

Area of Refuge/Area of Rescue Assistance Signal System - Digital

Series 4800 Audio/Visual Series
Architectural Specifications

This document specifies Area of Refuge/Area of Rescue Assistance equipment for emergency signaling. This system provides voice communication that is initiated by depressing the call station button, transmitting the signal to a central control panel manufactured by Cornell Communications, Inc., Milwaukee, WI.

Part 1 General

1.01 SUMMARY

- A. Section Includes:** Furnish, install, and wire all equipment associated with the installation of a Digital Area of Refuge/Area of Rescue Assistance Signal System to comply with IBC-2009 and ADA (Americans with Disabilities Act) requirements. This work shall include a main control panel, optional remote control panels, an internal modem, optional proprietary field switches for systems over 8 zones, remote call stations, power supply(s), outlet boxes, cables and wiring as shown on the drawings and as specified herein.

1.02 SUBMITTALS

- A. General:** Data sheets on all equipment being provided as well as recommended cable types. Internal control cabinet drawings showing internal block diagram connections shall be provided. Wiring diagrams showing typical field wiring connections as well as single line floor plan indicating equipment locations as well as cable routings and quantities.
- B. Product Data:** Submit product data, including manufacturer's (Specifications-Data) product sheet, for specified products.
- C. Shop Drawings:** Submit shop drawings showing layout, profiles, and product components, including anchorage and accessories. Include cabling diagrams, wiring diagrams, station installation details, and equipment cabinet details.
- D. Quality Assurance Submittals:** Submit the following:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics.
 - 2. Manufacturer's Instructions: Manufacturer's installation instructions.

3. **Manufacturer's Field Reports:** Manufacturer's field reports specified herein.

E. Closeout Submittals: Submit the following:

1. **Operation and Maintenance Data:** Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section.
2. **Warranty:** Warranty documents specified herein.

F. Project Closeout

1. A one-year maintenance contract offering continued factory authorized service of this system shall be provided as part of this contract.
2. The contractor shall furnish manufacturer's manuals of the completed system including individual specifications sheets, schematics, inter-panel and intra-panel wiring diagrams.
 - a. All information necessary for the proper maintenance and operation of the system must be included.
 - b. Provide four copies.
3. As built drawings that include changes to wiring, wiring designations, junction box labeling, and other pertinent information shall be supplied upon completion of the project.
4. Provide a minimum of two (2) hours of in-service training with the system.
 - a. These sessions shall be broken into segments that will facilitate the training of the system users in operating station equipment.
 - b. Operating manuals and user's guides shall be provided at the time of training.

1.03 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

1. **Warranty Period:** [Specify term.] years commencing on the Date of Substantial Completion.
2. All materials and installation shall be guaranteed to be free of defects in material and workmanship for one year after final acceptance of installation and tests.

1.04 INSTALLATION STANDARDS

- A.** The system shall be installed in accordance with the IBC-2009 and ADA (Americans with Disabilities Act) requirements.
- B.** The completed system shall be in compliance with state and local electrical codes.
- C.** All wiring shall test free from grounds and shorts.
- D.** Install according to the manufacturer's wiring diagrams.
- E.** The 4800 Digital Emergency Communications System requires installation by factory trained authorized dealers/distributors, in accordance with ANSI/NFPA 70 National Electrical Code and NFPA 72 Fire Alarm Code.
- F.** Properly trained personnel, familiar with Telecommunications Industry Associations 568 TIA/EIA standard, are required for proper installation. Failure to terminate the wiring correctly will cause damage to the system and void the warranty.
- G.** The 4800 Digital Emergency Communication System shall be installed in a controlled, indoor dry environment, with temperatures maintained between 55°F and 95°F.

1.05 SYSTEM OPERATIONS

- A.** Furnish, install, and place into operation a Digital Rescue Assistance System as indicated on the drawings and as specified herein.
- B.** A common control panel shall be provided at the main building entrance or other location as authorized by local authority or the fire department where shown on the drawings to indicate light and tone signals from multiple remote call stations and allow voice communication. Optionally, up to four secondary panels can also be installed throughout the building to allow alternate locations to respond to a call for assistance.
 - 1. When the system is operational, a LED signals power on.
 - 2. When the remote call station switch is activated, a one shot tone is made at the call station and a LED is lit that is steady. The call is displayed digitally on the control panel(s) with a tone along with a display of the call and its location on a 40-character LCD four line display.
 - 3. When the alarm signal is answered by the control panel, the remote call station is signaled by the LED flashing that voice communication is initiated.

4. Voice communication with the remote call station can then be initiated from the control panel via a handset.
5. External modem connection to a public telephone system shall be provided after a programmable time delay.
6. The system shall poll (supervise) all the call stations, control panels and field switches on a continuous basis at least every 200 seconds to identify line faults and defective equipment. Faults will be alerted and displayed at the control panel(s).

Part 2 Products (Rescue Assistance System - Digital)

2.01 RESCUE ASSISTANCE-AUDIO/VISUAL EQUIPMENT

A. Manufacturer: Cornell Communications, Inc.

1. Contact: 7915 N 81st St., Milwaukee, WI 53223-3830;
Telephone: 800- 558-8957; (414) 351-4660; Fax: (414) 351-4657

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

2.03 CORNELL 4800 RESCUE ASSISTANCE-DIGITAL SYSTEM AND COMPONENTS

A. Equipment

1. This system shall consist of multiple remote call stations, which will communicate with one to five control panels and have access to a public telephone system for external alarm notification and two-way voice communication. Expansion Switches will also be utilized when the number of call stations exceeds eight.
2. The digital communication system is based on Ethernet/CobraNet technology. It consists of four primary components, a Control Panel, Call Station(s), Expansion Switch(es) and Power Supplies. In any given system there will be at least one Control Panel and between one and 255 Call Stations. The system will support a maximum of five Control Panels. For larger systems, Expansion Switches may be used. The Expansion Switch is based on the Control Panel hardware design. The Control Panel and Expansion Switch are eight port proprietary switches. The Control Panel and/or Expansion Switches power the Remote Call Stations. The system interconnects using standard CAT-5 cable. The Ethernet restriction of 100m of cable between a Control Panel and/or Expansion Switch and endpoint applies.
3. System also requires (1) Pair #16 AWG, stranded, non-shielded cable, from the PS to the Control Panels/Switches for power and (1) Pair #22 AWG,

stranded, non-shielded cable, circulating from the PS to all of the Power Detect (J9) connections on the Control Panel.

B. Control Panel(s)

1. When the system is operational, a LED signals power on. When the system is operating in battery power mode a different LED will be on.
2. The main control panel shall be a CORNELL Model A-4800M or remote control panel shall be a CORNELL Model A-4800R, with capacity for 255 zones utilizing Ethernet/CobraNet technology. The panel can be surface mounted at the Main Fire Department Entrance to the building or other location as authorized by the local authority or fire department. Optional secondary control panels shall also be installed at the following locations (specified by the facility)_____.
 - a. Verify locations with the Local Fire Marshal and the Architect.
3. A LCD display shall display the first three zones in alarm status. Up to 255 zones can be seen via a scroll button.
 - a. Each zone alarm will be identified by a building identifier, the floor location, and the description of the area.
 - b. In the case of an electrical fault: a system fault LED light on the control panel shall illuminate, the fault location will be shown on the LCD display and the alarm shall emit a repeating sound.
4. An audible alarm shall be mounted on the annunciator panel, which will emit a minimum sound level of 90 db at 30 cm when a remote zone station calls.
 - a. Depressing the select zone switch will answer a call and open the intercom line to the first zone displayed. You can talk to the zone via the handset, which operates in full duplex mode.
 - b. Depressing the select switch again will end the call, change the call status to answered, move the next call to the first line of the display, which allows you to repeat step 4 above answering the next call.
 - c. If you desire to review all calls: press the scroll button to step through the list of calls.
5. The control panel shall have operating directions as well as both alarm and voice mute buttons.
6. The power supply shall be a 24VDC emergency battery backup, CORNELL model B-5243B or B-5248A. Additional power supplies may be required for larger systems.
7. The internal modem will place a call to a designated location via a dedicated public telephone line to notify them of the alarm after a user programmed delay to allow for local response.
8. The system will be configured via a USB flash drive and laptop computer.
9. Raw call data can be optionally logged via the RS-232 terminal interface to a device such as a laptop or desktop computer.

C. Remote Call Stations

1. The remote call station shall be CORNELL Model 4800V, with a momentary switch, microphone, and loudspeaker utilizing Ethernet/CobraNet technology.
2. The station shall have hands free voice communication with the control panel.
3. The station shall have silk-screened operating instructions.
4. The Cornell Model 4800V shall be Vandal Resistant. The standard two gang mounting plate can be flush or surface mounted and incorporates heavy-duty switches and speakers along with stainless steel plates.

D. Field Switches

1. The field switch shall be CORNELL Model ES-4808 with 8 ports utilizing Ethernet/CobraNet proprietary technology.

2.04 SOURCE QUALITY

- A. Source Quality:** Obtain rescue assistance equipment and system from a single manufacturer.

Part 3 Execution

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance:** Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.

3.02 EXAMINATION

- A. Site Verification of Conditions:** Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. Cabling Requirements

1. Wiring from the control panel to secondary control panels, field switches and the call stations shall be industry standard CAT-5 cable.

2. Power requires (1) Pair #16 AWG, stranded, non-shielded cable, from the PS to the Control Panels/Switches for power and (1) Pair #22 AWG, stranded, non-shielded cable, circulating from the PS to all of the Power Detect (J9) connections on the Control Panel.
3. Verify cable types with the Rescue Assistance System Manufacturer.

B. Rescue Assistance Signal System - Audio/Visual Installation

1. Complete system shall be installed in strict accordance with manufacturer's recommendations.
2. Wiring shall be installed in raceways throughout the building.
 - a. Conduit, if required, shall be 1/2" minimum. Depending upon local building codes, plenum rated or fire rated cable may be required.

3.04 FIELD QUALITY REQUIREMENTS

- A. Site Tests (Post Installation Testing):** Checkout final connections to the system shall be made by a factory technician authorized by the manufacturer of the products installed.
1. Factory authorized technicians shall demonstrate operation of the complete system and each major component to the staff.
 2. System field wiring diagrams shall be provided to the subcontractor by the manufacturer prior to installation.
- B. Inspection:** Perform a complete functional test of the system upon completion of the installation and instruct the staff in the operation and maintenance of the system.

3.05 CLEANING

- A. Cleaning:** Repair or replace damaged installed products. Remove construction debris from project site and legally dispose of debris.