



**CH1000 Integrated Security Communication System
Specification**

Revision 2.0

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CareHawk CH1000 Specification

1. SUBMITTALS

- 1.1. The vendor shall provide the following documentation and service:
- 1.1.1. Shop drawings: 3 sets. These drawings shall include the manufacturers' specification sheets, including all component parts.
 - 1.1.2. As-built drawings: 3 sets. They should include up-to-date drawings including any changes made to the system during installation. Circuit diagrams and other information necessary for the proper operation and maintenance of the system shall be included.
 - 1.1.3. All material and/or equipment necessary for the proper operation of the system, even though not specifically mentioned in the contract documents, shall be deemed part of this contract.

2. OPERATION AND MAINTENANCE DATA

- 2.1.1. Submit operation and maintenance data under provisions of Section < >.
- 2.1.2. Include operator instructions for each required mode of operation, routine troubleshooting procedures, manufacturer's operation and maintenance manual for each item of equipment and accessory, and routine cleaning methods and materials.

3. QUALIFICATIONS

- 3.1.1. To establish continuity in manufacturer, system components shall be the standard product of one manufacturer. Further, an effort shall be made to establish common sources for equipment of all systems.
- 3.1.2. The work to be provided under this Section consists of furnishing and installing all equipment, cabling, and labor required for complete, operable, new intercommunications systems for the School < >. These systems shall be referred to as the LOW VOLTAGE SYSTEMS and their supplier as the LOW VOLTAGE CONTRACTOR.
- 3.1.3. All empty conduit and power required for the electronic systems shall be supplied by the electrical contractor as a complete raceway system. Return air plenum cable shall be used as an option at the electrical contractor's discretion. All plenum cable shall meet all applicable local and national codes.
- 3.1.4. The electrical contractor shall accept bids from pre-qualified low voltage contractors/suppliers. Prices shall reflect cost of low voltage systems as completely installed, but the conduit or raceway for these systems should not be included in this figure. However, if plenum cable is used, it shall be included

in the low voltage contractor's price. The electrical contractor's base bid shall include the BASE BID SYSTEMS as specified.

- 3.1.5.** To establish single source responsibility for installation and future service of low voltage systems, a contract or subcontract shall be issued to a single qualified low voltage contractor. This low voltage contractor will supply and install all the low voltage systems. Further, this contractor shall supply and install all necessary components for complete, working, and functionally acceptable low voltage systems.
- 3.1.6.** The low voltage contractor must be a factory-authorized representative or distributor of all equipment used in the low voltage systems. Further, this contractor must have a minimum of five years of experience in the specific application of the equipment proposed for these systems. Provide a letter signed by an officer of the manufacturer attesting to the contractor's direct affiliation with the manufacturer.

4. REGULATORY REQUIREMENTS

- 4.1.1.** The entire installation shall comply with all applicable electrical and safety codes. All central equipment and additional applicable equipment shall meet any required Underwriters' Laboratories, US and Canadian standards.
- 4.1.2.** All equipment with digital apparatus (microprocessors) that generate and use timing signals at a rate in excess of 9,000 pulses per second to compute and operate must meet Federal Communications Commission (FCC) and DOC CSA standards C108.8 (Electromagnetic Emissions). Any non-compliant equipment supplied or installed shall not be accepted and shall nullify the contract.

5. MAINTENANCE SERVICE

- 5.1.1.** The communications bidder supplying the equipment shall show satisfactory evidence, upon request, that they maintain a fully equipped service organization capable of furnishing adequate inspection and service to the system, including replacement parts. The vendor shall be prepared to offer a service contract for the maintenance of the system after the guarantee period. The bidder shall produce evidence that they have a fully experienced and established service organization for at least five years and proven satisfactory installations during that time.

SYSTEM INFORMATION

6. VOICE COMMUNICATIONS

- 6.1.1.** Furnish and install a microprocessor-controlled integrated security and voice communications system with all conduit, wire, outlets, and equipment as shown on the drawings and as herein specified to provide a complete sound, program distribution, and voice intercommunications system in the building.
- 6.1.2.** Furnish and install the required number of Display Administrative Console (DA1) with all conduit, wire, outlets, and equipment as shown on the drawings.
- 6.1.3.** All field wiring shall be standard CAT-5 type terminated with RJ45 connectors. Systems that do not use CAT-5 wire shall not be considered.

7. SYSTEM COMPONENTS

- 7.1.1.** The CareHawk CH1000 is a distributed, multi-channel, microprocessor-controlled security communication system. The system architecture shall allow for Security Switching Cards (SS16) that contains 16 audio ports to be remotely installed up to 2500 feet from the central cabinet. Each SS16 shall only require one CAT5 wire run back to the central cabinet. The system shall provide one independent intercom channels between any DA1 and loudspeakers. One additional simultaneously operating channel shall be provided for distribution of audio program material.
- 7.1.2.** The system shall be capable of providing integration to third-party PBX systems over an analog CO port, allowing operators to handle calls from telephones connected to the PBX system, as well as DA1 telephone and intercom calls.
- 7.1.3.** The system shall be capable of providing individual control of inputs from and outputs to external devices.
- 7.1.4.** Rooms shall be equipped with call-in buttons. Call-ins from rooms shall allow for a minimum of two priority levels. Upon arrival at the designated DA1 the call shall be visually displayed and audibly annunciated. The system shall be capable of accepting up to sixteen call-in devices per SS16 circuit, each with different priorities and destination locations, over the same pair of wires.
- 7.1.5.** The system shall have the capability for modular capacities of 128 audio ports and 8 DA1s.
- 7.1.6.** Systems that are not capable of being distributed on a modular basis, or are not expandable or require replacement of any previously installed equipment in order to facilitate expansion shall not be acceptable.

- 7.1.7.** The system shall be expandable in groups of 16 circuits by means of a Switching Security Card (SS16). Each SS16 shall be installed remotely in the area required. Each SS16 shall require only one CAT5 wire to be returned to the central cabinet.
- 7.1.8.** Provide, if desired by Owner, a unique pre-announce tone to sound prior to the normal class change signal or as desired for unique events.
- 7.1.9.** The system shall provide up to two non-restrictive, multiple input source program distribution channels. This functionality shall be programmed and distributed from DA1s.
- 7.1.10.** The system shall have 64 user-assignable groups of stations for zoned audio paging, class change signals, or program distribution, with any station belonging to all zones, some zones, or no zone.
- 7.1.11.** The system shall have a Class D digital amplifier with 125 Watt RMS output. Distortion shall not exceed 0.2% at 90% load. Class B amplifiers or amplifiers not capable of 0.2% maximum distortion will not be accepted.
- 7.1.12.** The system shall use the industry-standard 25-volt methods of transmission.
- 7.1.13.** Each call-in switch shall be assignable to one of two priority levels and up to 32 distinct call-in destination groups.
- 7.1.14.** The system shall contain an integral master clock and programmer capable of performing the following functions:
 - 7.1.14.1.** Provide unlimited discrete time event entries for programming functions based upon:
 - 7.1.14.2.** A proper calendar that extends to the year 9999
 - 7.1.14.3.** The day or combination of days of the week and time on which the event is to occur
 - 7.1.14.4.** The selection of any one or any combination of 64 zones or six outputs to be activated
 - 7.1.14.5.** The selection of any one or combination of the unlimited schedules to allow for maximum flexibility due to special circumstances or seasonal changes
 - 7.1.14.6.** The selection of 50 user-programmable event tones
 - 7.1.14.7.** Any combination of time schedules shall be active simultaneously

- 7.1.14.8.** The master clock shall correct compatible secondary clocks, analog or digital or both
- 7.1.15.** Event tones shall be programmable from a library of 25 tone types and 25 user-added wav files.
- 7.1.16.** Provide for automatic daylight saving time adjustment with leap year programming.
- 7.1.17.** Provide momentary contact closures for external device operation. Provide six inputs and six outputs from the central cabinet.
- 7.1.18.** Inputs shall be programmable by the installer/system administrator to initiate any desired system activity.
- 7.1.19.** Outputs shall be programmable by the installer/system administrator to activate during any desired system activity.
- 7.1.20.** Display the time of day shall be in either 12- or 24-hour format at each DA1.
- 7.1.21.** The system central processor that controls all functions and features of the CareHawk CH1000, shall be able to continually monitor the system's integrity. The system shall be provided with *CareHawk Settings* a user-friendly PC interface, Windows® based, for system programming and diagnostics. All system programming shall be done through the built-in Ethernet port on the central cabinet. The software shall support remote (off-site) system programming through the internet.
- 7.1.22.** The system shall be capable of being addressed on the local LAN of the facility.

7.2. SECURITY COMPONENTS

- 7.2.1.** The system shall allow for the use of standard security devices such as PIR sensors, magnetic contacts, and glass break sensors.
- 7.2.2.** The system programming shall allow for an active day mode of security sensors. This allows for sensors to trigger events and or alarms for "off limits" areas. These events will also switch surveillance cameras on and off.
- 7.2.3.** All security sensors interface to the system via the SS16.

7.3. Closed-circuit Television Integration

- 7.3.1.** The system shall support closed-circuit television (CCTV) cameras (twisted-pair type) installed in user-selected locations throughout the installation site with the installation of Camera Routing Cards CR16 into each SS16.
- 7.3.2.** Cameras shall connect via ports located in each CR16 configured SS16.
- 7.3.3.** Connections between the camera and SS16 port shall be via standard CAT5 cable.
- 7.3.4.** Sixteen cameras shall be supportable by one CR16/SS16 with one live feed per SS16 back to monitoring equipment.
- 7.3.5.** Cameras shall be configurable to transmit video to designated locations within the CH1000 installation site.
- 7.3.6.** Cameras shall be installed where indicated by administrative staff.
- 7.3.7.** Each camera port shall be programmable to transmit video upon activation of programmable inputs, or to transmit video upon command or based on a user programmable schedule.
- 7.3.8.** Cameras shall transmit video upon activation of programmed inputs such as call switch, audio level sensors, motion sensors, door contacts, glass break sensors, or other device providing closed contacts.
- 7.3.9.** Cameras shall transmit video on-demand as result of manual activation via DA1, or other authorized administrative communication device; PBX telephone, or wireless telephone.
- 7.3.10.** Video shall be viewable on site administration's choice of computer monitors and video monitors, as well as recordable to administration's choice of media, e.g., hard drive, time-lapse video recorder.

7.4. Display Administrative Console (DA1)

- 7.4.1.** The DA1 shall be desk-mounted or wall-mounted, and contains a matching telephone handset with retractable coiled cord and plastic button switches, with clearly designated touch points. The housing shall be constructed of high impact, flame retardant, plastic. Wall terminations shall be a RJ-45 modular telephone type jack.

7.4.2. Features shall include:

- 7.4.2.1. Large, easy-to-read, adjustable, 8 line by 20-character alphanumeric backlit LCD display
- 7.4.2.2. Menu-driven display for ease-of-operation
- 7.4.2.3. Handset and speakerphone
- 7.4.2.4. Numeric 3, 4, or 5 digit dialing
- 7.4.2.5. ADSI Capable
- 7.4.2.6. Distinctive electronic ring signals
- 7.4.2.7. Twelve-button key pad
- 7.4.2.8. Soft function keys
- 7.4.2.9. RJ12 type modular connector
- 7.4.2.10. Call queuing
- 7.4.2.11. Telephone-style handset
- 7.4.2.12. Hold button
- 7.4.2.13. Off hook LED
- 7.4.2.14. Message waiting LED
- 7.4.2.15. 200 Speed dials

7.5. ROOM CALL BUTTON

7.5.1. *CareHawk* Model CS50 Modular Call station

- 7.5.1.1. Call-in switch with call, emergency call, and privacy.

Switch type: One mechanical rocker type button.

Designation: PRIVACY and CALL screened on the pushbuttons

Finish: Brushed stainless steel

Mounting: Flush to a one-gang back box no more than 2" (5.1 cm) deep

7.5.2. *CareHawk* Model CS100 Call Station

- 7.5.2.1. Call-in switch with call and emergency.

Switch type: One silicon pushbutton non mechanical vandal resistant.

Designation: CALL screened on the pushbutton

Finish: Brushed stainless steel

Mounting: Flush to a one-gang back box no more than 2" (5.1 cm) deep

7.6. External PBX/KSU INTERFACE

- 7.6.1. The PBX/KSU interface shall be provided through any of the eight TC1 Ports to any PBX/KSU analog C.O. ports.

- 7.6.2.** The interface connection to a PBX/KSU shall be made from a TC1 to a PBX/KSU extension to allow any system telephone to have access to the PBX/KSU.
- 7.6.3.** The interface connection from the PBX/KSU shall be made from the PBX/KSU extension port to an extension.
- 7.6.4.** This shall allow PBX/KSU telephones to have access to system extension features.
- 7.6.5.** This shall allow call-ins to be routed from speaker stations to the PBX/KSU attendant console.

8. SYSTEM FEATURES

- 8.1.1.** The system shall provide user-programmable room number assignment.
- 8.1.2.** The system shall provide 3, 4, or 5-digit numeric format for architectural room numbering and an alpha-numeric caller ID description associated with each room in the event of a call in.
- 8.1.3.** The dialing sequence shall incorporate full numeric capabilities as available on industry-standard telephone key pad.
- 8.1.4.** The DA1 shall allow the user to view the numeric room address and the caller ID information of the calling station and the call priority (e.g., emergency, normal). The DA1 shall use distinctive ringing patterns to annunciate the type of call.
- 8.1.5.** The system shall contain a minimum of 64 multipurpose zones that can be assigned and programmed as desired between paging, program, or time zones.
- 8.1.6.** The system shall provide for a minimum of 25 distinct user-programmable system tones and 25 user-added wav files.
- 8.1.7.** The following programmable system tone events shall be available:
 - 8.1.7.1.** Emergency page pre-announce
 - 8.1.7.2.** Page pre-announce
 - 8.1.7.3.** Door tone
 - 8.1.7.4.** Intercom pre-announce
 - 8.1.7.5.** Privacy tone
- 8.1.8.** Paging shall originate from any DA1, PBX phone dedicated paging microphone, or program source input.

- 8.1.9.** The system shall include page or intercom priority over class change tones and preprogrammed events. Class change tones occurring simultaneously with an all page or zone page shall have priority.
- 8.1.10.** Communications with each classroom loudspeaker shall be hands-free. The staff member or occupant in the classroom need not operate any buttons to reply to a call. The DA1 operator shall use the hands-free speaker phone or handset on the DA1.
- 8.1.11.** A mute button shall be provided on the DA1 to allow the operator to mute the outgoing conversation as desired.
- 8.1.12.** All audio functions in the system shall operate within the following priority scheme:
- 8.1.12.1.** A lower priority function shall not interrupt a higher priority event.
 - 8.1.12.2.** A lower priority event shall be interrupted by a higher priority event.
 - 8.1.12.3.** Interrupted lower priority functions (automatic) shall be restored after conclusion of the higher priority function. If an event is initiated while a page is occurring, the event shall be delayed until the page is complete.
- 8.1.13.** Telephone conversations shall not be interrupted by the above listed functions.
- 8.1.14.** The system shall allow each loudspeaker to be a member of up to 64 multipurpose zones.
- 8.1.15.** In rooms provided with a privacy switch, the system shall incorporate all necessary circuitry to prevent overhearing conversations in any room equipped with a loudspeaker. The privacy switch shall have a visual indicator to confirm the privacy setting. The DA1 shall provide the user with an indication that the classroom privacy switch is in the privacy mode.
- 8.1.16.** The caller shall be able to change a normal call-in to an emergency call at any time.
- 8.1.17.** The system shall distinguish between an emergency call and a normal call from any station, and automatically route each type of call-in to a DA1.
- 8.1.18.** The system shall also include provisions to allow call-in coverage to be redirected to an assigned coverage group manually (using call forwarding).
- 8.1.19.** Normal and emergency priority levels shall provide a distinctive call-in ring with a programmable cadence.
- 8.1.20.** Calls routed to the appropriate DA1 destination group's call-in queue shall be placed in the order of priority and time of origination. When a call-in occurs to

a specific call destination group, the call-in shall ring at all DA1s in the assigned group. Any telephone within the group shall be able to answer the call. Telephones not within the call group can also answer using a dial code. The call-in then shall be answered at any DA1 by dial code.

8.1.21. Calls routed to the DA1 shall display the incoming caller's room number along with the total number of calls within the call-in queue. Calls can be scrolled by the DA1 using the arrow keys for selective answering of intercom calls. If the DA1's queue has a high priority or emergency call-in present a calling telephone shall receive a busy signal.

8.1.22. When a system port is dialed from the DA1, the dialed number and caller ID information shall appear in the DA1 display window.

8.1.23. DA1 calls to other telephones shall ring the appropriate telephone and be connected when the called party goes off-hook.

8.1.24. The system shall allow any telephone to place an emergency voice paging announcement.

8.1.25. The DA1s shall be capable of, but not restricted to, the following:

8.1.25.1. Extension-to-extension direct dialing

8.1.25.2. Extension-to-speaker station direct dialing

8.1.25.3. Call on hold

8.1.25.4. Call transfer

8.1.25.5. Paging

8.1.25.6. Tone distribution

8.1.25.7. Preprogrammed speed dialing

8.1.25.8. Call forwarding

8.1.26. A group of loudspeakers shall be temporarily excluded from receiving time tone signals, non-emergency page, or program distribution by designating the desired stations as excluded stations from a preprogrammed zone.

8.1.27. The system shall allow a group of loudspeakers to be permanently excluded.

8.1.28. The system shall provide for an editing and review routine to permit the user to change and edit time events, zones, and schedules.

8.1.29. The system shall allow pre-selected program material to be distributed according to preprogrammed schedules.

8.1.30. The DA1 shall provide the following functions and features:

8.1.30.1.User-programmable architectural room number assignment using three, four, or five digit numeric, direct dialing number assignment. Any DA1 shall direct dial any other telephone, loudspeaker, or group of loudspeakers.

8.1.30.2.The DA1 shall employ state-of-the-art hard plastic switches requiring no mechanical or spring contacts. The switches shall provide the operator with positive feel and tactile response, and shall be sealed and impervious to moisture or liquids.

8.1.30.3.The DA1 shall be equipped with a large adjustable 8 line by 20 character backlit LCD alphanumeric readout that provides the following:

8.1.30.3.1. Queuing of calling room numbers and telephones along with caller-ID information

8.1.30.3.2. Displaying calls waiting sequentially, no limit to number of calls

8.1.30.3.3. Displaying emergency, priority, and normal calls, first in order of priority, and then by order received

8.1.30.3.4. Displaying the numeric room number and caller ID information of the calling station, telephone, or call-in switch

8.1.30.3.5. Displaying time, day, and date when phone is not in use

8.1.30.3.6. Display menus to allow selection of zones, program sources, and other user functions without the use of long numeric codes.

8.1.30.4.A standard telephone handset with a coiled cord shall be provided to allow private two-way communications with other telephones.

8.1.30.5.The DA1 shall provide two modes of communication to classroom loudspeakers. Communications shall be via handset or speakerphone.

8.1.30.6.Call-ins shall be answered by picking up the handset.

- 8.1.30.7.** Call-in from DA1s or classroom call-in buttons shall be displayed in the following manner:
- 8.1.30.7.1.** The first call entered shall appear in the display window of the responsible DA1s, which shall display the dial number and caller ID information of the calling station.
 - 8.1.30.7.2.** Any number of calls shall be stored in memory, up to the total capacity of the system with the quantity of those calls waiting displayed at the DA1.
 - 8.1.30.7.3.** Normal and lower level calls shall annunciate with different cadence compared to emergency calls. Calls shall sort and stack automatically according to the preprogrammed priority level assignments. Each incoming call shall be automatically registered first in order of priority, then by order placed.
 - 8.1.30.7.4.** Calls that have been upgraded by the caller shall automatically move to the emergency level and appear in proper sequence.
 - 8.1.30.7.5.** High priority level calls shall annunciate with a faster ring cadence.
 - 8.1.30.7.6.** Emergency calls are distinguishable from normal calls by designation and unique cadence pattern. Attendant shall visually or audibly determine whether the call-in from a classroom is an emergency or normal call-in.
- 8.1.30.8.** A DA1 shall have the ability to forward its call-in coverage to other DA1s. All functions such as all page, zone page, and other programmed functions shall be available to all DA1s.
- 8.1.30.9.** It shall be possible to manually activate and sound the time tone event signal to any of the 64 multipurpose zones from any DA1.
- 8.1.30.10.** A program menu shall be provided on each DA1 for selection and distribution of each of the program channels to classroom and other loudspeakers.
- 8.1.30.11.** The program channels shall be distributed via the DA1 to a room or rooms, corridor loudspeakers, paging zones, or all rooms.
- 8.1.30.12.** Changes to the distribution of the programs shall be initiated while program distribution is already in progress.

8.1.30.13. Provide capability for any DA1 to transfer a call to another DA1.

8.1.31. Each classroom port shall be programmed with a 3, 4, or 5 digit numeric dial number and caller ID information. Each classroom shall be equipped with up to eight call-in switches per port. Two user-programmable priority levels are available to each room call-in button and up to 32 call-in destination groups.

8.1.32. To place a normal call, momentarily press the call button. To upgrade to an emergency call, press the call button twice with in two seconds.

8.1.33. Normal calls shall be automatically upgraded (at any time) to an emergency call by pressing the call button for twice with in two seconds.