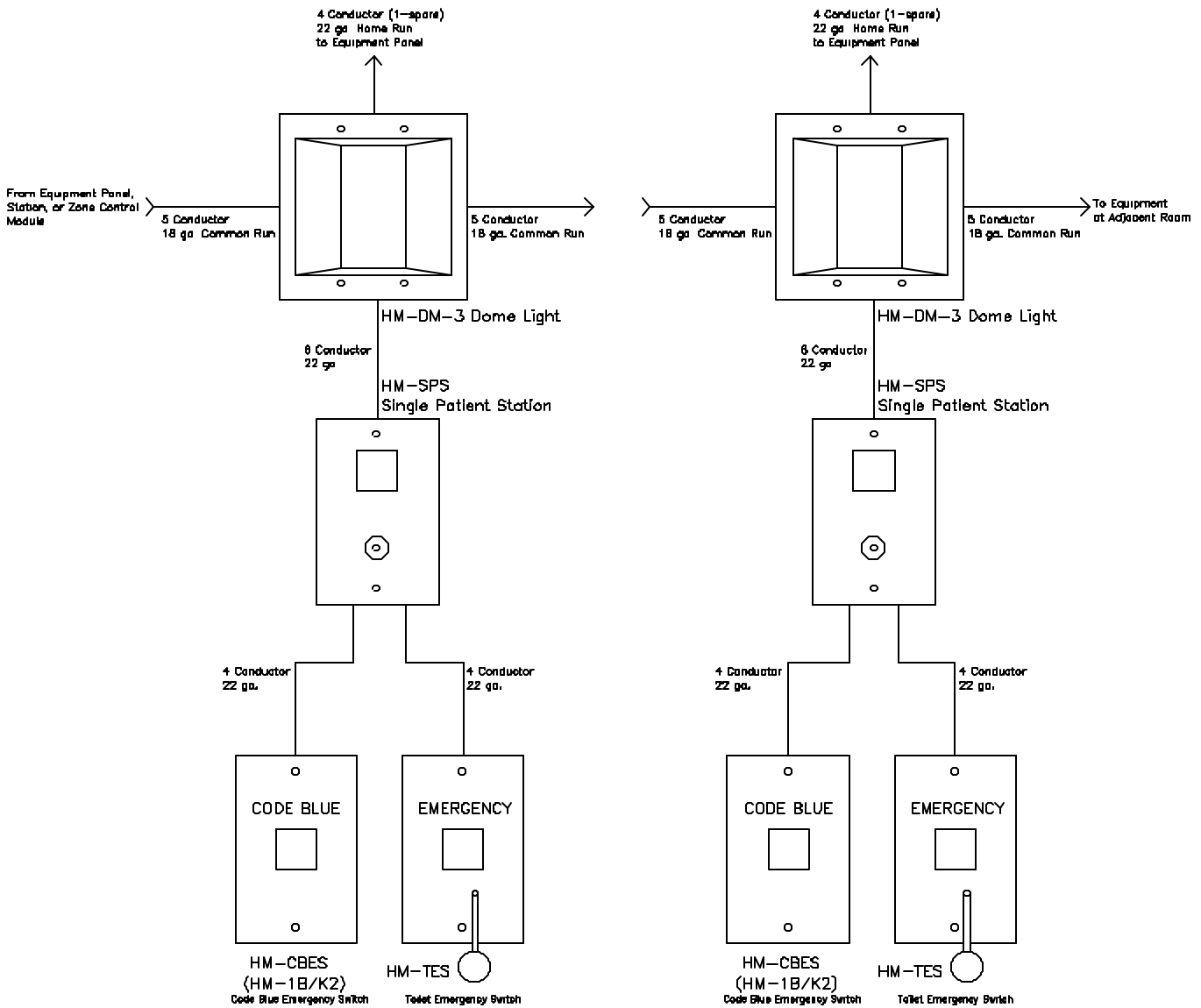
Typical Dome to Dome Wiring Example

Plan 3. VNS Patient station interface



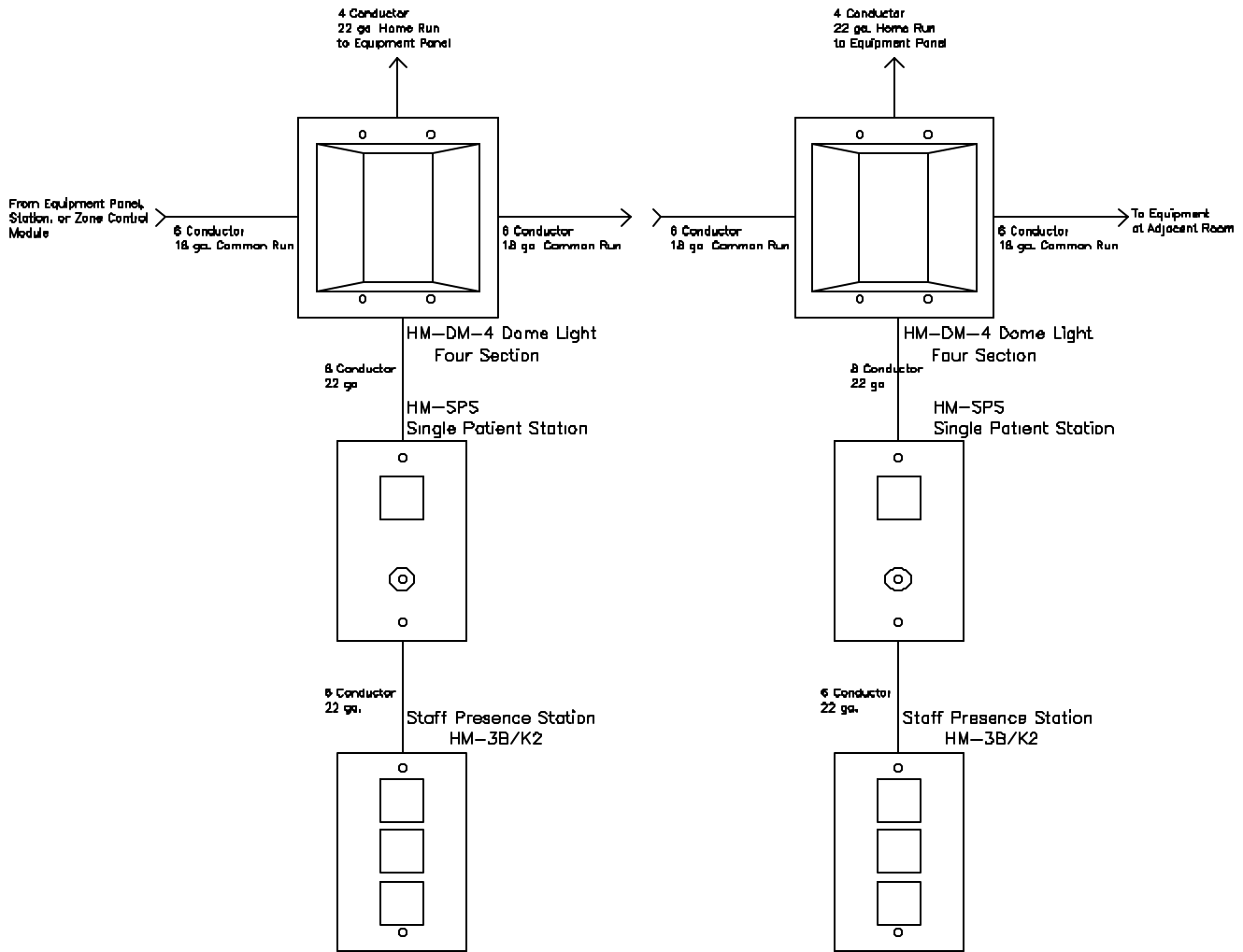
Typical Station to Station Wiring Example

Plan 4. VNS Patient station interface



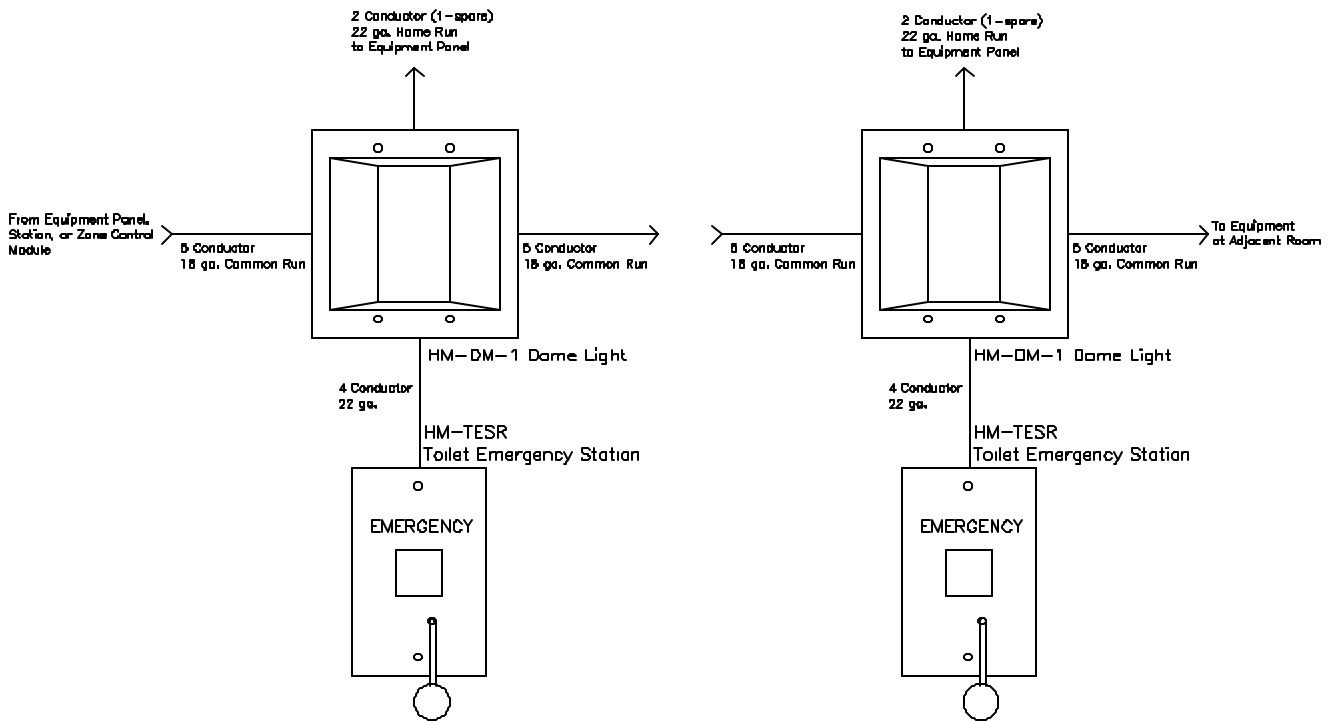
Typical Dome to Dome Wiring Example with Code Blue and Emergency Switches

Plan 5. VNS Patient station interface



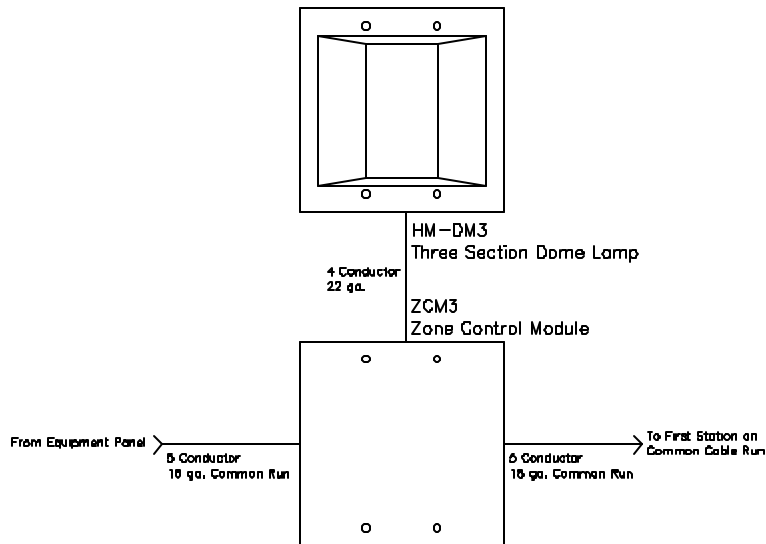
Typical Dome to Dome Wiring Example
with Staff Presence Stations

Plan 6. VNS Patient station interface



Typical Dome to Dome Wiring Example
with Independant Emergency Stations

Plan 7. VNS Emergency station interface



Zone Control Module Typical Wiring

Plan 8. VNS Zone control module interface

HERITAGE MEDCALL VNS VISUAL NURSE CALL SYSTEM SYSTEM DATABASE

SYSTEM LAYOUT
HARDWARE CONFIGURATION
DIRECTORY
SERVICE LOG

Customer Name: _____

Contact: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ FAX: _____

System Number / Location: _____

System Database Number: _____ Cutover Date: _____

Distributor: _____

Contact: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ FAX: _____

Distributor Order No.: _____

Factory Order No.: _____ Sales Person: _____

Installer: _____

For Service, Call: _____

**VNS - VISUAL NURSE CALL SYSTEM
HARDWARE CONFIGURATION FOR ANNUNCIATOR PANELS**

Panel Number	Cable	Location	Zones Assigned

Panel Number: Enter the panel number as designated on the drawings.
Cable: enter the cable number or letter designation.
Location: enter the area where the annunciator panel is installed.
Zones Assigned: enter the zone(s) that the annunciator panel is connected to.

HERITAGE MEDCALL VNS VISUAL NURSE CALL SYSTEM

QUOTE SHEETS

System Layout
General System Information
Side Survey (Hardware Configuration)
Quick Quote Sheet

Customer Name: _____

Contact: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ FAX: _____

System Number / Location: _____

System Database Number: _____ Completion Date: _____

Distributor: _____

Contact: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ FAX: _____

Distributor Order No.: _____

Factory Order No.: _____ Sales Person: _____

I

VNS - VISUAL NURSE CALL SYSTEM LAYOUT

Sketch or draw a pictorial diagram of the system.

**VNS - VISUAL NURSE CALL SYSTEM
GENERAL INFORMATION**

Installation Date: _____

Penalty Clause (If any): _____

New Installation: _____ (yes) _____ (no)

Retrofit Installation: _____ (yes) _____ (no)

If Retrofit, type of system replaced: _____

If Retrofit, detail existing backboxes: _____

Wiring details: _____

Cabling: _____ Conduit _____ Cable Tray _____ Open _____

Zone Number	Number of Stations	Location (wing)	Extra Conductors
1			
2			
3			
4			
5			
6			
7			
8			

**VNS - VISUAL NURSE CALL SYSTEM
HARDWARE CONFIGURATION FOR ANNUNCIATOR PANELS**

Panel Number	Cable	Location	Zones Assigned

Panel Number: Enter the panel number as designated on the drawings.
Cable: enter the cable number or letter designation.
Location: enter the area where the annunciator panel is installed.
Zones Assigned: enter the zone(s) that the annunciator panel is connected to.

**VNS - VISUAL NURSE CALL SYSTEM
QUICK QUOTE**

Nurse Control Station and Accessories				
Model	Description	Qty.	Price Each	Extended Price
HM-A10	10 Lamp Annunciator Panel (req. 1 HM-11P)			
HM-A20	20 Lamp Annunciator Panel (req. 2 HM-11P)			
HM-A30	30 Lamp Annunciator Panel (req. 3 HM-11P)			
HM-A40	40 Lamp Annunciator Panel (req. 4 HM-11P)			
HM-A50	50 Lamp Annunciator Panel (req. 5 HM-11P)			
HM-A60	60 Lamp Annunciator Panel (req. 20 HM-8P)			
HM-11P	Prewire Connector for A10 - A50 Annunciators			
HM-8P	Prewire Connector for A60 Annunciator			
		Sub Total		
Patient Stations and Accessories				
HM-SPS	Single Patient Station			
HM-DPS	Dual Patient Station			
HM-DPS/2GA	Dual Patient Station (Two Gang)			
		Sub Total		
Call Origination Devices				
	Call Button Cordset (Note length)			
	Call Button Cordset for Combustable Applications			
	Call Origination Button			
		Sub Total		
Duty Station				
HM-DUTY	Duty Station			
		Sub Total		

**VNS - VISUAL NURSE CALL SYSTEM
QUICK QUOTE**

Emergency Stations and Staff Presence Stations				
HM-TES	Toilet Emergency Station			
HM-CBES	Code Blue Emergency Station			
HM-1BK2	One Button Staff Presence Indicator			
HM-2B/K2	Two Button Staff Presence Indicator			
HM-3B/K2	Three Button Staff Presence Indicator			
		Sub Total		
Dome Lights				
HM-D1	Single Annunciator Style Dome Lamp			
HM-D2	Dual Annunciator Style Dome Lamp			
HM-D3	Triple Annunciator Style Dome Lamp			
HM-D4	Quad Annunciator Style Dome Lamp			
HM-DM1	Dome Lamp - White			
HM-DM2	Dome Lamp - White/Red			
HM-DM3	Dome Lamp - White/Red/Green			
HM-DM4	Dome lamp - White/Red/Green/Amber			
		Sub Total		

**VNS - VISUAL NURSE CALL SYSTEM
QUICK QUOTE**

Central Equipment and Accessories				
	Surface Mount Cabinet			
	Flush Mount Cabinet			
HM-24V-3.6A	Power Supply 24 VDC			
HM-F3	Three Level Flasher Unit			
	Junction Box			
	Terminal Lock			
HM-ZCM3	Zone Control Module			
		Sub Total		

TOTAL OF EQUIPMENT ----- \$ _____

WIRE AND CABLE ----- \$ _____

INSTALLATION MATERIALS (BACKBOXES, ETC.) -- \$ _____

LABOR ----- \$ _____

OTHER ----- \$ _____

VNS TOTAL PRICE ----- \$ _____

General Regulatory Agency Information

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4.	BACKBOX MOUNTING HEIGHTS	2
5.	CERTIFIED TECHNICIANS/CONTRACTORS	2

GENERAL REGULATORY AGENCY INFORMATION

1. INTRODUCTION

This section contains information on various codes, regulations and specifications which the Heritage MedCall Visual Nurse call System (VNS) must meet.

2. INSTALLATION RESTRICTIONS OR CODES

Local building codes and restrictions must be met when installing the Heritage MedCall VNS. Make sure that all such codes are known.

3. CABLING CODES

All Heritage MedCall VNS installation wire is to be UL Listed per subject 13 for Type CL2 cable. Remember Heritage MedCall cannot support or warranty any product/system or its performance if installed using non-approved wire and cable.

The recommended cable has been specified for the VNS to assure optimum operating performance and must be used in all installations. This includes new installations and for replacing other systems with VNS equipment.

NOTE: When adding wires to supplement the nurse control station cable run(s), or the zone common cable run(s), use only thermoplastic wire type T, TF, or TW which must conform to NEC and/or local codes whichever is most stringent.

4. BACKBOX MOUNTING HEIGHTS

The backbox mounting heights for stations used in hazardous anesthetizing locations must meet specific requirements. The bottom of such stations must be located over five feet (at least 5.5 feet recommended) above floor level, as per codes 213 and 214 of the National Fire Protection Association. Consult local code requirements which may be more stringent.

5. HERITAGE MEDCALL CERTIFIED TECHNICIANS/CONTRACTORS

The certified contractor shall furnish and install a Heritage MedCall Visual Nurse call System in accordance with all applicable codes and regulations. Certified technicians shall maintain and repair the VNS as necessary.

General Installation Instructions

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GENERAL INSTALLATION INSTRUCTIONS

1. INTRODUCTION

The Heritage MedCall Visual Nurse call System (VNS) provides high quality patient care to hospitals and other healthcare facilities. Installation of a VNS is seldom accomplished by a routine procedure. The uniqueness of each hospital or healthcare facility and the features available from a VNS require a definite approach to each system installation.

Planning a system in advance of the actual installation will assure that minimum time and cost are incurred. Other benefits derived from planning the installation include: flexibility for later changes and expansion at minimum cost and efficient maintenance when required. An effective system installation is the result of detailed planning, preparation of location and equipment, and careful coordination of the various stages of the job.

This section is designed to supplement Section 400, providing more specific guidelines for installing a VNS. Carefully read the system environmental requirements and other vital information contained in Section 400 and then read Section 600 before attempting to install a VNS.

1.1 Installation Sequence

Table 1 summarizes the major stages of a typical VNS installation. Use the table as a guide towards planning and coordinating the workflow so that optimum use of time and labor is accomplished. For detailed information see the section indicated in the table.

2. PLANNING THE SYSTEM INSTALLATION

The basis for an efficient VNS installation lies in careful planning. There are guidelines and general precautions that must be considered by the salesperson, as well as the installer, during

the planning stages of the VNS. There are certain specific requirements and limitations, which if not observed, will impair the reliability of the entire system.

2.1 System Database

Each VNS installation should have a complete and accurate database on file. This database should include the system layout (configuration) on the floor plans (from the site survey) as well as all data specific to the installation.

Section 400 includes database worksheets for keeping accurate records on a particular VNS. Hardware worksheets are used to keep track of which equipment is installed in a particular location.

The database along with the VNS technical literature should enable easy and efficient maintenance and troubleshooting in the future.

2.2 Site Survey

The original survey of the healthcare facility, intended for estimating the cost of a nurse call system, may not develop sufficient data to help you plan an effective installation. In addition to equipment configuration data, you need to know the location and exact dimensions of the rooms or areas allocated for equipment, as well as the length of cabling runs throughout the system.

2.3 Equipment Location

Remember, as stated in Section 400, certain locations must be avoided in regards to installing VNS equipment.

Whatever the nature of any adverse circumstances encountered, the installer must install VNS equipment in locations in which no harmful factors pose a treat to the system's performance.

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Table 1. Typical System Installation Sequence

STEP	INSTALLATION STAGE	SECTION
1	Site survey and data collection. Review existing floorplans	400
2	Plan system layout with the cable and conduit routing (include plenum cable if necessary and use corridor "J" boxes (6" x 6" x 4") above ceilings where possible).	400
3	Allow for proper backbox sizes (include adapter plates if necessary)	400
4	Finalize documentation of system layout on plans or drawings.	400
5	Finalize the system database worksheets.	400
6	Site work	600
	a. Verify system AC source.	600
	b. Mount equipment cabinets, backboxes and conduit. (Use a cold water pipe for system ground if necessary.)	600
	c. Run station cables (average 10 stations per cable run if possible).	600
	d. Install central equipment and connect to system wiring.	610
	e. Connect stations, emergency stations, staff presence stations, dome lamps and zone lamps to system wiring (using correct methods). Do not install annunciator panels, and do not use "yellow" wirenuts (without metal inserts).	620, 630, 640
	f. Test system for shorts and groundings (ground tests) with power off.	610, 620, 630
	g. Turn power on and perform power and voltage tests, and signalling tests. Turn power off.	610, 620, 630
	h. Plug annunciator panels into connectors.	620
	i. Test for shorts and groundings.	610, 620, 630
	j. Turn power on to verify proper voltages and operation. Turn power off.	610, 620, 630
	k. Install stations in backboxes (using appropriate hardware).	620, 630
	l. Turn power on and again test for shorts, etc.	610, 620, 630
	m. Repeat steps e. thru k. for each cable run in the system.	
7	Initialize system and check operations	200
8	Customer introduction and training	200

For detailed information, refer to the sections indicated in the table

3. SYSTEM AC POWER AND GROUNDING REQUIREMENT

A DEDICATED 117 VOLT, 60Hz, 20 AMP SERVICE LINE IS REQUIRED AT THE CENTRAL EQUIPMENT CABINET. The power source must be wired to the receptacles provided at the lower left side of the power supply panel.

The equipment panel MUST be properly grounded. A dedicated earth ground must be provided for proper operation of the system. If a reliable earth ground is not provided by the building electrical system, a metallic cold water pipe will provide a good earth ground in most cases. The installer should check that the cold water piping is metallic throughout and has no joints or sections of nonmetallic pipe.

NOTE: The grounding wire should be as short as possible and #10 AWG or larger. The wire should be connected to the chassis of the equipment panel.

Fundamentals of the Power Line

The AC power source is the simplified equivalent circuit, single phase, of the electrical power distribution system. The system is designed to transfer low frequency (60Hz) power in the "normal mode" between line and neutral. The inductive resistance (XL) is low at 60Hz and the capacitive resistance (XC) is high and power can be transferred "down the line".

With high frequency energy the opposite is the case, i.e., the XL becomes large and the XC becomes small (the capacitors in the equivalent circuit approach a short). The high frequency energy now appears on both line and neutral (or in the "Common Mode"), looking for a "path" to ground. This is MN to CM conversion which is taking place to rid the power system of the undesired high frequency energy. The MN to CM conversion is adequate to protect lights and motors, the traditional loads of the power system, but plays "havoc" with computers and other modern electronic equipment which has

its DC logic connected to the ground where the power system is "dumping" this high frequency energy. Most power conditioning equipment approaches the "power problem" from the conventional (or traditional) viewpoint and functions much as the power system in controlling undesired energy.

"DIRTY POWER" or intermittent power disturbances lead to the most serious kind of system failure: intermittent and/or false calls. "VOLTAGE SURGE" is defined as DC voltage which increases through a user-selected upper limit and returns to within tolerance in less than 2.56 seconds.

"VOLTAGE SAG" is defined as line voltage that decreases below the user-selected lower limit and then returns to within tolerance in less than 2.56 seconds.

"IMPULSES" Impulse disturbances represent any line perturbation which contains frequency components in the 300Hz to 500Hz range.

4. CENTRAL EQUIPMENT MOUNTING REQUIREMENTS

To minimize system cable requirements, the central equipment should be installed in a central location with respect to annunciator panels and system zones.

A zone consists of a group of patient stations and duty/staff stations along with emergency stations and Staff Presence stations, all connected to a common cable run which is then terminated at the equipment panel.

4.1 Housing the Central Equipment

The central equipment consisting of the equipment panel, power supply, flasher unit, junction box, and terminal block, is mounted in a single equipment cabinet.

4.2 Mounting the Equipment Cabinet

The cabinet is usually mounted so that the door opens to the right. However, if space limitations of the area selected for mounting prevent this

- continues -

arrangement, the cabinet can be inverted and mounted so that the door opens to the left.

5. STATION MOUNTING REQUIREMENTS

VNS annunciator panels, patient stations, duty stations, emergency stations, and code blue emergency stations must be mounted onto backboxes.

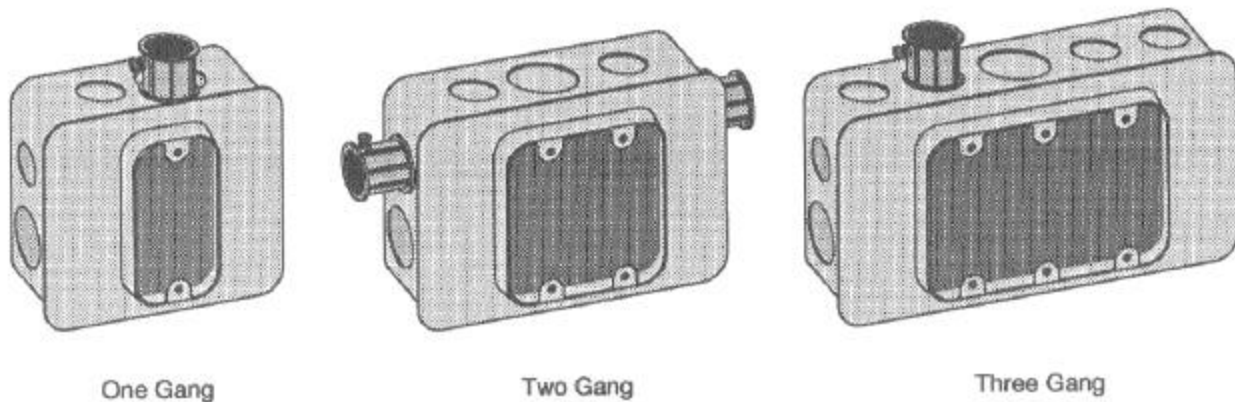
5.1 Backboxes Used for Mounting Stations

The type and size of backbox (see Figure 1) used for mounting each of the units in the nurse call system is based on the piece of equipment and whether the unit is wall recessed or surface mounted. Section 400 provides information for determining the appropriate backbox required for each model specified.

Refer to Section 400 for commonly used and recommended backbox mounting heights. All dimensions shown are in feet, normally measured from floor level to center of backbox.

WARNING: *The mounting heights given in Table 11 of Section 400 do NOT apply for stations used in hazardous anesthetizing locations. The bottom of such stations must be located over five feet (at least 5.5 feet recommended) above the floor level, as per codes 213 and 214 at the National Fire Protection Association. Consult local code requirements which may be more stringent.*

Figure 1. Typical Backboxes used in the VNS



6. SYSTEM CABLING REQUIREMENTS

A large portion of a VNS installation consists of connecting various equipment using cables and wires. It is very important that all wiring and cabling requirements are met. Use only the recommended type of wire and cable necessary for the installation. Using the correct wire and cable will ensure proper system performance and increased reliability.

Heritage MedCall cannot support or warranty any product/system or its performance if installed using non-approved wire and cable. The specified cable has been specifically chosen for the VNS to assure optimum operating performance and must be used in all installations. This includes new installations and for replacing other systems with the VNS equipment.

6.1 Annunciator Panel Cable Routing

Each annunciator panel requires its own run of cable direct from the central equipment cabinet. Section 620 details the type of cable required as well as the connections that need to be made. This cable run should be kept as short as possible.

For proper system performance, cabling should be routed through the proper conduit as per Section 400.

6.2 Home Run Cables

One conductor is required to provide the individual identity for each patient station, and independent emergency station as well as indicating the staff locations as registered via staff presence indicator stations.

Once the system is installed, the home runs should be thoroughly tested.

6.3 Zone Common Cable Routing

The common cabling for a zone may be routed to the central equipment cabinet by either of two

ways, or by a combination of the two ways. The two methods of cable routing are: dome-to-dome cabling and station-to-station cabling.

Note: The recommended cabling method is the dome-to-dome method: see the paragraphs below.

For proper system performance, cabling should be routed through the proper conduit as per Section 400.

Dome-to-Dome Cabling

Dome-To-Dome Cabling is the recommended method of cabling. The common cabling is routed through the dome lamp backboxes. Separate cable lengths are installed between each dome lamp and its respective station unit. Dome lamp junctions are closer together on average than the station units. This means the total continuous length of the zone common cabling to the last station is much shorter in the dome-to-dome cabling method than in the station-to-station method (excluding the cable lengths between dome lamps and stations).

Station-to-Station Cabling

Station-To-Station Cabling is the method in which the common cabling is routed through each station unit in the zone. Therefore, the total continuous length of the common cabling for the zone is usually longer. Also, the cabling running in and out of the station unit requires more backbox space. If station-to-station is required, contact Heritage MedCall for specific cabling information.

6.4 Zone Common Cable Capacity

VNS stations and independent emergency stations are connected to the equipment panel in a configuration consisting of zones.

A maximum of 10 station units can be physically connected to a zone common run cable (consisting of #18 AWG wires).

WARNING: *Exceeding the capacity of the zone common cable could result in improper system performance.*

Once the system is installed, the zone common cable run(s) should be thoroughly tested.

7. SYSTEM CONDUIT REQUIREMENTS

The VNS plays a crucial role as a healthcare visual signalling system. It is recommended that all VNS cabling be run through metallic conduit. Conduit will help prevent accidental cable cutting, as well as provide increased protection from fire.

If system cabling is run in an open cable tray instead of metallic conduit, all system cabling should be partitioned off from any other cables in the tray or separated to the greatest extent possible.

For proper system performance, the correct conduit must be used for the cabling rooms. Use the information in Section 400 to determine the conduit size requirements for a new installation or for a retrofit installation.

8. INSTALLATION SEQUENCE - TIPS AND HINTS

Table 1 at the beginning of this section itemizes the VNS system's installation steps. After the table, information is provided on AC power, central equipment mounting requirements, station mounting requirements, and also cable and conduit requirements. All this information leads up to the actual installation of the VNS.

The next several paragraphs build off of Table 1 by providing more specific information pertaining to the how the various installation steps are accomplished. Please refer to the appropriate installation section for installing a particular station unit or piece of equipment.

8.1 Installation of Equipment Cabinet, Backboxes, and Conduit

The first portion of installing a VNS consists of installing the equipment cabinets, all the backboxes, and the conduit. Installation is usually handled by the construction contractor. Once these components are installed, verify proper mounting heights, etc.

CAUTION; *Avoid sharp bends in the conduit which will restrict cable pulling.*

8.2 Pulling Cable Through Conduit

After the equipment cabinets, the backboxes, and the conduit are installed, the system cabling needs to be pulled through the conduit. Make sure to allow enough cabling at the central equipment location (at least four feet) as well as out of the backboxes (twelve to eighteen inches) for all terminations.

8.3 Installation of Central Equipment

Once the system cabling is in place, the central equipment needs to be installed. Section 610 has all the information required to accomplish the central equipment installation. After mounting the central equipment terminate the system cabling according to paragraph 8.4.

WARNING: *The central equipment must be installed with system power off.*

8.4 Cable Terminations

The next step in the installation, which is one of the most important aspects of an installation, is proper cable termination (at the central equipment and at the backboxes with the station connectors). It is essential that all splice connections be properly made. A few guidelines to follow are:

WARNING: *All cable terminations must be performed with system power off*

- a. All cables should be marked to facilitate future troubleshooting and servicing.

b. All cable wires should be stripped using an appropriate stripping tool.

NOTE: Recommended tools include: Klein Wire Stripper-Cutter, part numbers 11045 and 11048; Ideal Wire Stripper, part number T-6.

c. All connections need to be made using a crimp type connector and appropriate crimping tool.

NOTE: Recommended crimp connectors include: Panduit Insulated Crimp Type Wire Joints, see Panduit catalog. For larger gauge connections (#14 AWG or larger wires), use Panduit Screw-On Wire Connectors (P-Con Series).

NOTE: Recommended crimping tools include: Klein Crimping Tool, part number 1005 or 1006; Ideal Crimp Tool, part number 429; Ideal Electricians Pliers, part number 30-420.

d. Use wirenuts when connecting several heavy gauge wires. (Wires must be securely twisted before wirenut is put on)

e. Use solderless crimp connectors when connecting several smaller gauge wires (#22 AWG).

f. When connecting a smaller gauge wire to several heavy gauge wires, use a medium gauge pigtail rather than splicing directly. This will avoid wire breakage.

g. Quality wire connections are extremely important. Telephone type crimp connectors (not requiring wire stripping) are not recommended.

h. Splices can be soldered to insure secure connections - however, extreme caution should be taken so that a cold solder joint does not occur. A poor solder connection is more difficult to find when troubleshooting.

i. Foil should be removed from where sheathing ends to prevent shorts between foil of cable and backboxes.

j. All unused conductors of all cables and edge connectors must have a connector crimped onto the end or be taped back.

k. Shield wire should be insulated with a dielectric tubing, "spaghetti" type material and held in place by the cable tape.

l. Do not use "YELLOW" wirenuts (wirenuts without metal inserts) under any circumstance.

m. Check all connections carefully.

n. Do not use excessively long screws to mount stations onto backboxes.

By adhering to these basic guidelines a VNS installation should be trouble free and provide for easy servicing in the future increasing overall customer satisfaction. See the next few paragraphs for more information.

Central Equipment Cabinet Cable Terminations

When pulling cables through the central equipment cabinet, you should keep in mind the following:

a. Plan a numbering scheme so that cables and other conductors can be readily identified during subsequent system wiring and servicing.

Central Equipment Installation Instructions

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GENERAL INSTALLATION INSTRUCTIONS

1. INTRODUCTION

This section provides installation instructions which allow you to mount and connect the central equipment for the Heritage MedCall Visual Nurse call System (VNS). This specific information is to be used in conjunction with Table 1 in Section 600, which provides the necessary and proper installation sequence to get a system up and running safely and efficiently.

The equipment cabinet, backboxes, conduit, and the system cabling must be installed prior to installing the VNS central equipment.

The VNS central equipment consists of:

- Equipment Cabinet with mounting plate
- Power Supply
- Flasher Unit
- Junction Box
- Terminal Block

Installing the central equipment consists of:

- Installing the mounting plate
- Mounting the flasher unit
- Mounting the junction box
- Mounting the terminal block
- Mounting the power supply

Connecting central equipment components to each other

- Connecting annunciator panel cables
- Connecting zone common cables
- Connecting home run cables
- Connecting the system to AC power

NOTE: For maximum safety against equipment damage, test all connections once the central equipment is fully installed and all cabling is connected.

To simplify the installation of a larger system, it is recommended that the central equipment

and a few stations be installed and tested before any optional components are added to the central equipment panel.

2. MOUNTING THE CENTRAL EQUIPMENT

Paragraphs 2.1 through 2.5 explain how to install the various components within the central equipment. Figure 1 illustrates the location of the components on the mounting plate.

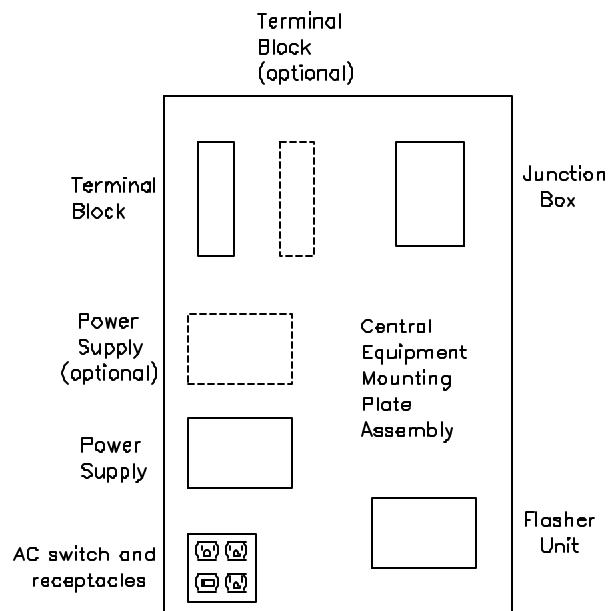


Figure 1. VNS Central Equipment

2.1 Installing the Mounting Plate

The mounting plate is installed inside the equipment cabinet, and is used to mount the flasher unit, junction box, terminal block, and the power supply.

2.2 Installing the Flasher Unit

The HM-F3 Flasher Unit provides three distinct levels of call. The flasher unit is mounted in the lower right portion of the mounting plate assembly as follows:

- a. Position the flasher unit as required and mark holes for drilling (see Figure 1). Drill holes.
- b. Using suitable fasteners, mount the flasher unit.

2.3 Installing the Junction Box

The HM-J13 junction box is used to distribute the power from the power supply and connections from the Flasher Unit to the common runs and the terminal blocks. The junction box is mounted in the upper right portion of the mounting plate assembly as follows:

- a. Position the junction box as required and mark holes for drilling (see Figure 1). Drill holes.
- b. Using suitable fasteners, mount the junction box.

2.4 Installing the Terminal Block

The terminal block is used for the cross connections for all the home runs in the VNS system. Each terminal block is a connectorized "split-block" type and has 50 rows of four clips. The four clips in each row are divided into two separate groups of two. The two clips in the left half of the row are designated A and B. The two clips in the right half of the row are designated C and D.

Home runs give an individual identity to each patient station and emergency station in the system. Home runs are also used to indicate staff presence when connected to staff

presence indicator stations.

- a. Position the terminal block(s) as required and mark holes for drilling (see Figure 1). Drill holes.
- b. Using suitable fasteners, mount the junction box.

2.5 Installing the Power Supply

The VNS system uses the HM-24-3.6A Power Supply. For basic systems, one power supply is required. Using Figure 1 as a reference, position the power supply in the middle left-hand side of the mounting panel. Install per the following steps:

- a. Position the power supply as required and mark holes for drilling. Drill holes.
- b. Using four screws mount the power supply.

CAUTION: Do not apply power to the power supply at this time.

If an additional power supply is required, mount it above the first power supply on the mounting panel as shown in Figure 1. Mount the power supply as outlined above.

If additional power supplies are required, they must be installed in a suitable location according to the next paragraph.

In order to remain in accordance with UL, the HM-24V-3.6A Power Supply must be mounted according to certain parameters. If the power supply cannot be mounted in the cabinet containing the central equipment, then it must be mounted in a convenient location using a UL recognized enclosure having provisions for conduit connection for the AC input. The HM-24V-3.6A Power Supply shall plug into a UL recognized receptacle mounted within the enclosure.

- continues -

3. CONNECTING COMPONENTS WITHIN THE CENTRAL EQUIPMENT

3.1 System Power Connections

The HM-24V-3.6A Power Supply is connected to the junction box and the flasher unit. To perform the connections, refer to Figure 2 and proceed as follows:

- a. Connect the power supply to the junction box using #18 AWG wire.
- b. Connect the power supply to the flasher unit using the provided cable.
- c. Connect the flasher unit to the junction box using #18 AWG wire.

CAUTION: Pay close attention to the notes in Figures 2.

3.2 AC Power Connections

An electrical box with three outlets and one power switch is provided at the lower left corner of the mounting panel. Make sure that the following guidelines are met.

- a. Consult local electrical codes which may require installation of permanent rigid or flexible conduit from the electrical box to the AC power source.
- b. THE OUTLETS ON THE PANEL MUST BE CONNECTED TO A POWER SOURCE CAPABLE OF PROVIDING A 117 VOLT, 60 Hz, 20 AMP SERVICE LINE.
- c. The three outlets must be connected so that all of the outlets are controlled by the adjacent power switch.

CAUTION: Do not connect the power supplies to the AC outlet at this time.

4. CONNECTING THE ANNUNCIATOR PANELS

The terminal block in the central equipment is used to connect the annunciator panel(s) to the home runs as well as the power. Each terminal block is a connectorized "split-block" type and has 50 rows of four clips. The four clips in each row are divided into two separate groups of two. The two clips in the left half of the row are designated A and B. The two clips in the right half of the row are designated C and D.

Cabling used is determined by the model of annunciator panel used in the system.

4.1 Connections for the HM-A10 through HM-A60 Type Panels

There are six figures which show the connections based on system size.

Figure 3 shows connections for 10 stations
Figure 4 shows connections for 20 stations
Figure 5 shows connections for 30 stations
Figure 6 shows connections for 40 stations
Figure 7 shows connections for 50 stations
Figure 8 shows connections for 60 stations

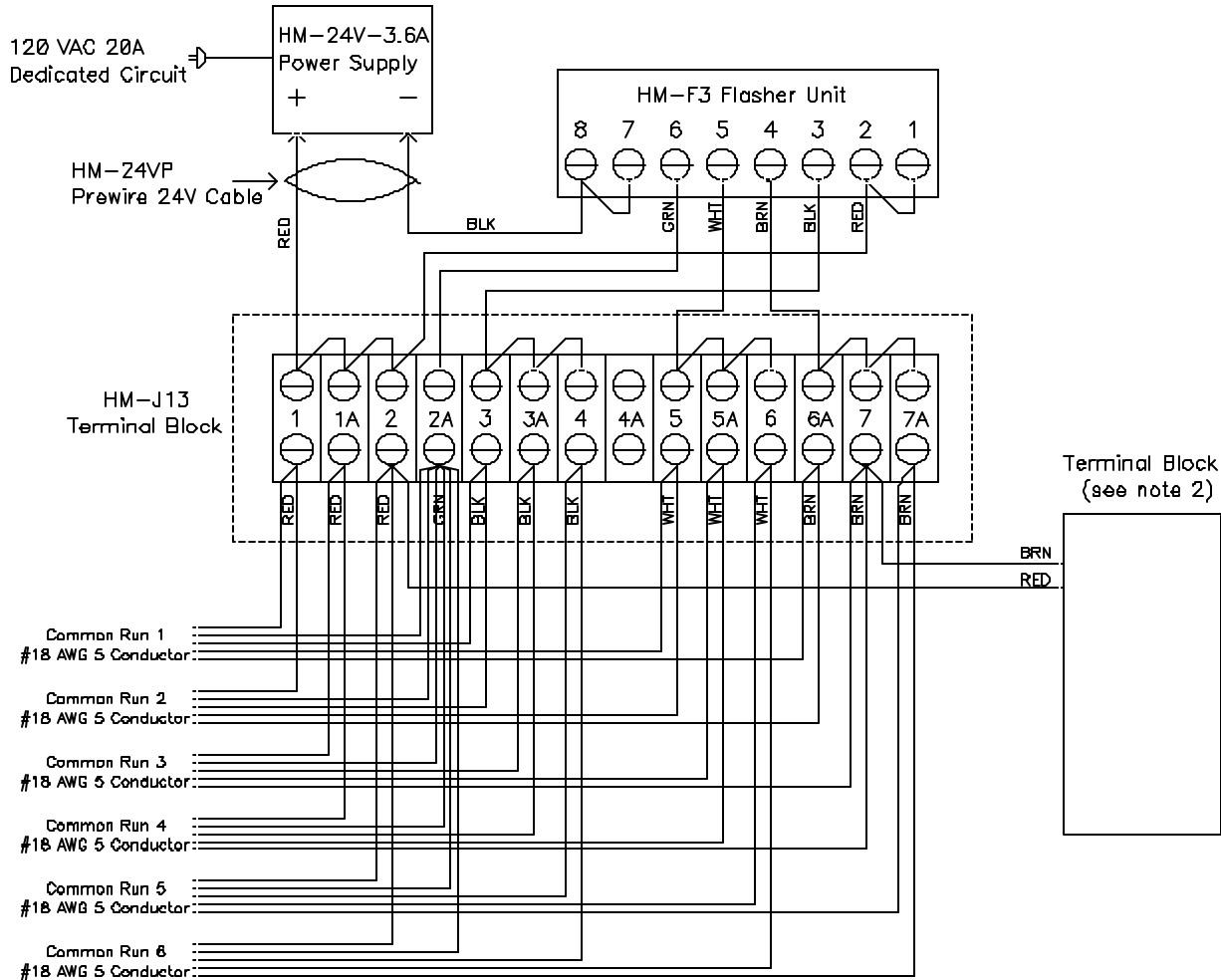
To connect the annunciator panel, refer to the appropriate figure and connect the cable from the annunciator panel to the appropriate clip for each required row on the terminal block.

CAUTION: Pay close attention to the notes in Figures 3 through 8. For connections at the annunciator panel, see Section 620.

5. CONNECTING THE ZONE CABLES

5.1 Connections for the Home Runs

The terminal block to which the annunciator panel is connected is used to also connect the home runs. Use the same figures for the home runs as used for the annunciator panel (Figures 3 through 8).



NOTES:

1. All interconnecting wires are #18 AWG.
- 2 See Fig. 3 – Fig. 8 for terminal block connections
- 3 Wire functions in the common runs are:

Wire Color	Function
RED	+24 VDC
BLK	Steady Bus
WHT	Slow Flash Bus
GRN	Fast Flash Bus
BRN	Duty Bus
BLU	Common (optional)

Figure 2. System Power Connections

To connect the home runs, refer to the appropriate figure and connect the wires by matching the home run with its annunciator lamp conductor. Refer to Figures 3 through 8 as applicable.

NOTE: The home runs are not necessarily in sequence.

CAUTION: Pay close attention to the notes in Figures 3 through 8. For connections at the station units, see Section 630.

5.2 Connections for the Common Cables

A common cable run (#18 AWG 5 or 6 conductor) is used to carry the common functions to each station unit in the system. These common functions are:

- +24 VDC
- Steady (-24VH)
- Slow Flash Bus
- Fast Flash Bus
- Duty bus
- Common (in special applications)

The common runs are terminated at the junction box in the central equipment cabinet. To evenly distribute the loading of the common functions, the stations in the system can be divided into zones with each zone having a common cable run.

NOTE: A maximum number of 10 stations are used per common cable run.

To connect the common cable runs refer to Figure 2 and connect the wires to the junction box.

CAUTION: Pay close attention to the notes in 6. For connections at the station units, see Section 630.

6. ADDITIONAL INFORMATION

6.1 Initial Checkout

At this point of the VNS system installation, all central equipment connections should be completed. However, the annunciator panel(s), patient stations, emergency stations and duty stations should not be attached to their respective cables.

CAUTION: Before performing the tests described in the following paragraphs, be sure that the home run wires, common cables, and the annunciator panel cables are not shorted at the station ends.

Voltage Check

Neatly route the AC power cords from the power supplies to the receptacles and plug them into the receptacles. Turn the power switch on. With a DC voltmeter, check for the presence of 24 VDC output from the power supply. If acceptable, turn the power off and proceed with the installation.

6.2 Three Level Flasher Unit Adjustment

After the installation is completed and all wiring is verified to be correct, three adjustments are available to set the tone rate for normal calls and emergency calls if desired. All adjustments are in the HM-F3 Flasher Unit.

The flash rates provided by the three level flasher unit (HM-F3) are preset at the factory. However, these flash rates can be adjusted by removing the flasher unit cover.

R3 sets the rate of the reminder tone for normal calls. R4 sets the slow flash rate for emergency calls, and R17 sets the rate for the fast flash rate.

NOTE: The flash rates affect each other. Therefore, adjustments should be made slowly.

NOTES:

All unused conductors must be individually capped off and isolated from possible ground faults.

➤ Denote unused wire individually taped off

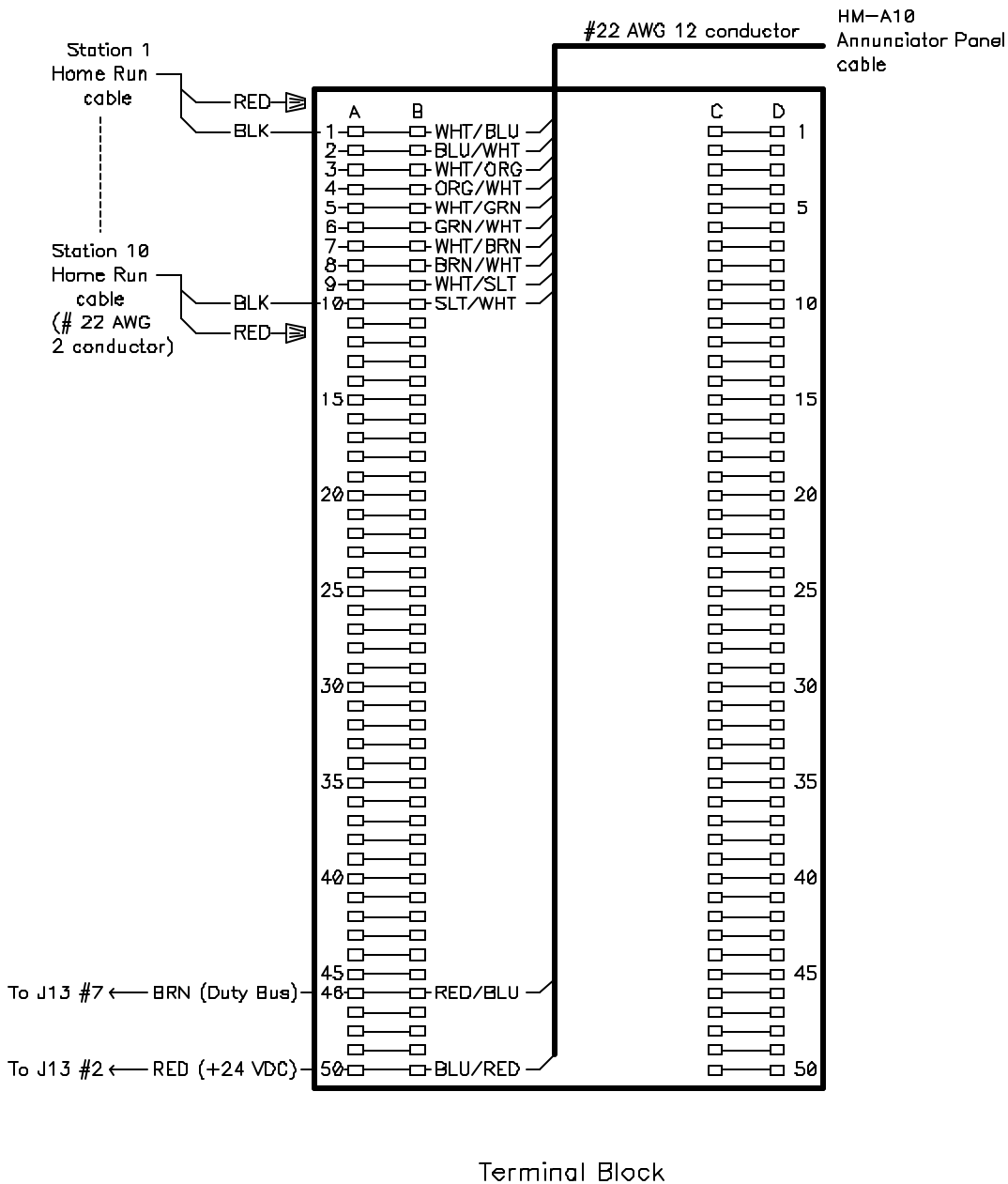
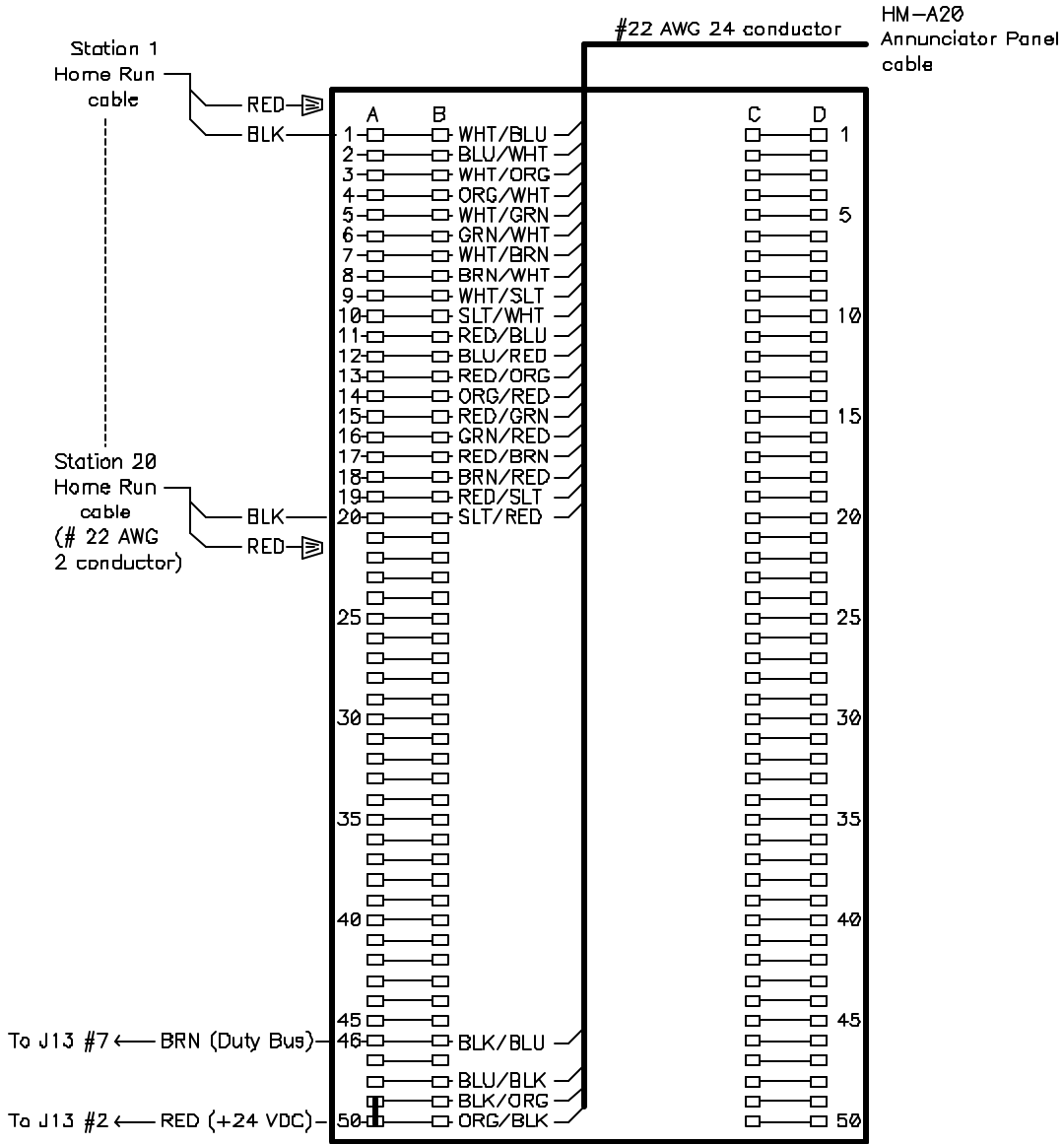


Figure 3. Terminal Block Connections for 10 Stations

NOTES:

All unused conductors must be individually capped off and isolated from possible ground faults.

➤ Denote unused wire individually taped off



Terminal Block

Figure 4. Terminal Block Connections for 20 Stations

NOTES:

All unused conductors must be individually capped off and isolated from possible ground faults.

➡ Denote unused wire individually taped off

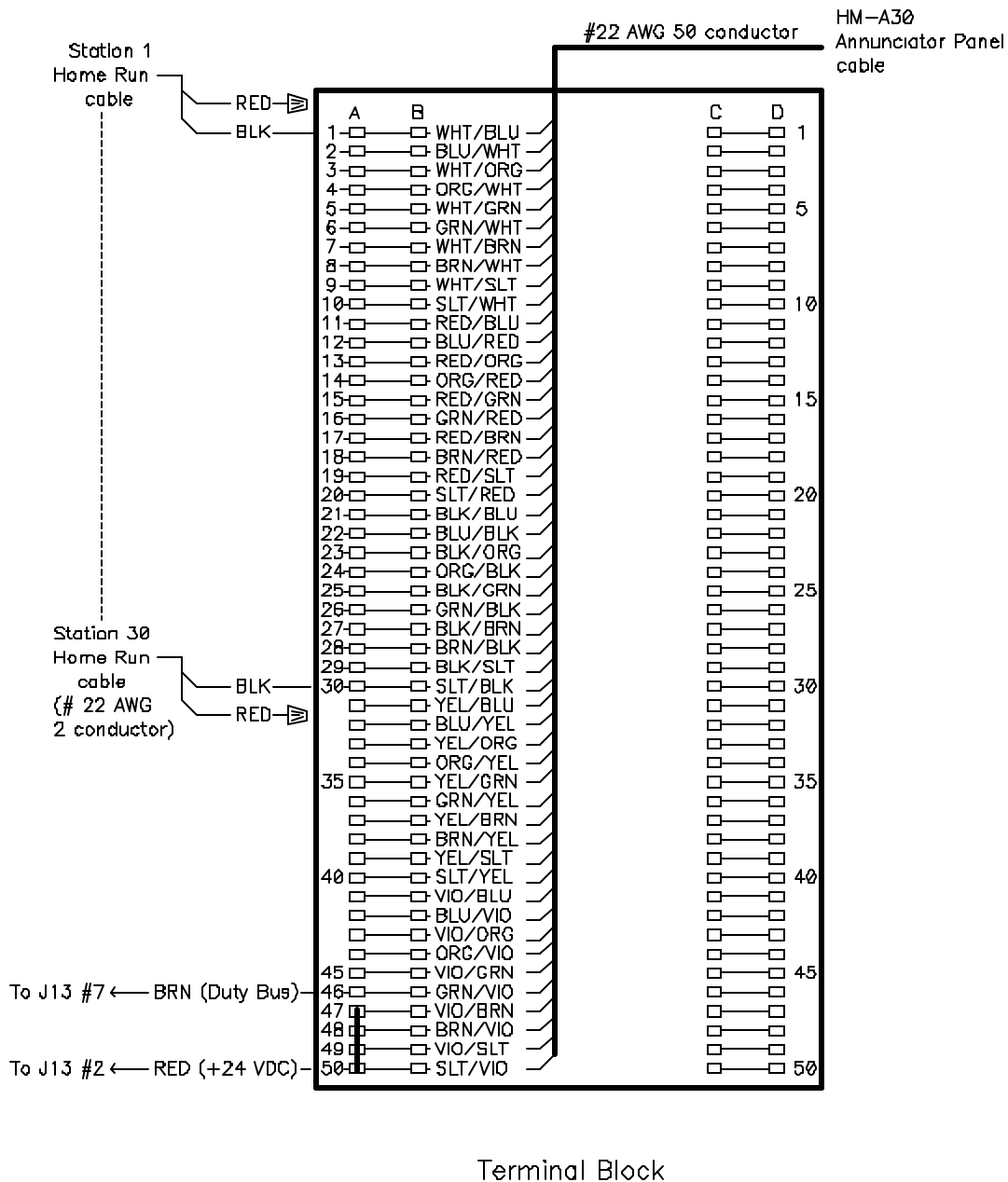


Figure 5. Terminal Block Connections for 30 Stations

NOTES:

All unused conductors must be individually capped off and isolated from possible ground faults.

➤ Denote unused wire individually taped off

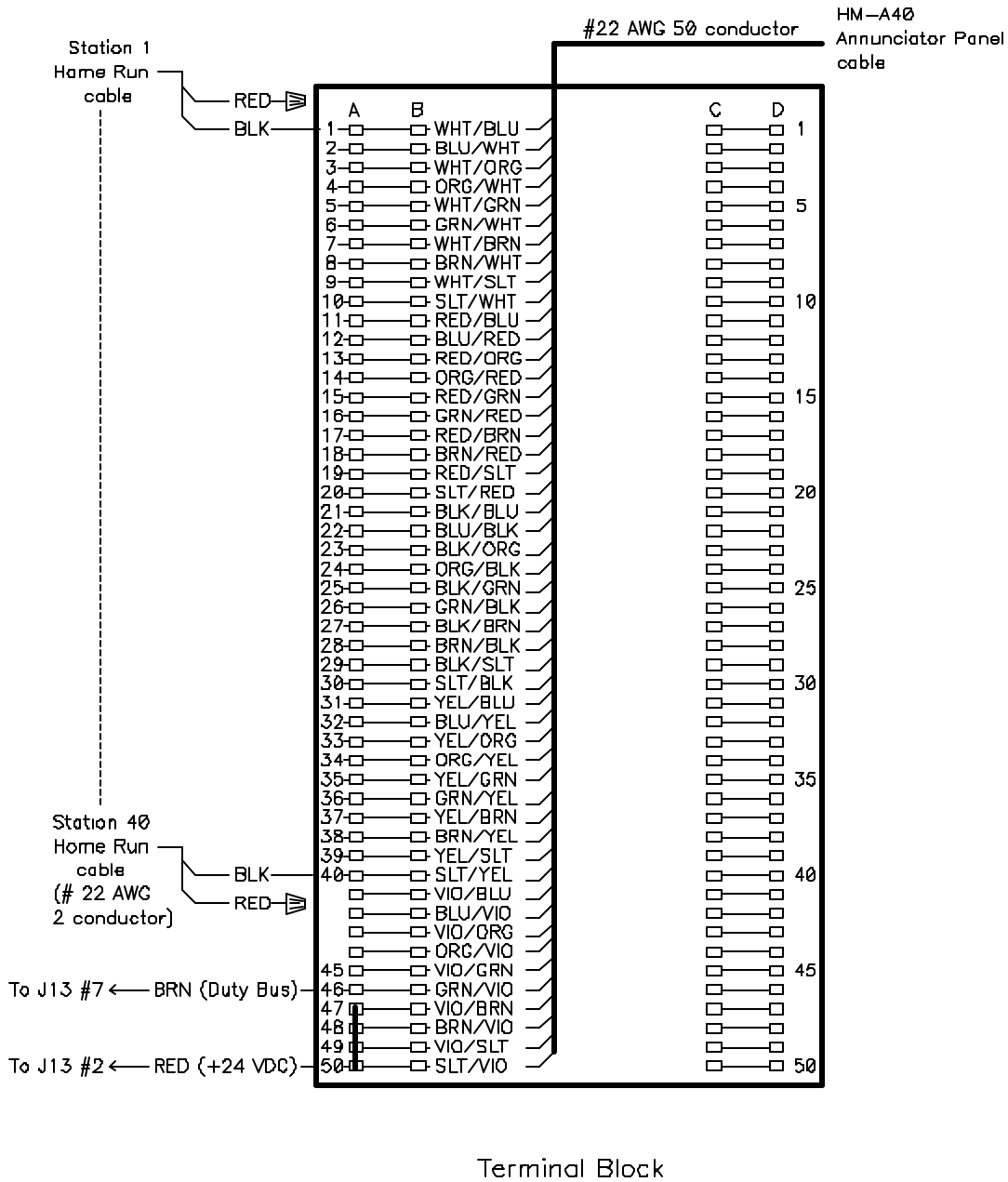


Figure 6. Terminal Block Connections for 40 Stations

NOTES:

All unused conductors must be individually capped off and isolated from possible ground faults.

➤ Denote unused wire individually taped off

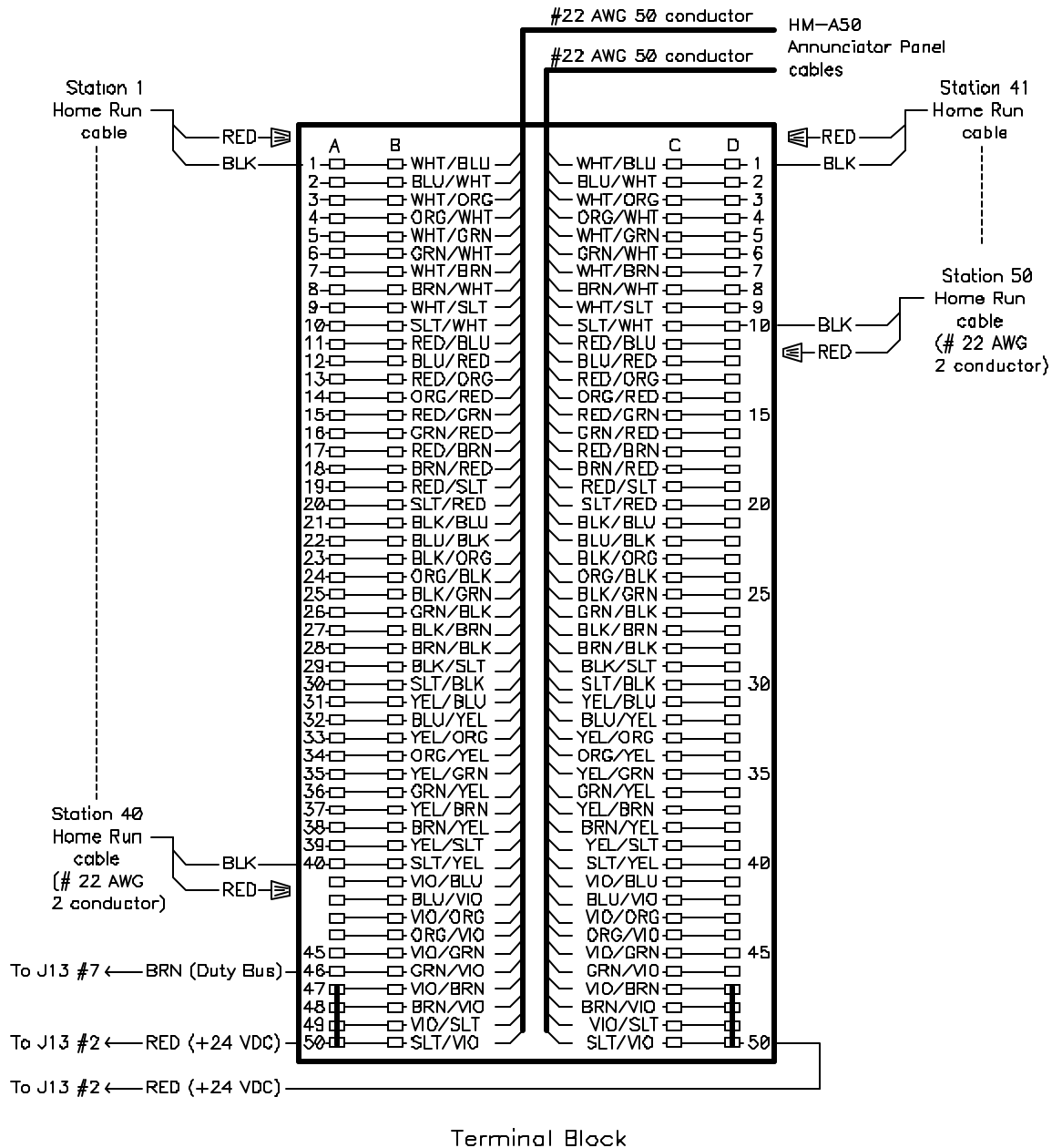


Figure 7. Terminal Block Connections for 50 Stations

Heritage Medcall Visual Nurse Call System
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NOTES:

All unused conductors must be individually capped off and isolated from possible ground faults.

➤ Denote unused wire individually taped off

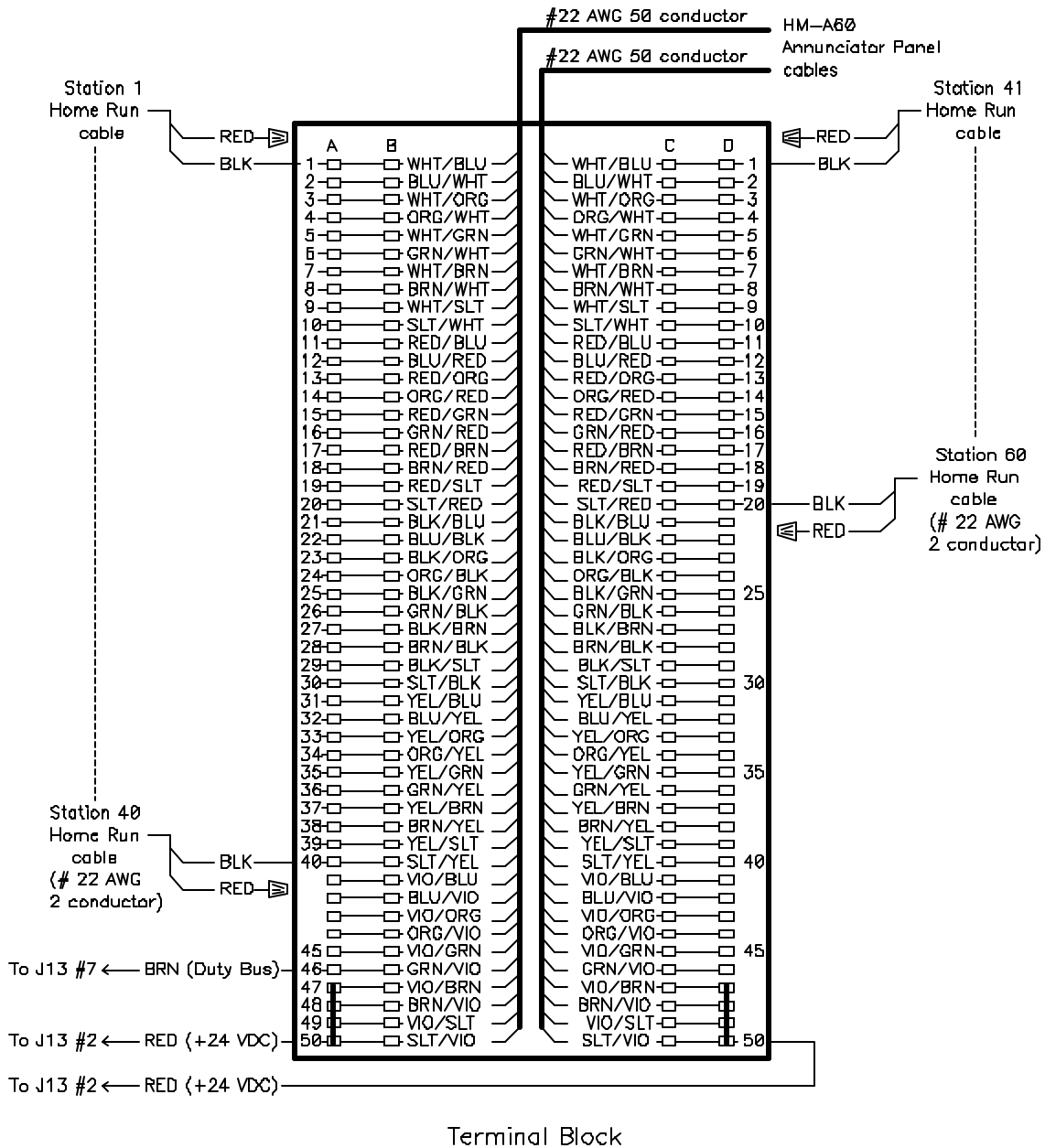


Figure 8. Terminal Block Connections for 60 Stations

Annunciator Panel Installation Instructions

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ANNUNCIATOR PANEL INSTALLATION INSTRUCTIONS

1. INTRODUCTION

Please note that this section provides installation instructions that allow you to connect and install a Heritage MedCall (VNS) annunciator panel. This specific information is to be used in conjunction with Table 1 in Section 600. This table provides the necessary and proper installation sequence to get a system up and running safely and efficiently.

Annunciator panels covered in this section include the following:

Model HM-A10 10 Lamp Annunciator Panel
Model HM-A20 20 Lamp Annunciator Panel
Model HM-A30 30 Lamp Annunciator Panel
Model HM-A40 40 Lamp Annunciator Panel
Model HM-A50 50 Lamp Annunciator Panel
Model HM-A60 60 Lamp Annunciator Panel

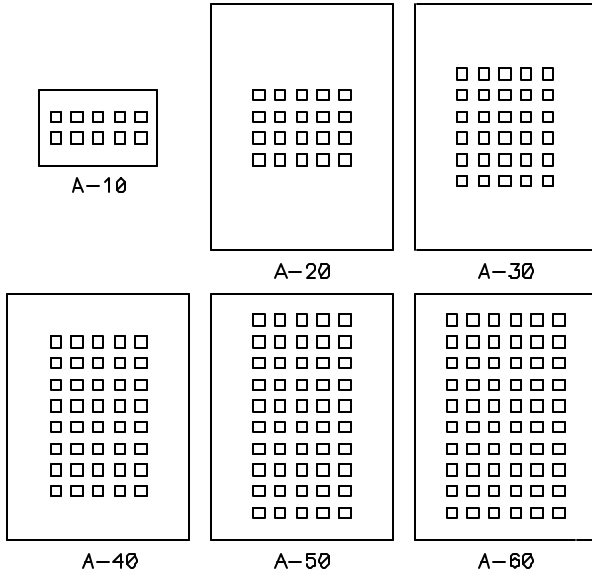


Figure 1. VNS Annunciator Panels

All models can be wall mounted or surface mounted depending on the type of backbox used in the installation. Furthermore, all annunciator panels except the HM-A10 install onto W2 backboxes. The HM-A10 mounts onto a 3-gang backbox

2. CONNECTING THE ANNUNCIATOR PANELS

VNS annunciator panels connect to the terminal block within the central equipment. The model of annunciator panel being used in the system determines the cabling required. See Section 400 for cabling information.

2.1 10 Lamp Annunciator Panel HM-A10

The HM-A10 Annunciator Panel connects to the central equipment via a run of #22 AWG 12-conductor cable. The annunciator panel end of the cable is terminated with one Model HM-11P Connector Plug. The HM-11P Connector Plug connects to PC board pins on the annunciator panel.

To connect the annunciator panel, perform all connections as detailed in Figure 2

2.2 20 Lamp Annunciator Panel HM-A20

The HM-A20 Annunciator Panel connects to the central equipment via a run of #22 AWG 24-conductor cable. The annunciator panel end of the cable is terminated with two Model HM-11P connector plugs. The HM-11P connector plugs connect to pins on the PC boards on the annunciator panel.

NOTE: Each PC board serves 10 lamps.

To connect the annunciator panel, perform all connections as detailed in Figure 3.

2.3 30 Lamp Annunciator Panel HM-A30

The HM-A30 Annunciator Panel connects to the central equipment via a run of #22 AWG 50-conductor cable. The annunciator panel end of the cable is terminated with three Model HM-11P connector plugs. The HM-11P connector plugs connect to pins on the PC boards on the annunciator panel.

NOTE: Each PC board serves 10 lamps.

To connect the annunciator panel, perform all connections as detailed in Figure 4.

2.4 40 Lamp Annunciator Panel HM-A40

The HM-A40 Annunciator Panel connects to the central equipment via a run of #22 AWG 50-conductor cable. The annunciator panel end of the cable is terminated with four Model HM-11P connector plugs. The HM-11P connector plugs connect to pins on the PC boards on the annunciator panel.

NOTE: Each PC board serves 10 lamps.

To connect the annunciator panel, perform all connections as detailed in Figure 5.

2.5 50 Lamp Annunciator Panel HM-A50

The HM-A50 Annunciator Panel connects to the central equipment via two runs of #22 AWG 50-conductor cable. The annunciator panel end of the cable is terminated with five Model HM-11P connector plugs. The HM-11P connector plugs connect to pins on the PC boards on the annunciator panel.

NOTE: Each PC board serves 10 lamps.

To connect the annunciator panel, perform all connections as detailed in Figure 6.

2.6 60 Lamp Annunciator Panel HM-A60

The HM-A60 Annunciator Panel connects to the central equipment via two runs of #22 AWG 50-

conductor cable. The annunciator panel end of the cable is terminated with five Model HM-13P connector plugs. The HM-13P connector plugs connect to pins on the PC boards on the annunciator panel.

NOTE: Each PC board serves 12 lamps.

To connect the annunciator panel, perform all connections as detailed in Figure 7.

3. MOUNTING THE ANNUNCIATOR PANELS

VNS annunciator panels are mounted onto the backbox with four screws supplied with the panels.

CAUTION: Before mounting an annunciator panel onto the backbox do the following:

- a. Plug connectors onto the panel unit with system power OFF.
- b. Make sure all connectors are fully inserted.
- c. Check all terminations for loose connections.
- d. Test all wiring and connections with station connectors plugged in.
- e. Once fully tested with the connectors plugged in, dress all cables and installation wires against each side of the backbox.

To mount the annunciator panel, proceed as follows:

- a. Using the four screws provided, loosely attach the panel to the backbox.
- b. Adjust the panel to attain proper level and tighten the four screws.

CAUTION: Do not overtighten the nylon screws to avoid stripping the threads

4. ADDITIONAL INFORMATION

4.1 Tone signaling for HM-AXX type panels (HM-CTU/TCU)

Tone signaling for the HM-AXX type annunciator panels is provided via the HM-CTU/TCU Tone Control Unit. This tone unit allows for installation flexibility by being mounted separate of the annunciator panel in remote locations. Volume is adjustable via front accessible shutter.

NOTE: To provide tone signaling for the HM-AXX type annunciator panels the HM-CTU/TCU must be included.

The tone control unit connects to the system wiring as shown in Figures 2-7.

The tone control unit is mounted onto a single gang backbox with the screws supplied with the unit.

Caution: Before mounting a tone control unit onto the backbox do the following:

- a. Check all terminations for loose connections.
- b. Test all wiring and connections.
- c. Once fully tested, dress all cables and installation wires against each side of the backbox.

To mount the tone control unit, proceed as follows:

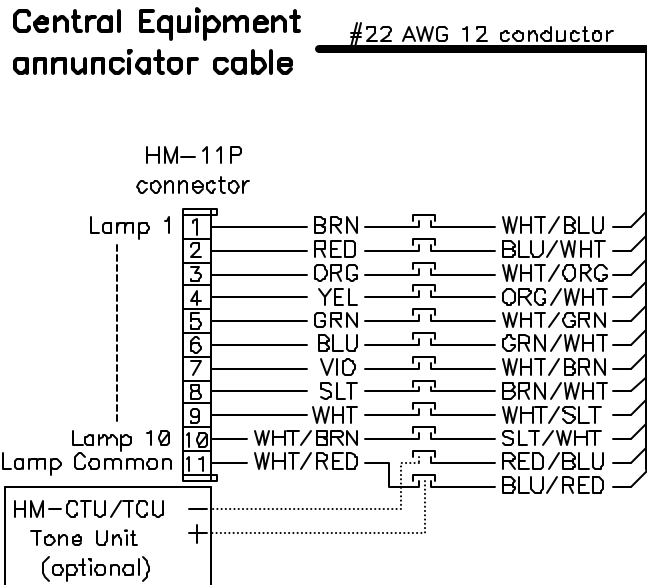
- a. Using the two screws provided, loosely attach the unit to the backbox.
- b. Adjust the unit to attain proper level and tighten the two screws.

CAUTION: Do not overtighten the nylon screws to avoid stripping the threads.

To adjust the call tone signal level control, proceed as follows:

- a. Originate a call to the annunciator panel from a patient station or duty station.
- b. Listen for the call tone signal at the annunciator panel. This signal is repeated approximately every 10 seconds until the call is answered.
- c. Make any necessary adjustments.

When adjusting the call tone signal level control, consider that a loud tone may be offensive to the patients in nearby rooms. Set the control for a comfortable level, loud enough for the staff members, and low enough not to disturb the nearby patients.



NOTES:

1. All unused conductors must be individually capped off and isolated from possible ground faults.
2. Crimp type connectors should be used and applied using the correct crimping tool.

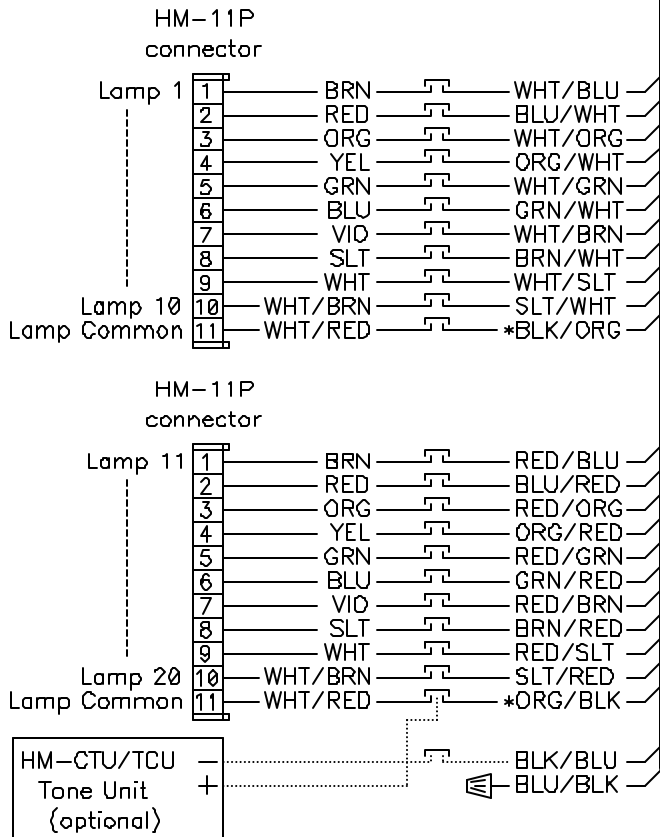
➤ Denote unused wire individually taped off

⌋ Denote wire connection

Figure 2. Connections for the HM-A10 Annunciator Panel

**Central Equipment
annunciator cable**

#22 AWG 24 conductor



NOTES:

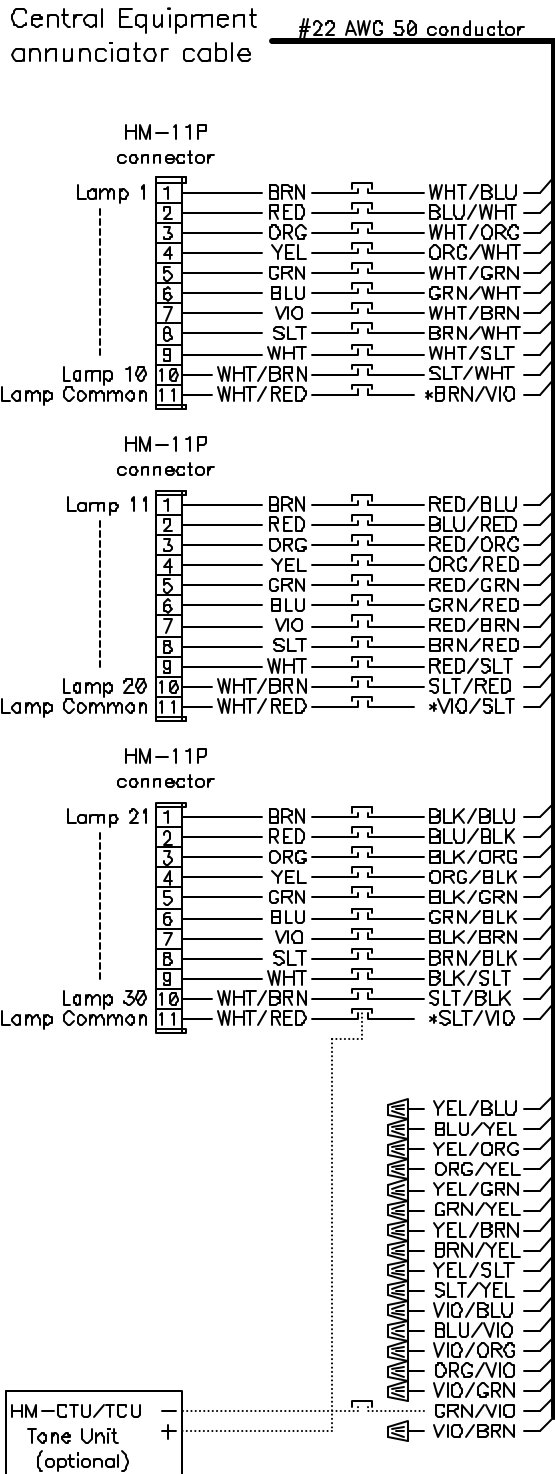
1. All unused conductors must be individually capped off and isolated from possible ground faults.
2. Crimp type connectors should be used and applied using the correct crimping tool.

Denote unused wire individually taped off

Denote wire connection

* Denotes break in color code sequence

Figure 3. Connections for the HM-A20 Annunciator Panel



NOTES:

1. All unused conductors must be individually capped off and isolated from possible ground faults.
2. Crimp type connectors should be used and applied using the correct crimping tool.

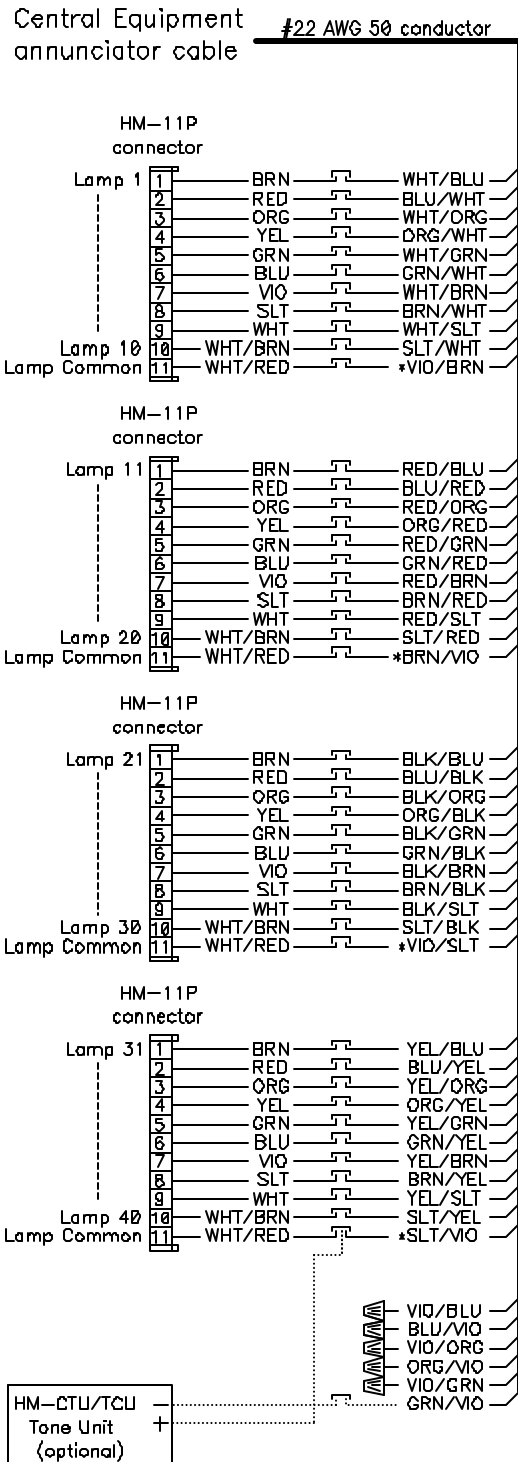
☞ Denote unused wire individually taped off

⌋ Denote wire connection

* Denotes break in color code sequence

Figure 4. Connections for the HM-A30 Annunciator Panel

Heritage Medcall Visual Nurse Call System
Annunciator Panel Installation Instructions



NOTES:

1. All unused conductors must be individually capped off and isolated from possible ground faults
2. Crimp type connectors should be used and applied using the correct crimping tool.

⏏ Denote unused wire individually taped off

⏏ Denote wire connection

* Denotes break in color code sequence

Figure 5. Connections for the HM-A40 Annunciator Panel

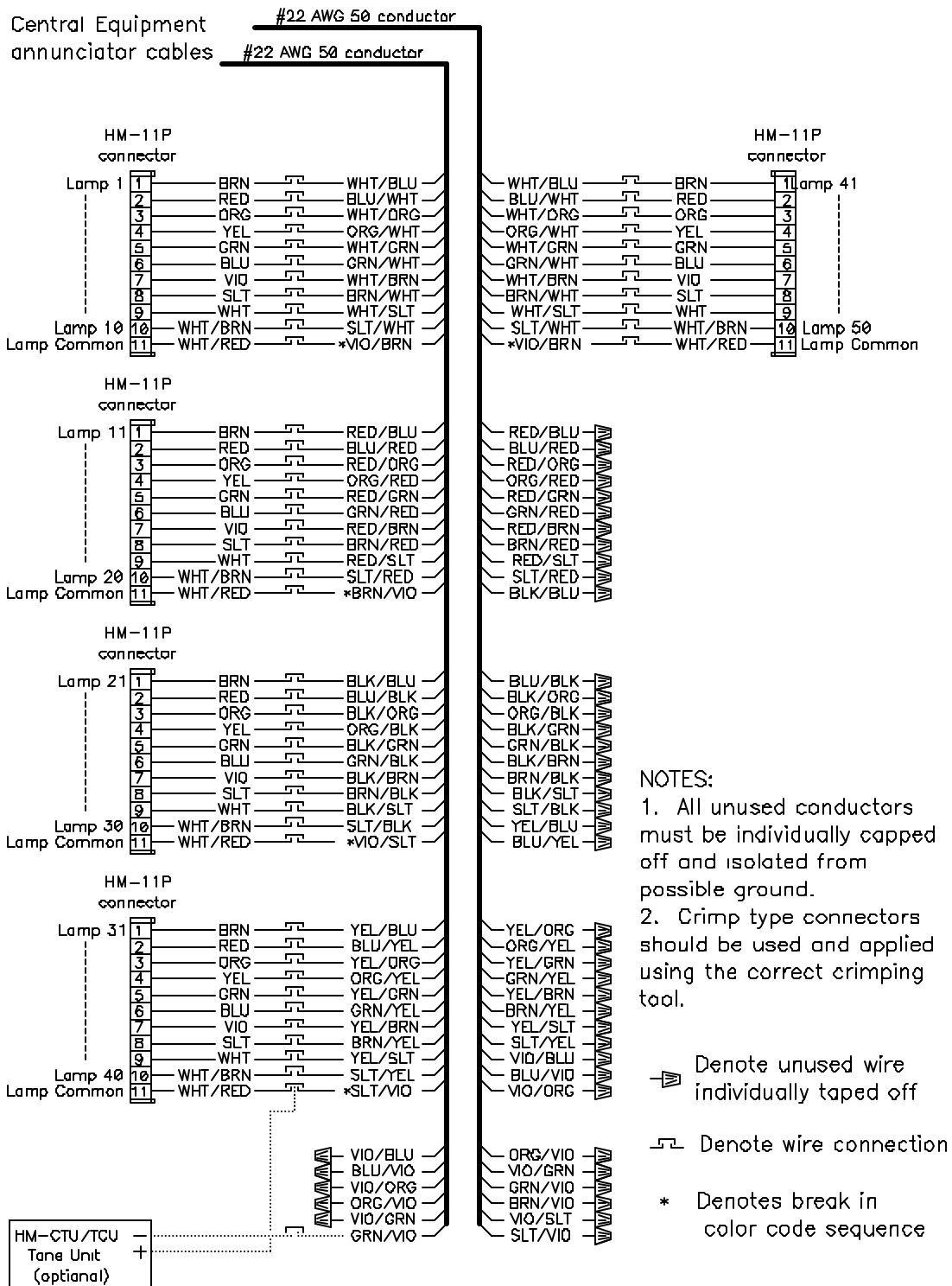


Figure 6. Connections for the HM-A50 Annunciator Panel

Heritage Medcall Visual Nurse Call System
Annunciator Panel Installation Instructions

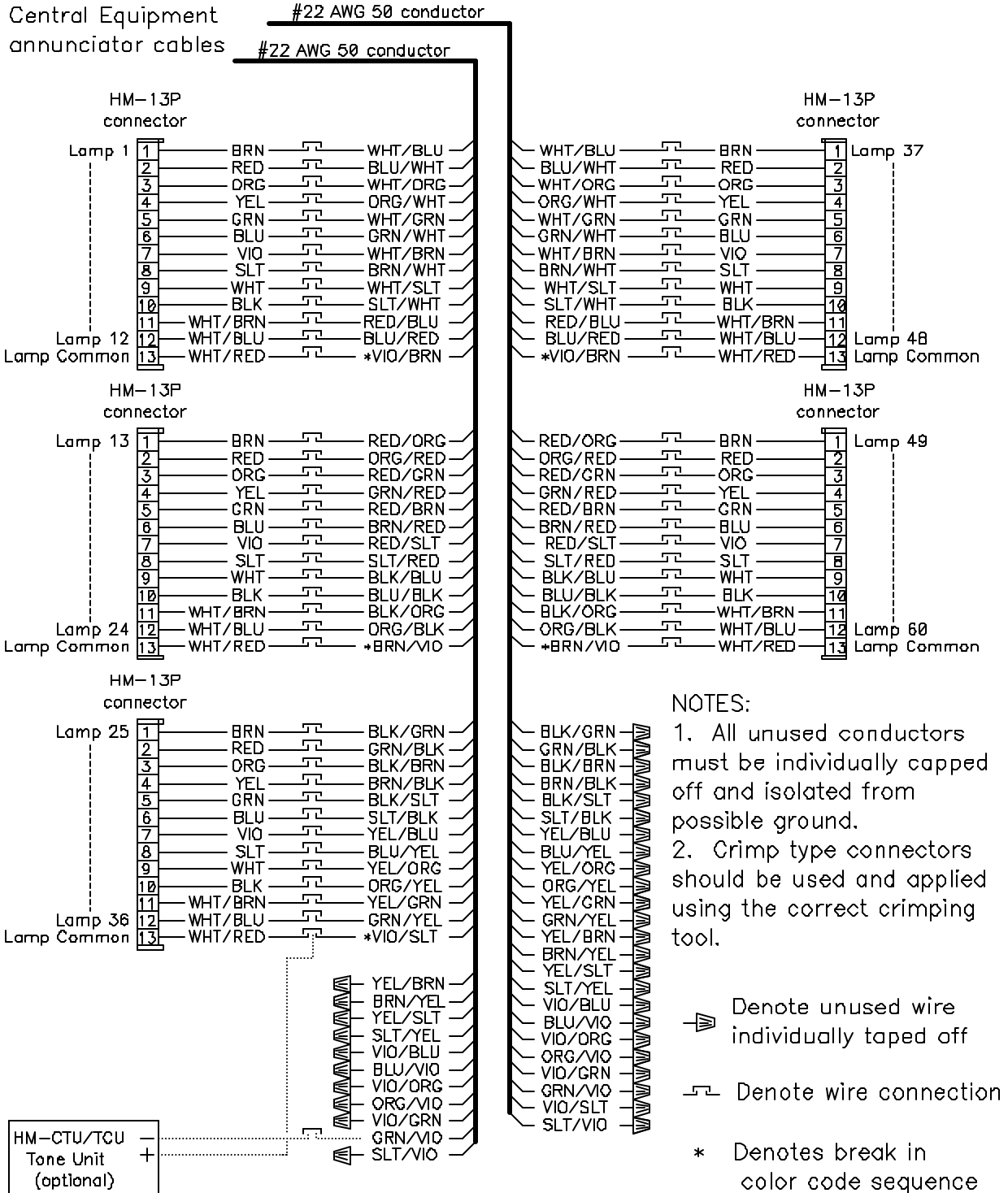


Figure 7. Connections for the HM-A60 Annunciator Panel

Patient and Duty Station Installation Instructions

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3.	MOUNTING THE PATIENT STATIONS AND DUTY STATIONS	3

PATIENT AND DUTY STATION INSTALLATION INSTRUCTIONS

1. INTRODUCTION

Please note that this section provides installation instructions which allows you to mount and connect patient stations and duty stations, This specific information is to be used in conjunction with Table 1 in Section 600 which provides the necessary and proper installation sequence to get a system up and running safely and efficiently.

Installation for each station unit basically consists of:

- a. Connecting the station wiring to system cabling and peripherals
- b. Mounting stations onto backboxes

Each station and coupling unit is connected to system cabling by means of color-coded conductors and then is installed in the required backbox. Here are the stations covered in this section:

Model HM-SPS Single Patient Station

Model HM-DPS Dual Patient Station

Model HM-DPS/2GA Two-Gang Dual Patient Station

Model HM-DUTY Duty Station

The following factors must be considered when installation station units:

- a. Whether the cabling has been routed for station-to-station or dome-to-dome installation.
- b. How many stations are installed in a particular room,
- c. The type of station being installed (patient stations and duty stations)
- d. Whether a dome lamp is provided for the room.
- e. Whether one of the stations in the room is connected to one or more emergency stations.

2. CONNECTING THE PATIENT STATIONS AND DUTY STATIONS

The common cabling for a zone may be routed to the central equipment cabinet by either of two ways, or by a combination of both ways. The two methods of cable routing are: dome-to-dome cabling and station-to-station cabling.

Home runs are required to provide the individual identity for each patient station.

For proper system performance, cabling should be routed through the proper conduit per Section 400.

2.1 Station-to-Station Installations

Any combination of single patient stations, dual patient stations, emergency stations and duty stations can be installed along a common run. However, the limit of ten stations per one common cable run must be observed. The common cable run wires are spliced in the station unit's backbox, and connected directly to the appropriate color coded wires.

When wiring a station unit in a room with station-to-station cabling, refer to Figures 1 and 2 as applicable, and proceed as follows:

- a. Splice the zone common cabling in the patient station backbox directly to the color-coded wires of the station unit per Figures 1 and 2.
- b. Connect the #22 AWG 2-conductor wire for the home runs from the central equipment to the patient station.

- c. Connect a length of #22 AWG 2-conductor wire to the dome lamp, from the patient station or duty station.
- d. For emergency stations associated with patient stations, connect the toilet and shower stations using #22 AWG 4-conductor wire to the patient station per Figure 2.

CAUTION: Pay close attention to the notes in Figures 1 and 2 and check all ground connections carefully. For connections at the central equipment see Section 610.

NOTE: Do not cut off unused cable wires; all unused conductors must be individually capped off and isolated from possible ground faults.

2.2 Dome-to-Dome Installations

Any combination of single patient stations, dual patient stations, emergency stations and duty stations can be installed along a common run. However, the limit of ten stations per one common cable run must be observed. The common cable run wires are spliced in the station unit's backbox, and connected directly to the appropriate color coded wires.

When wiring a station unit in a room with station- to-station cabling, refer to Figures 3 and 4 as applicable, and proceed as follows:

- a. The zone common cabling is spliced in the dome lamp backbox.
- b. Connect a length of #22 AWG 4-conductor wire from the zone common cabling (at the dome lamp backbox to the color-coded wires of the station unit per Figures 3 and 4.
- c. Connect the #22 AWG 2-conductor wire for the home run from the central equipment to the patient station.
- d. For emergency stations associated with patient stations, connect the toilet and shower stations using #22 AWG 6-conductor cable to the patient station per Figure 4.

CAUTION: Pay close attention to the notes in Figures 3 and 4 and check all ground connections carefully. For connections at the central equipment, see Section 610.

NOTE Do not cut off unused cable wires; all unused conductors must be individually capped off and isolated from possible ground faults.

3. MOUNTING THE PATIENT STATIONS AND DUTY STATIONS

Heritage MedCall Visual Nurse call System (VNS) patient stations and duty stations are mounted onto backbox with the screws supplied with the station units.

CAUTION: Before mounting station unit onto the backbox, do the following:

- a. Check all terminations for loose connections.
- b. Test all wiring and connections.
- c. Once fully tested, dress all cables and installation wires against each side of the backbox.

To mount the station unit, proceed as follows:

- a. Using the screws provided, loosely attach the station unit to the backbox.
- b. Adjust the station unit to attain proper level and tighten the screws.

CAUTION: Do not over tighten the nylon screws to avoid stripping the threads.

Heritage Medcall Visual Nurse Call System
Patient and Duty Station Installation Instructions

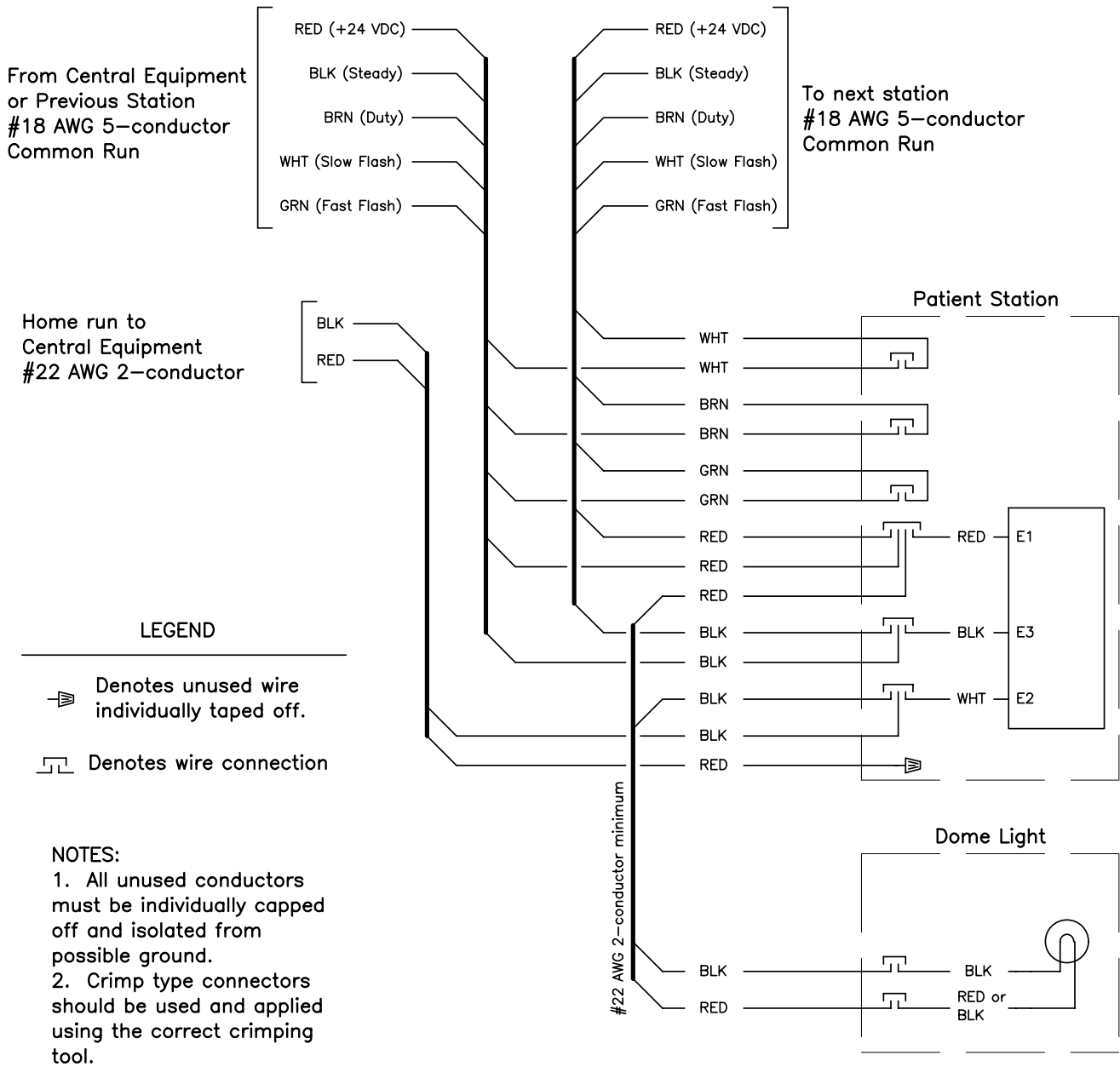


Figure 1. Connections for Patient Station Using Station-to-Station Cabling

Heritage Medcall Visual Nurse Call System
Patient and Duty Station Installation Instructions

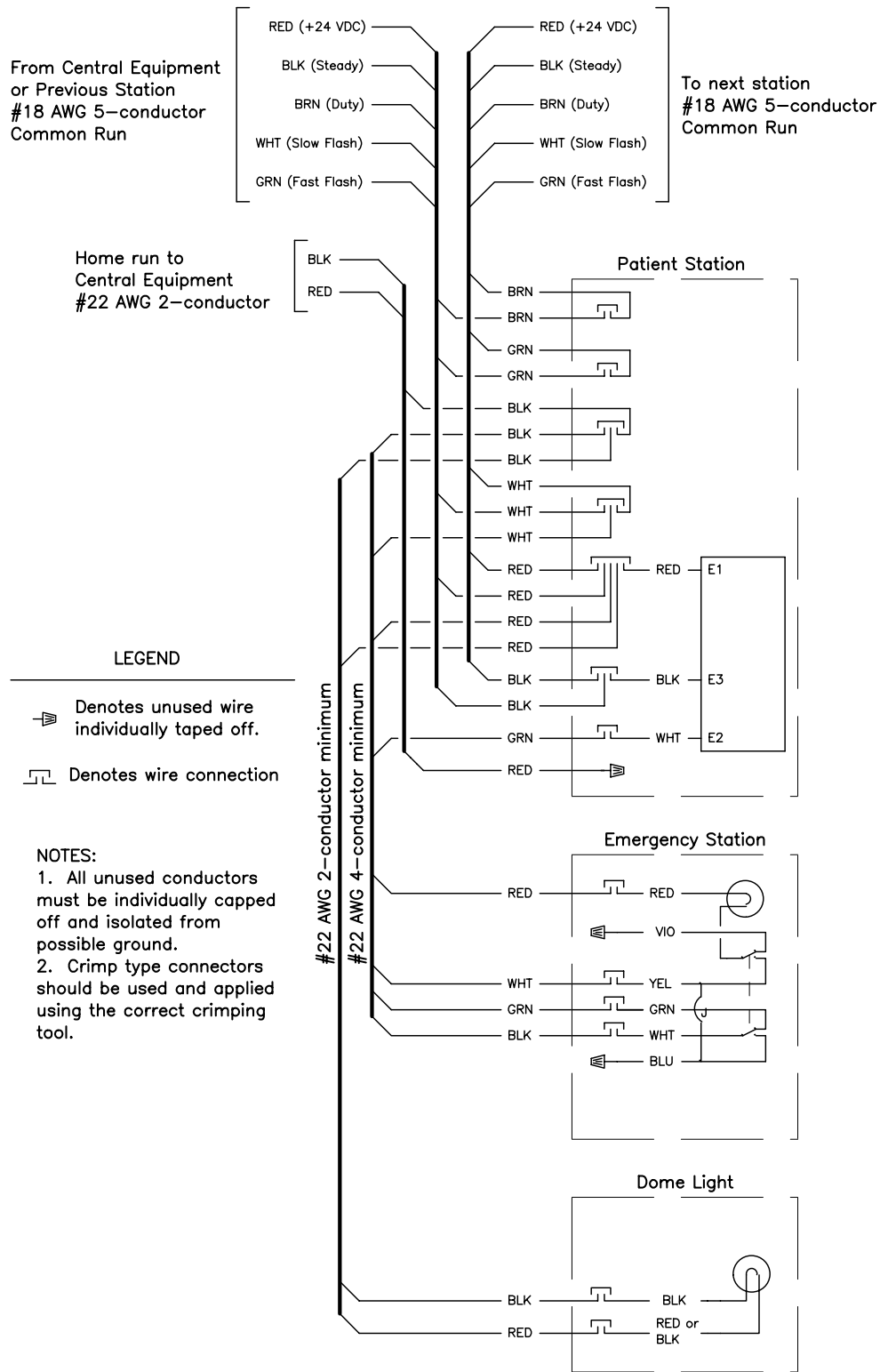


Figure 2. Connections for Patient Stations with Emergency Call Using Station-to-Station Cabling

Heritage Medcall Visual Nurse Call System
Patient and Duty Station Installation Instructions

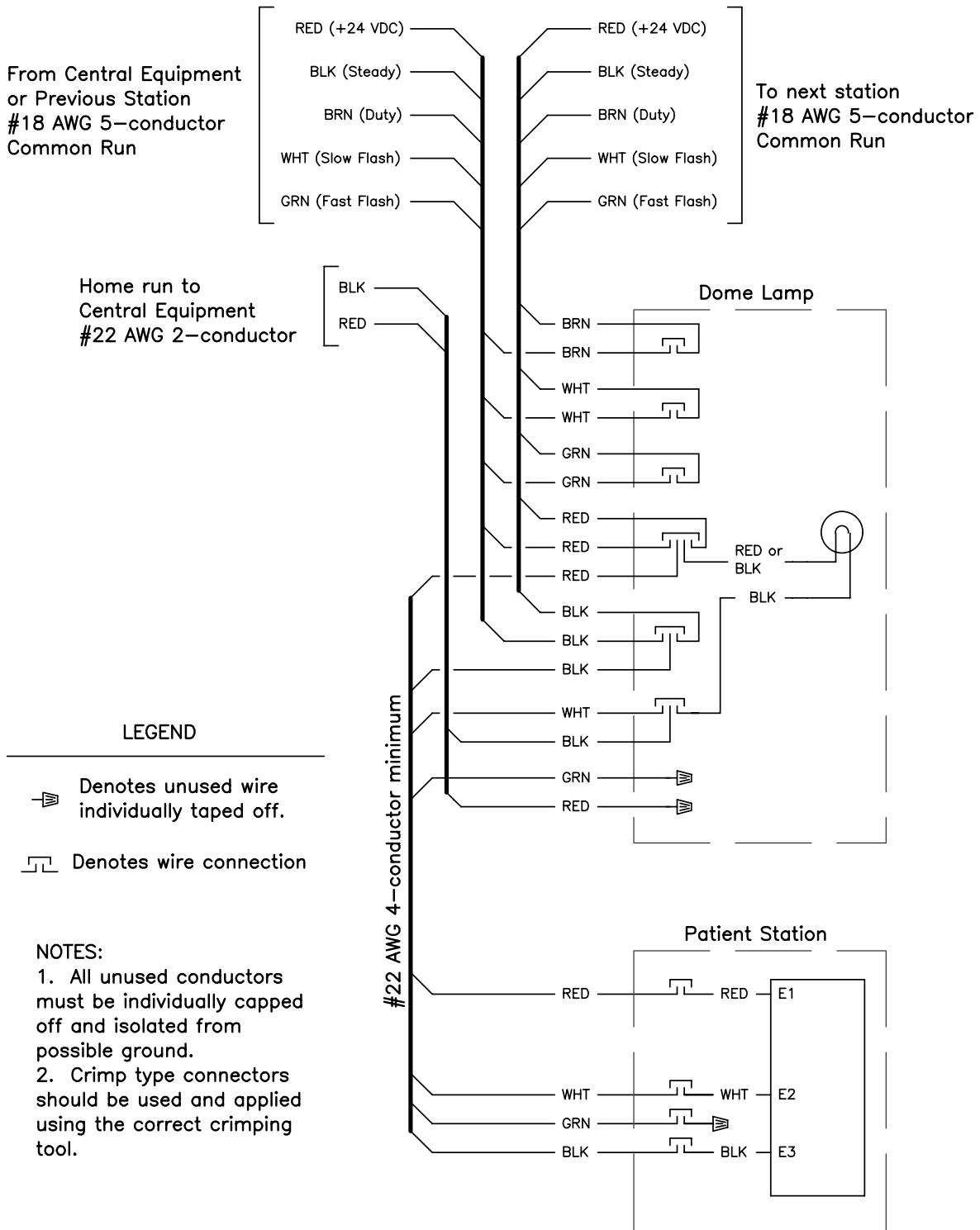


Figure 3. Connections for Patient Station Using Dome-to-Dome Cabling

Heritage Medcall Visual Nurse Call System
Patient and Duty Station Installation Instructions

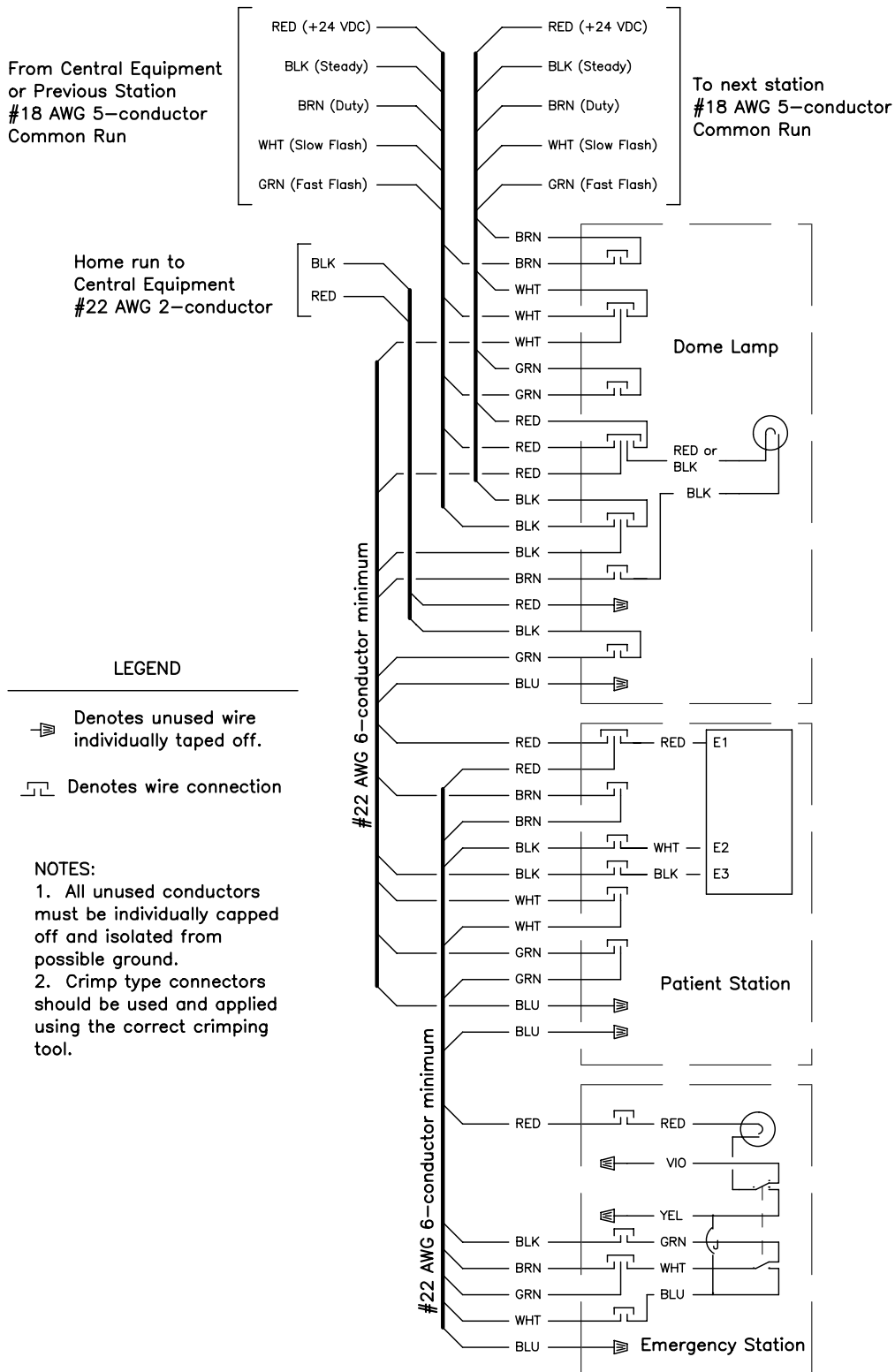


Figure 4. Connections for Patient Stations with Emergency Call Using Dome-to-Dome Cabling

Heritage Medcall Visual Nurse Call System Patient and Duty Station Installation Instructions

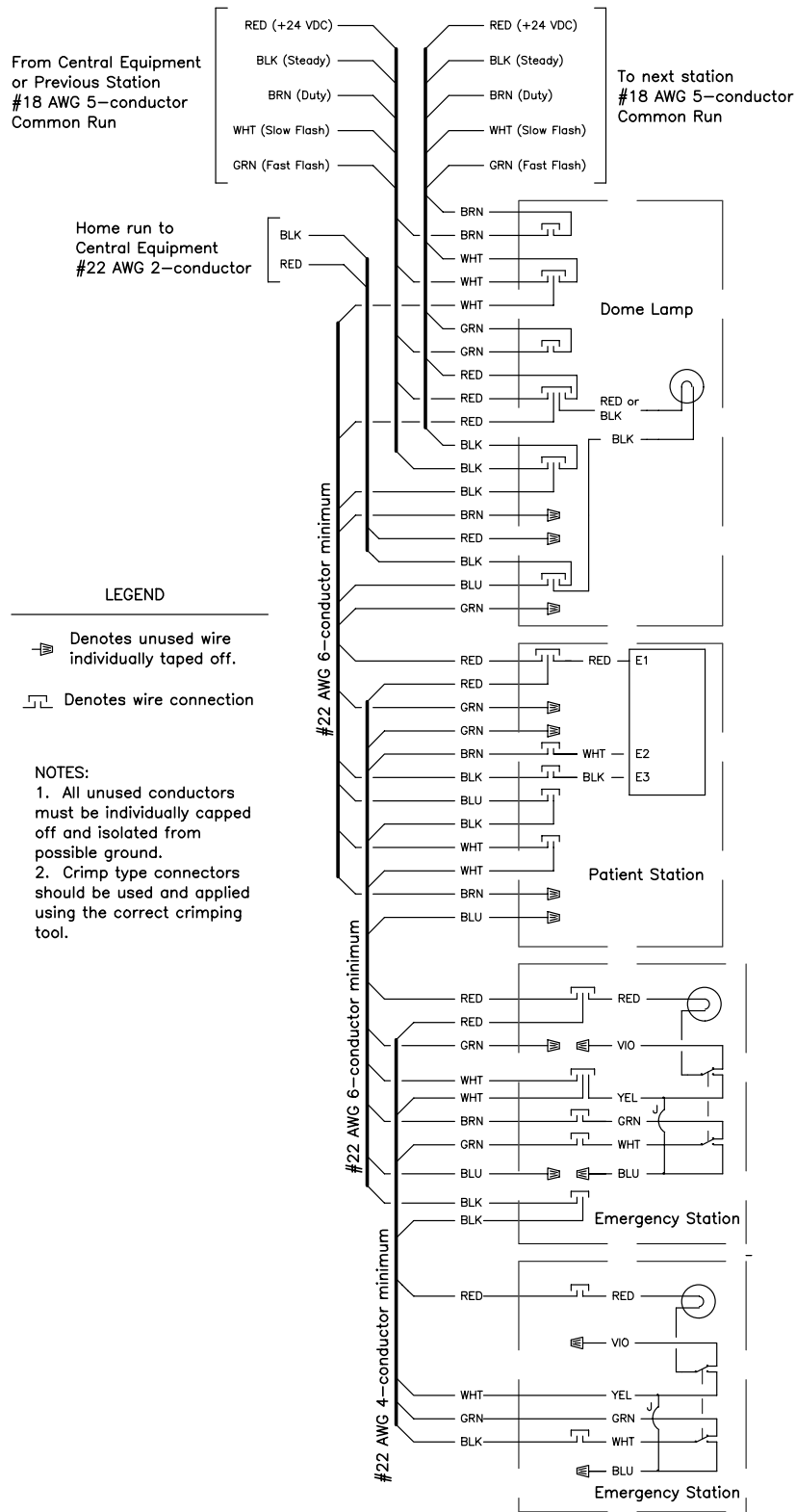


Figure 4a. Connections for Patient Station with Two Emergency Calls Using Dome-to-Dome Cabling

Heritage Medcall Visual Nurse Call System Patient and Duty Station Installation Instructions

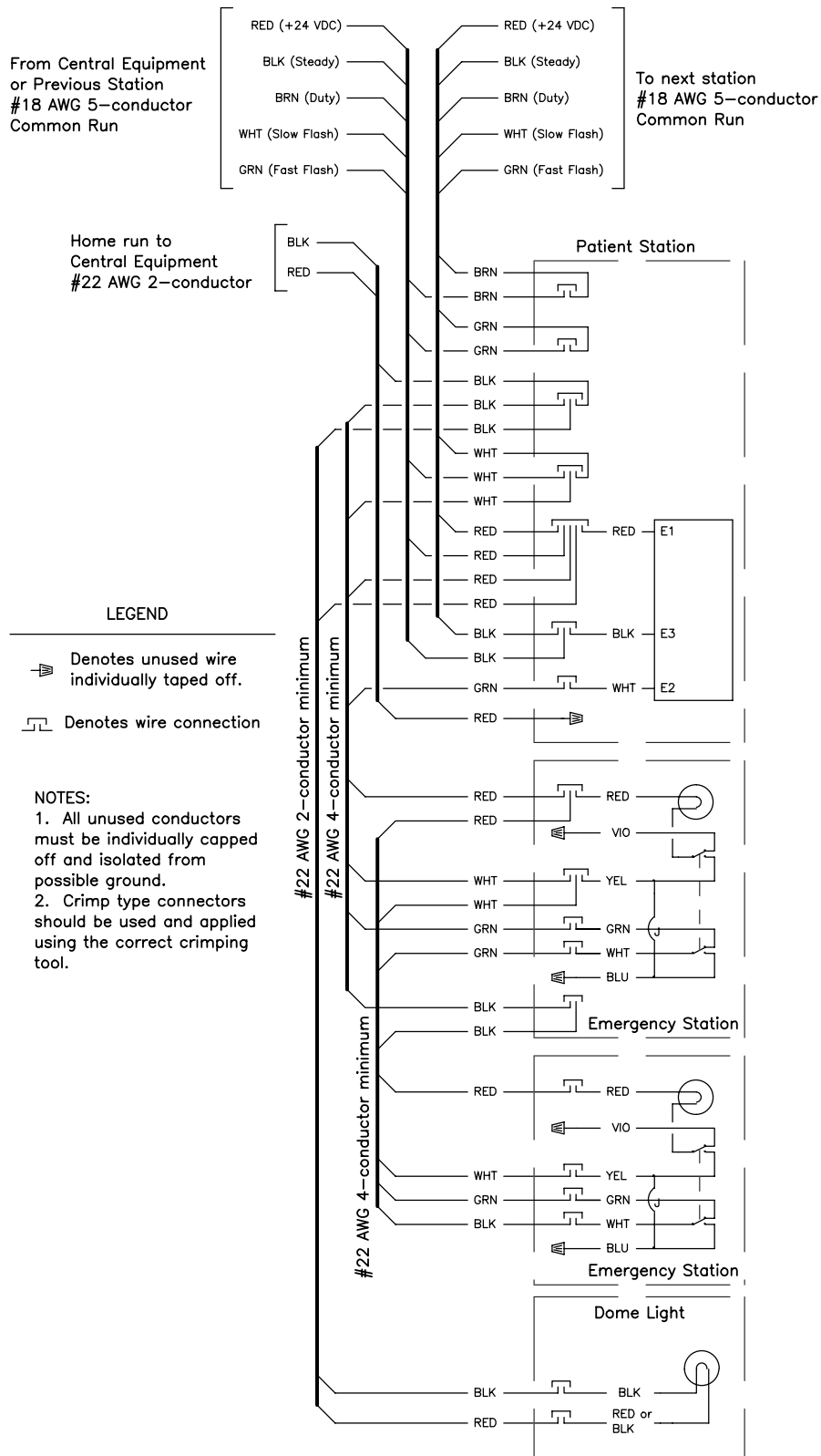


Figure 4b. Connections for Patient Station with Two Emergency Calls Using Station to-Station Cabling

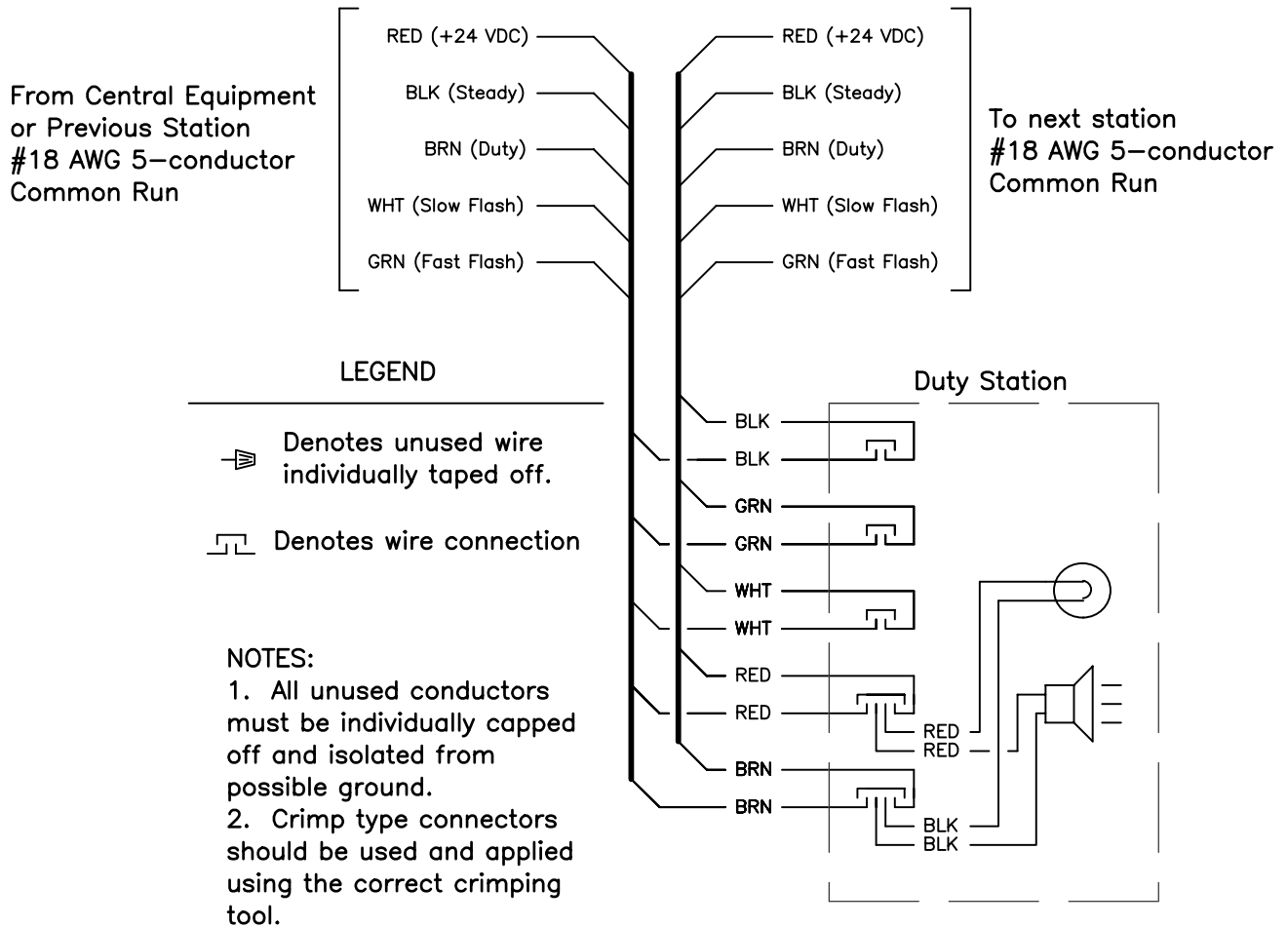
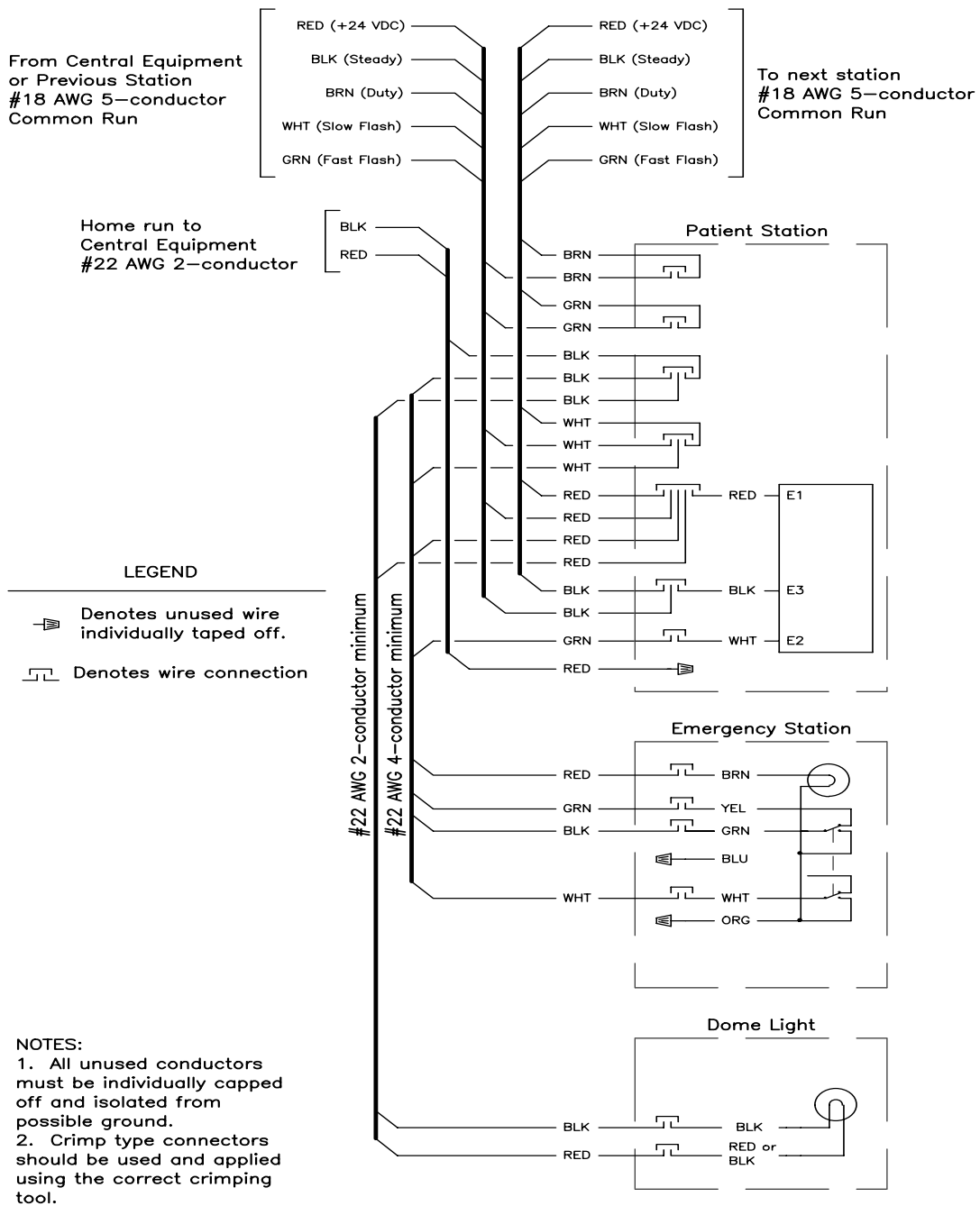


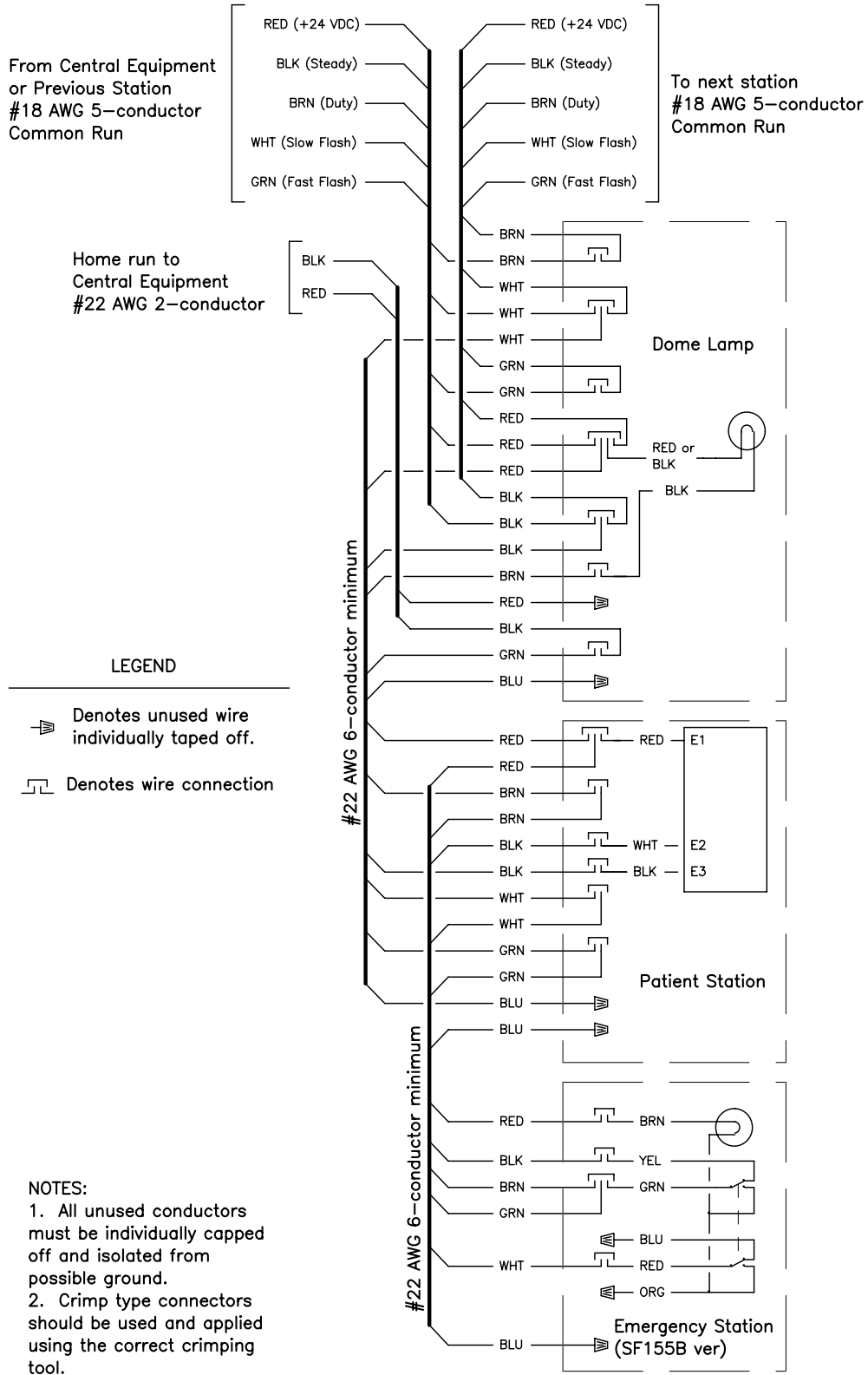
Figure 5. Connections for Duty Station

Heritage Medcall Visual Nurse Call System
Patient and Duty Station Installation Instructions



**Figure 6. Connections for Patient Stations with Emergency Call
Using Station-to-Station Cabling
Using Emergency Station SF155B**

Heritage Medcall Visual Nurse Call System
Patient and Duty Station Installation Instructions



**Figure 7. Connections for Patient Stations with Emergency Call
Using Dome-to-Dome Cabling
Using Emergency Station ver SF155B**

Heritage Medcall Visual Nurse Call System
Patient and Duty Station Installation Instructions

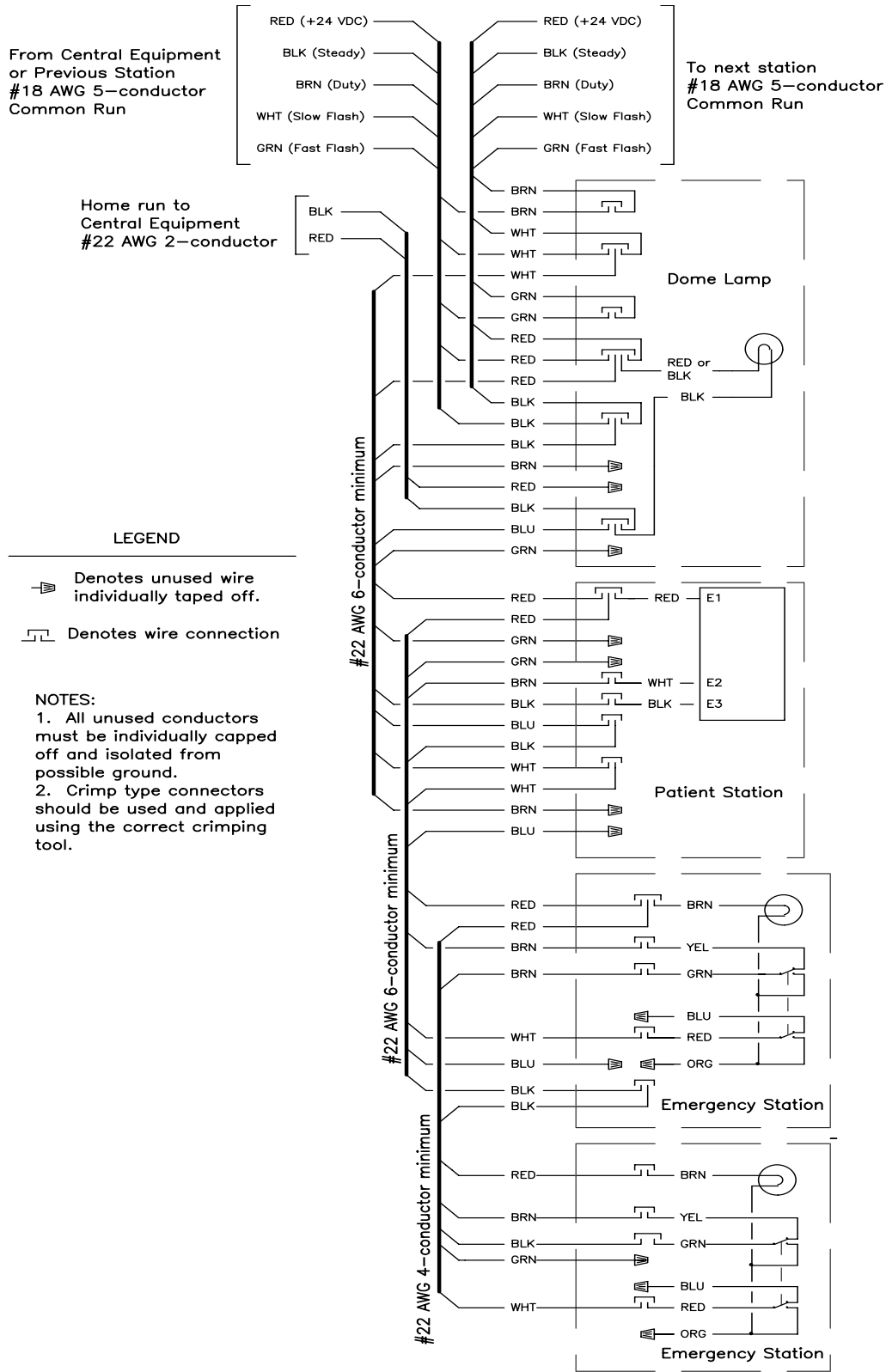


Figure 8. Connections for Patient Station with Two Emergency Calls Using Dome-to-Dome Cabling Using Emergency Station ver SF155B

Heritage Medcall Visual Nurse Call System
Patient and Duty Station Installation Instructions

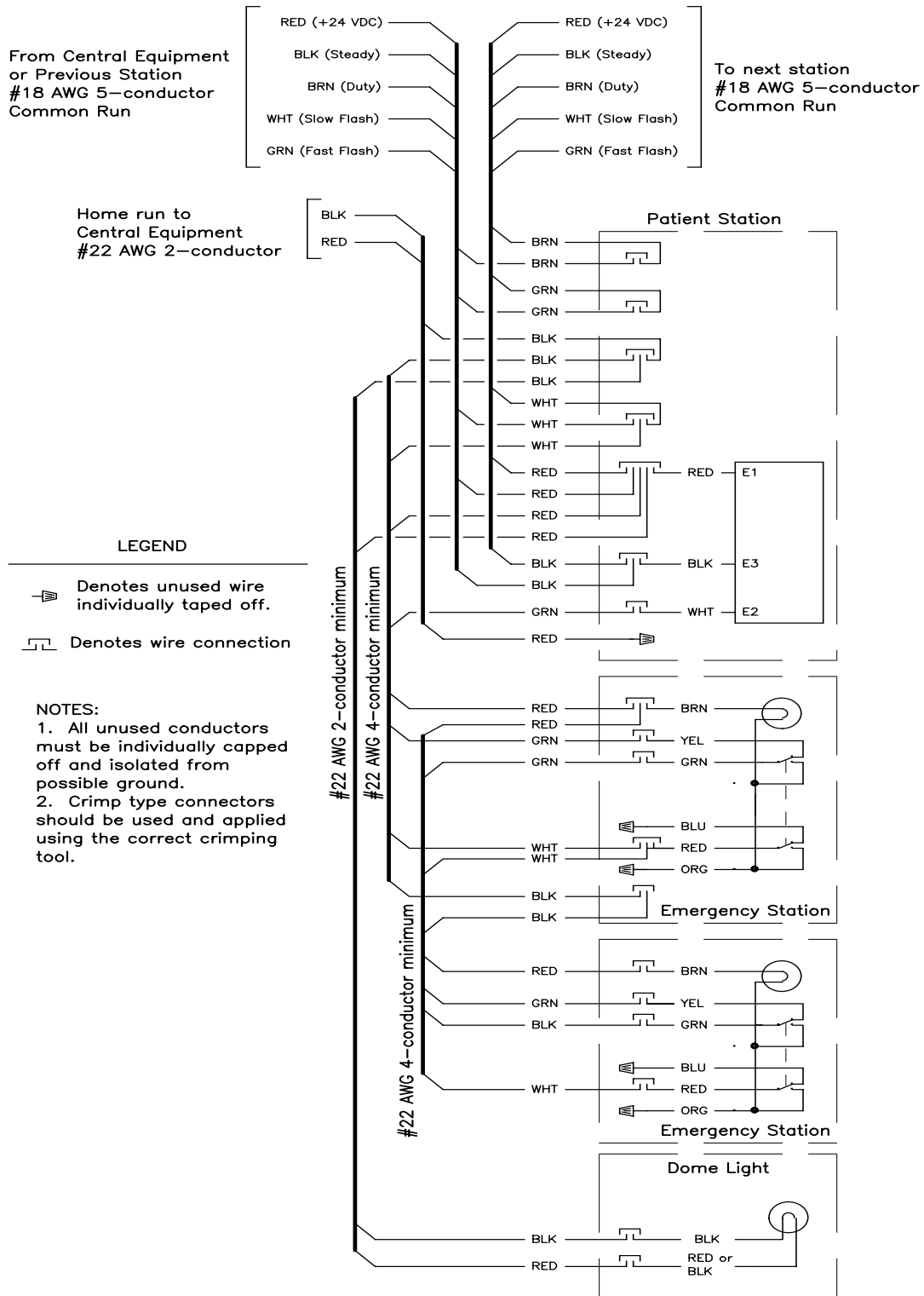


Figure 9. Connections for Patient Station with Two Emergency Calls Using Station-to-Station Cabling Using Emergency Station ver SF155B

Peripheral Equipment Installation Instructions

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3.1	Connecting the Staff Presence Indicator Station	2
3.2	Moounting the Staff Presence Indicator Station	3
4.	MULTI-SECTION DOME (ZONE) LAMP	3

PERIPHERAL EQUIPMENT INSTALLATION INSTRUCTIONS

1. INTRODUCTION

Please note that this section provides installation instructions which allow you to mount and connect Heritage MedCall VNS peripheral equipment. This specific information is to be used in conjunction with Table 1 in Section 600 which provides the necessary and proper installation sequence to get a system up and running safely and efficiently.

This section provides detailed installation instructions for peripherals used along with patient stations and duty stations. Covered in this section are:

Code Blue Emergency Station
Toilet Emergency Station
Staff Presence Indicator Stations
Multi-Sectional Zone (Dome) Lamp
Dome Lamp

2. TOILET EMERGENCY STATION

The emergency stations can be connected as an independent station unit, or they can be connected in conjunction with a patient station. In either case, the system wiring may be dome-to-dome or station-to-station. See the appropriate figures when connecting the emergency stations.

2.1 Connecting an Emergency Station

WARNING: Do NOT perform any connections with the system power on.

- a. Connect the conductor for the flash bus to the emergency station as shown in figure 1, 2, 3, or 4 as applicable.
- b. Connect the home run conductor to the emergency station.

- c. Connect the dome lamp to the emergency station using Figure 2, 3, 4 or 5 as applicable.

CAUTION: Pay close attention to the notes in Figures 2, 3, 4 or 5 and check all connections carefully.

NOTE: Do not cut off unused cable wires; all unused conductors must be individually capped off and isolated from possible ground faults.

2.2 Mounting the Emergency Station

When connections are completed, mount the unit as follows:

- a. Loosely mount the switch assembly onto the backbox with the two nylon screws provided.
- b. Rotate the unit to attain proper level and tighten the two nylon screws.

CAUTION: Over tightening these screws may cause the faceplate to distort.

3. STAFF PRESENCE INDICATOR STATIONS

The staff presence indicator stations are used to register the presence of staff, such as nurses and assistants. The unit is connected via home runs back to the central equipment then out to the annunciator panel(s) in order to display the presence of the staff

3.1 Connecting the Staff Presence Indicator Station

WARNING: Do NOT perform, any connections with the system power on.

- a. Connect the home run conductors to the wires of the staff presence indicator station using Figure 6 as a reference.

CAUTION: Pay close attention to the notes In Figure 6, check all connections carefully.

NOTE: Do not cut off unused cable wires; all unused conductors must be Individually capped off and Isolated from possible ground faults.

3.2 Mounting the Staff Presence Indicator Station

When the connections are completed, mount the unit as follows:

- a. Mount the unit onto the backbox using the two nylon screws provided.
- b. Slightly tighten these screws once their heads are in contact with the faceplate.

CAUTION: Over tightening these screws may cause the faceplate to distort.

4. MULTI-SECTIONAL DOME (ZONE) LAMP

The surface wall or ceiling mounted dome lamp assembly is available as a single dome cover with one to four colored bulbs, or as a surface mount plate with one to four annunciator lamp/lens assemblies. The latter unit is used where a more discrete indicator is desired.

The dome lamp assembly with colored bulbs (Models HM-DM1 to HM-DM4) is equipped with mounting holes to allow assembly to a single or two-gang backbox ring. The dome lamp assemblies with annunciator style lamps in one to three lamp models (HM-D1 to HM-D3) mount to a single gang ring. The four-lamp style (Model HM-D4) mounts to a two-gang backbox.

When connected to the zone control module, the dome lamp serves as a zone lamp providing visual signaling for all calls placed from a particular zone. When connected to a patient station, the dome lamp serves as visual signal for all calls placed from that patient station. Connections for both applications are included in this section.

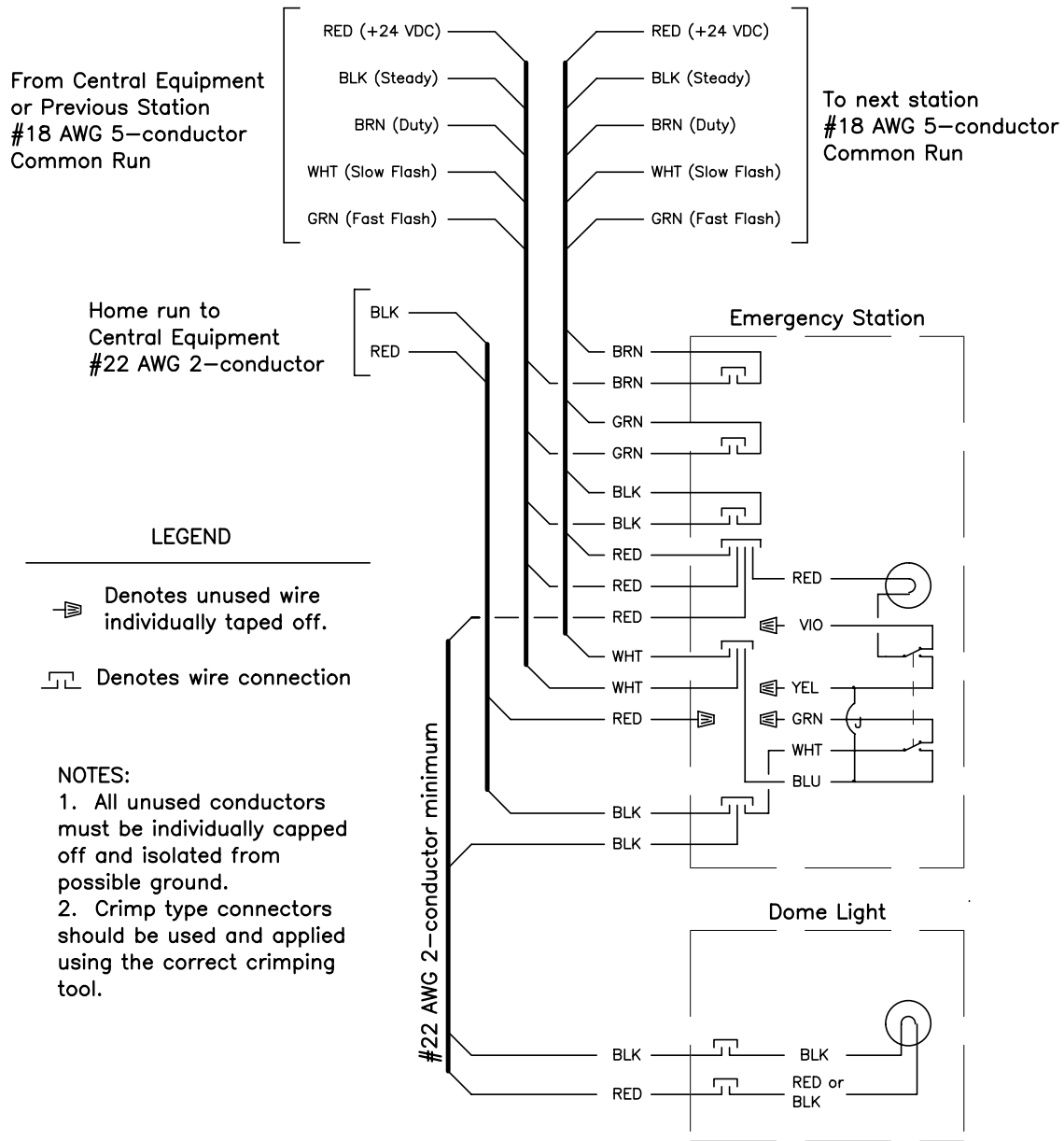


Figure 1. Connections for Independent Emergency Station Using Station-to-Station Cabling

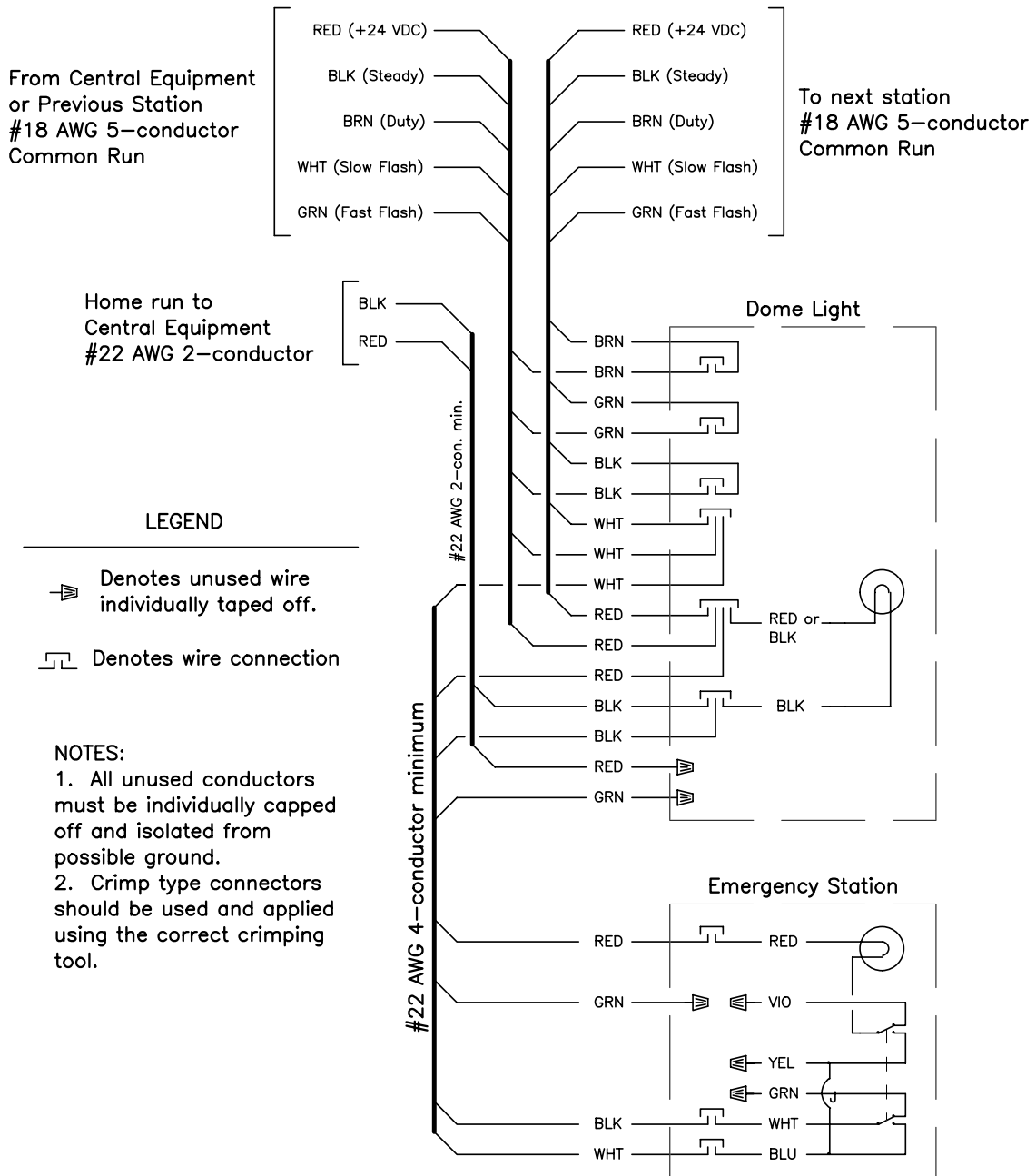


Figure 2. Connections for Independent Emergency Stations Using Station-to-Station Cabling

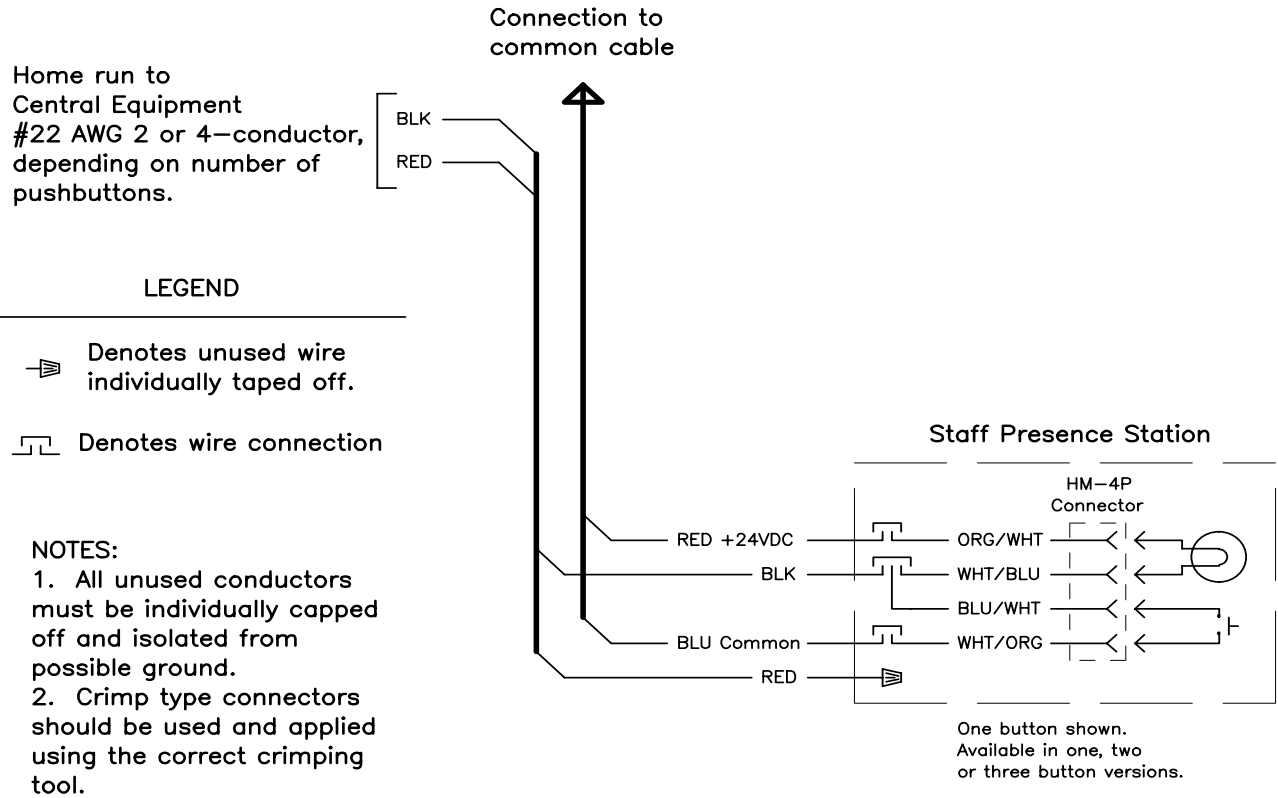


Figure 5. Connections for Staff Presence Station

Heritage Medcall Visual Nurse Call System Peripheral Equipment Installation Instructions

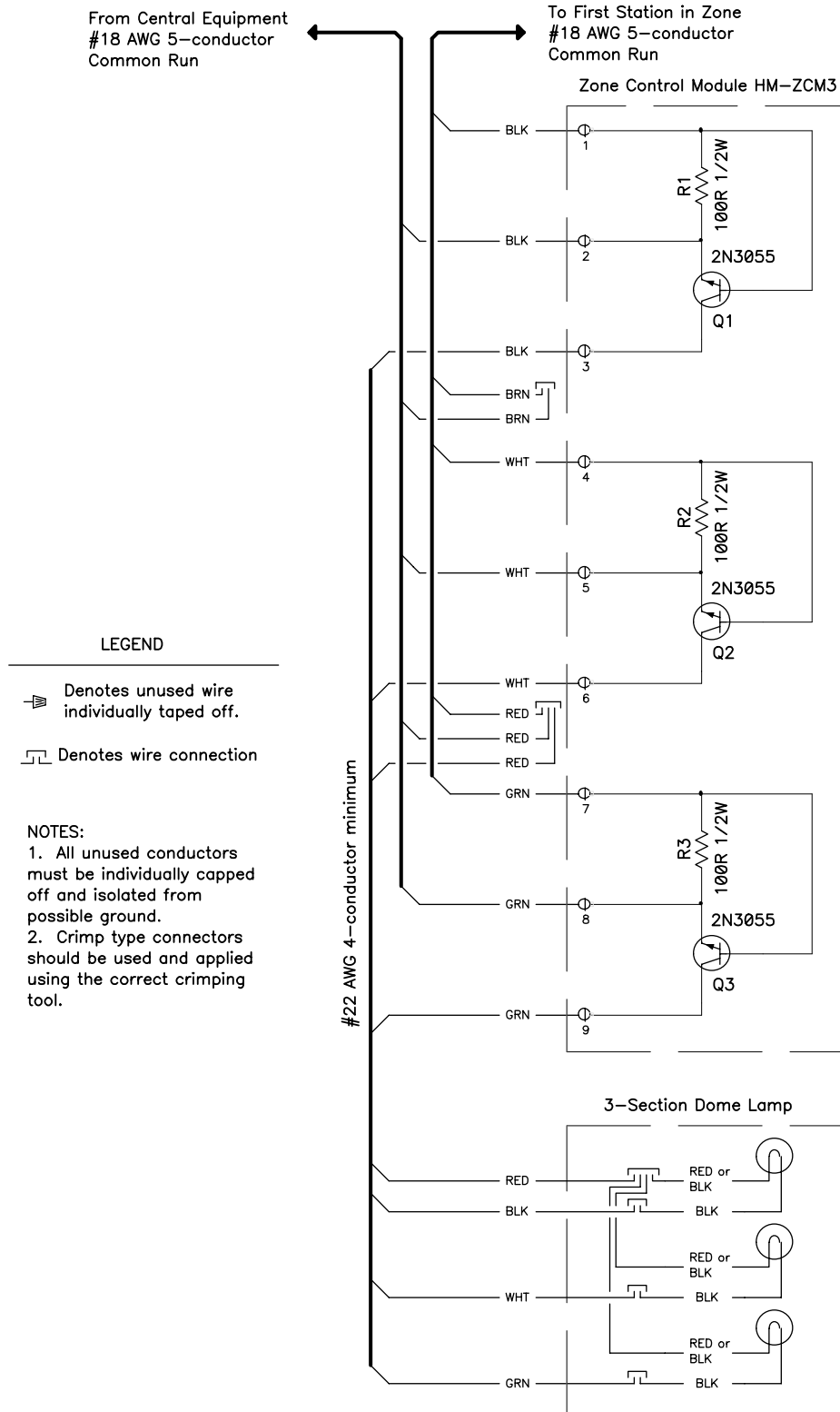


Figure 6. Connections for Zone Dome Light Control

Heritage Medcall Visual Nurse Call System
Peripheral Equipment Installation Instructions

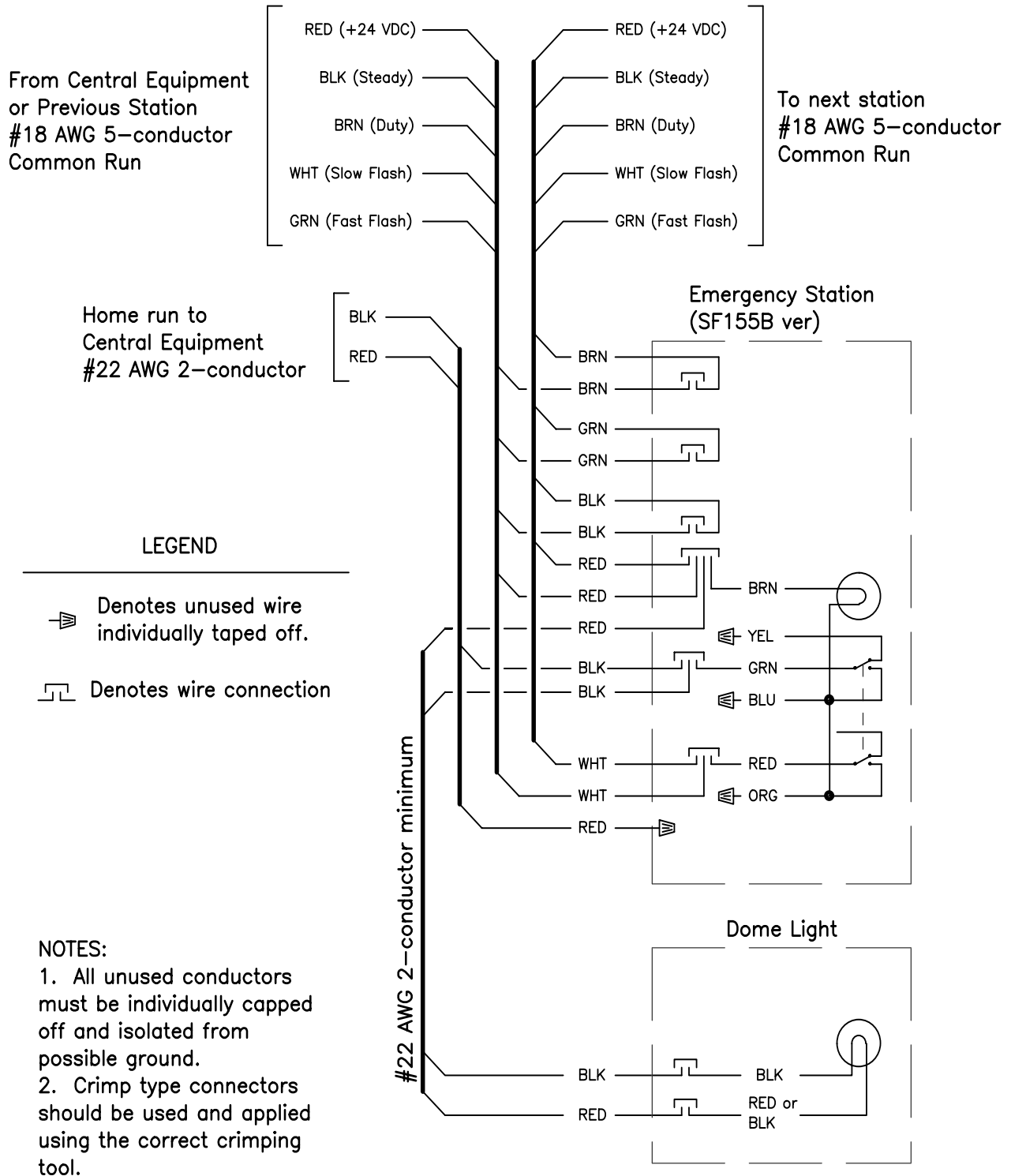


Figure 7. Connections for Independent Emergency Station Using Station-to-Station Cabling Using Emergency Station version SF155B

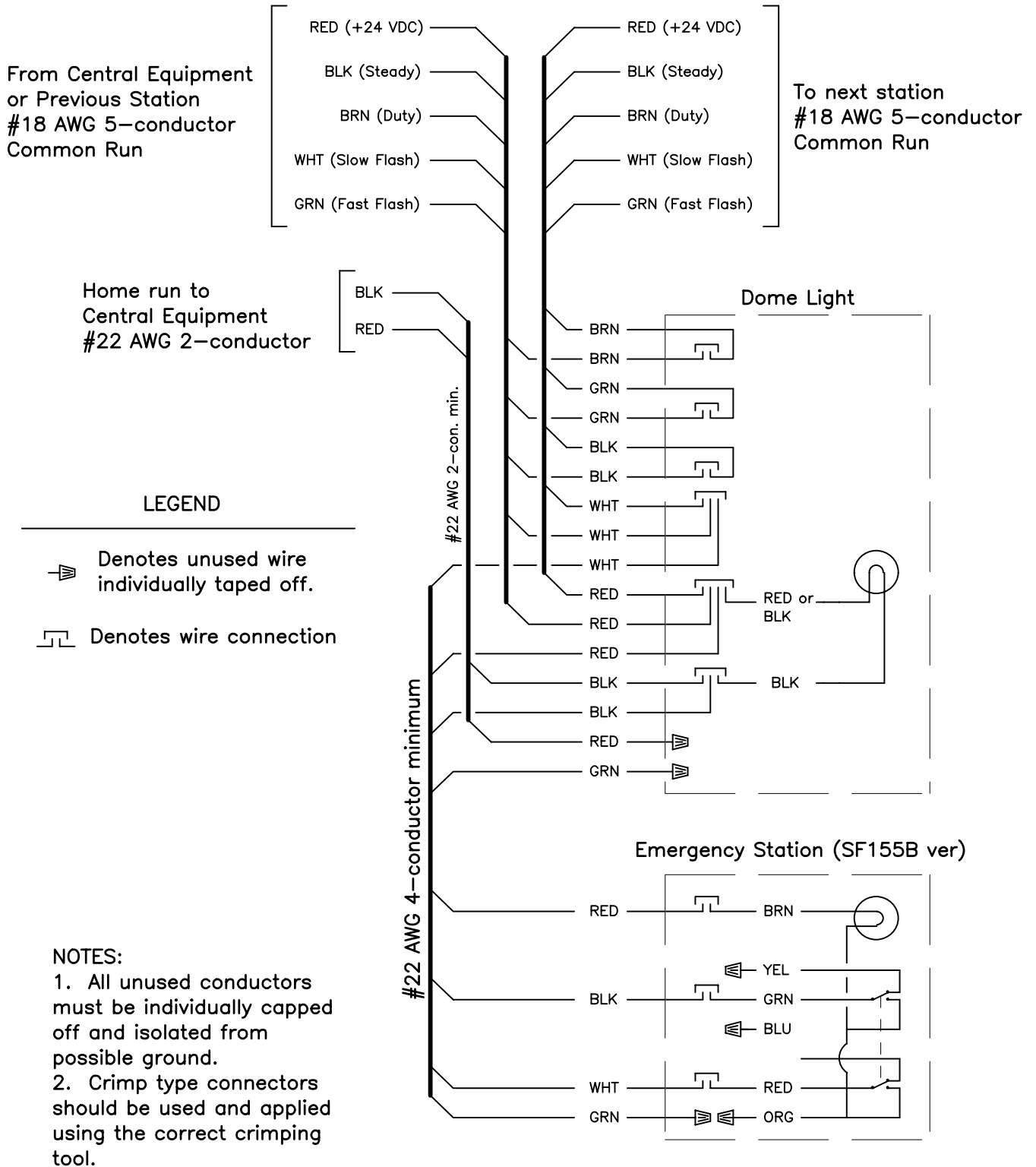


Figure 8. Connections for Independent Emergency Stations Using Dome-to-Dome Cabling Using Emergency Station version SF155B