GAI-TRONICS®
A HUBBELL COMPANY

REDALERT®
Camera Telephone Manual

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Confidentiality Notice

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Product Overview

Telephones

RED ALERT® camera telephones are designed for maximum environmental sustainability, high audio quality, and unparalleled monitoring capability. A CCD color camera is installed to permit monitoring the activity at the telephone. RED ALERT® camera telephones provide hands-free, two-way communication with video monitoring and can also report their location, call activity, activate up to two peripheral devices, and report problems when used with TMA (Telephone Management Application) software. Using TMA with RED ALERT® telephones reduces system test and maintenance time and decreases liability issues associated with undetected faulty equipment. All models are weatherproof rated Type 3R.

All RED ALERT® camera telephones incorporate SMART (Self-Monitoring and Reporting Telephone) technology. This leading-edge technology becomes active only when connected to GAI-Tronics TMA (Telephone Management Application) software for system monitoring. The operation of RED ALERT® camera telephones is the same with or without TMA installed. The telephones can be polled and will report their health status with TMA installed. No polling (or data collection) occurs without TMA installed.

NOTE: Failure of the CCD camera is not reported because it is a stand-alone component within the RED ALERT® telephone.

RED ALERT® camera telephones comply with the ADA (Americans with Disabilities Act) in both physical and operational characteristics. Each camera telephone includes a Braille label for vision-impaired individuals to identify the *emergency* functions of the telephone and a visual CALL RECEIVED WHEN LIT LED for hearing-impaired individuals. The LED flashes when either the HELP or CALL button (if equipped) is depressed. The LED illumination becomes steady when the call has been answered. The LED remains illuminated until the call is terminated.

The HELP push button on each RED ALERT® camera telephone can be programmed to dial three different telephone numbers. These include a primary telephone number and two *rollover* telephone numbers. The emergency telephone will automatically dial the first rollover number if the emergency call cannot connect to the primary telephone number (i.e., a busy signal or no answer). The telephone automatically dials the second rollover telephone number if the first rollover number is busy or is not answered.

Each RED ALERT® camera telephone can provide two isolated control outputs in the form of a dry (volt-free) contact closure rated at 125 mA. One output is controlled by the telephone's emergency call activation and the other is remotely controlled by a called party DTMF activation code.

The telephone component in all RED ALERT® camera telephones is line-powered and requires a minimum line current of 24 mA for proper operation. These telephones can be connected to any of the following networks:

- C.O. (Central Office) line to the PSTN (Public Switched Telephone Network)

- 24 V dc or 48 V dc analog station port of a PBX (Private Branch Exchange), PABX (Private Automatic Branch Exchange), or KSU (Key Service Unit).

NOTE: Connection to pay telephone extensions or shared service (party) lines must be avoided.

The CCD camera within all RED ALERT® camera telephones requires a 12 V dc power source.

NOTE: The operating temperature range of the camera is 14 ºF to 122 ºF (−10 ºC to 50 ºC). The telephone itself has an operating range of −4 ºF to 140 ºF (−20 ºC to 60 ºC).

RED ALERT® camera telephones provide the flexibility to address a diverse range of applications. A wide variety of functions can be achieved by altering the configuration data stored in the telephone's non-volatile memory. These configuration options include:

- pre-programmed auto-dial telephone numbers

- call termination method (automatic or manual)

- maximum call duration

- answering options

Values for these functions are initially programmed during factory testing. The settings can be changed remotely from a touch-tone telephone, locally (with an integral or portable keypad), or via TMA. Emergency auto-dial telephone numbers are typically programmed in accordance with existing security plans. Most applications will require very little additional programming because the factory defaults should be applicable to most installations.

Models

The following RED ALERT® camera telephone models are detailed in this manual:

<p align="center">Table 1. Model Chart</p>

Model	Description
393-001CAM	**Surface-Mount Emergency Telephone** housed in a glass-reinforced polyester enclosure; includes a HELP autodial push button.

Model	Description
394AL-001CAM	**Surface-Mount Emergency Telephone** housed in a cast-aluminum enclosure painted safety yellow; includes a HELP autodial push button, a CALL (off-hook) button and a 12-button Braille keypad.
397-001CAM	**Flush-Mount Emergency Telephone** with a heavy-gauge brushed stainless steel front panel; includes a HELP autodial push button.
398-001CAM	**Flush-Mount Emergency Telephone** with a heavy-gauge brushed stainless steel front panel; includes a HELP autodial push button, a CALL (off-hook) button and a 12-button Braille keypad.

TMA (Telephone Management Application)

GAI-Tronics' TMA software is a maintenance data collection and reporting tool that enables viewing and reporting the health of the RED ALERT® camera telephones. RED ALERT® camera telephones can function with or without the TMA software application installed. The decision to use TMA can be made at any time and is not needed for telephone operation. Installation of TMA is not required until system monitoring is desired.

Telephones are typically polled when used with TMA to determine the health of the unit and to report the following:

- stuck push buttons

- microphone failure

- speaker failure

- microprocessor health

- line interrupt (power)

The basic TMA package (Model 12509-042) includes a single line transceiver for polling a single telephone at a time. Each telephone requires approximately 90 seconds to relay its health status to TMA. Use multiple transceivers to poll multiple telephones simultaneously in larger systems. The Model 12509-043 TMA Expansion Kit is available and is required for each additional connected telephone line, with a maximum of eight lines allowed. This allows a maximum of eight telephones to be polled simultaneously. A dedicated PC is strongly recommended for TMA operation.

A dedicated telephone line per RED ALERT® telephone is required when using TMA in its typical *polling* operation. RED ALERT® camera telephones can share a telephone line; however, if two or more telephones are put into use simultaneously, the line current could drop sufficiently to disconnect the telephone call. This will depend on the line current, the length of the cable run, and the condition of the telephone cable. Telephones must be scheduled to *call-in* instead of being polled by TMA when sharing a telephone line. A shared telephone line between RED ALERT® telephones is not recommended.

Auto-dial maintenance calls should be scheduled in TMA to alert maintenance personnel of any unusual sensor or fault conditions that exist. RED ALERT® telephones can also be programmed to generate an auto-dial maintenance call when certain sensor events occur. Access to the RED ALERT® telephone's settings is restricted using a maintenance access PIN that should only be disclosed to trained maintenance personnel.

Telephone Operation

Two types of telephones are described in this manual:

- single emergency push-button operation (autodial)

- emergency push button and call push button with keypad

This section describes the general operation of each telephone type.

NOTE: The video output (NTSC format) from the camera board becomes operational as soon as 12 V dc power is applied.

Emergency Call Operation

Applicable to telephones equipped with a HELP push button.

1. Press the HELP push button to place an immediate call to a pre-programmed emergency telephone number; typically, a security office, campus police, or 911.

    The CALL RECEIVED WHEN LIT indicator (LED) operates as follows:

    The indicator will begin to flash when the HELP push button is pressed and will light (steadily) when the telephone detects audio after the call is answered.

    or:

    The indicator will begin to flash when the HELP push button is pressed and will light (steadily) when the called party acknowledges receiving the call by transmitting a DTMF # or * after answering the call.

2. Two-way, hands-free conversation can now occur.

Non-Emergency Call Operation

Applicable to telephones equipped with a CALL push button and keypad, with or without a HELP push button.

Make non-emergency calls on telephone models equipped with keypads as follows:

1. Press the CALL push button (dial tone can be heard over the speaker).

2. Dial the desired number using the keypad.

    The CALL RECEIVED WHEN LIT indicator (LED) operates as follows:

    The indicator will begin to flash when the CALL push button is pressed and will light (steadily) when the telephone detects audio after the call is answered.

    or

    The indicator will begin to flash when the CALL push button is pressed and will light (steadily) when the called party acknowledges receiving the call by transmitting a DTMF # or * after answering the call.

3. Two-way, hands-free conversation can now occur.

4. Press the CALL push button upon completion of the call (hang up).

NOTE: The CALL push button can be configured to auto-dial, overriding the keypad dialing feature. This operation can be used to call a central telephone number and use the keypad to make feature selections.

Receiving a Call

RED ALERT® camera telephones can be programmed to auto-answer incoming calls. The telephone will automatically answer when the emergency telephone extension is dialed. It will then generate a pair of triple *beep* tones and two-way, hands-free conversation can occur.

Disconnecting a Call

There are several methods that a RED ALERT® camera telephone can both manually and automatically disconnect calls. The disconnect methods include the following:

- **Remote disconnect of an emergency call**—Called party transmits either a ## or ***99** DTMF control command.

- **Manual disconnect of an emergency call**—Press the HELP push button approximately 15 seconds after the initial activation.

  NOTE: Pressing the HELP push button a second time within 10 seconds of initially activating the call will have no effect on the telephone's operation. This prevents an anxious or hurried user from disconnecting the call prematurely (this feature can be disabled).

- **Manual disconnect of a non-emergency call**—Press the CALL or ASSISTANCE button a second time.

- **Automatic disconnect:**

  - all calls; loop current-drop disconnect
  - all calls; maximum call duration timeout (configurable from 1 minute to 4.5 hours)
  - all voice calls; call progress tones (i.e., busy signal/fast busy, or reorder tone) and, when enabled, dial tone

Refer to the Disconnect Options section of this manual for factory defaults and available options.

Location Identification

The location identification feature allows the called party to quickly and easily locate the source of the emergency call. The called party (typically the security operator) dials two zeros **00** when the calling individual has pressed the HELP push button to obtain the telephone location. The RED ALERT® telephone detects the two zero-digit signals and transmits a three-digit DTMF location identification code. This location code is displayed on a customer-provided DTMF decoder/display (see the ADA (Americans with Disabilities Act) Programming section).

Installation

⚠**WARNING**⚠ —This product can contain hazardous voltages. Always remove power to this station and any associated equipment before beginning any installation.

⚠**CAUTION**⚠ —Do not install this equipment in areas other than those indicated on the approval standards listing in the Approvals section of this manual. Such installation may cause a safety hazard and consequent injury or property damage.

Install equipment without modification and according to all applicable local and national electrical codes. Consult the National Electrical Code (NFPA 70), Canadian Standards Association (CSA 22.1), and local codes for specific requirements regarding your installation. Class 2 circuit wiring must be performed in accordance with NEC 725.55.

Safety Guidelines

When installing any GAI-Tronics telephone equipment, please adhere to the following guidelines to ensure the safety of all personnel:

- Do not install telephone wiring during a lightning storm.

- **Electrostatic Discharge (ESD) Protection:** The telephone may have an earth ground terminal provision. If so, ensure that it is connected to ground in accordance with all local safety regulations and the National Electrical Code (NEC). Grounding must be ensured for safe and stable communications. Do not use long and coiled ground wires. Trim ground wires to the required length. Use a star configuration whenever possible. Please note proper grounding does not eliminate the need for lightning protection for the telephone or the telephone system.

- **Install a UL Listed lightning arrestor** on any telephone installed where the telephone or telephone cable is at risk of being exposed to lightning strikes. The lightning arrestor must be installed as close to the telephone as possible to maximize the protection. It must not be installed within the enclosure supplied with the phone.

- Do not install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

- Do not touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

General Installation Guidelines

The preferred system configuration is a dedicated telephone line per RED ALERT® telephone. This is **required** when using TMA in its typical *polling* operation.

NOTE: Never install a RED ALERT® telephone on the same telephone line as any other (non-RED ALERT®) telephone.

Telephones must be scheduled to *call-in* instead of being polled by TMA if sharing a telephone line while using TMA.

Location Considerations

RED ALERT® camera telephones contain a miniature camera module with a cone-shaped, pin-hole lens. Do not install these telephones where the front of the telephone will be exposed to direct sunlight or any other bright light. Bright light will wash out the video image (severely diminish contrast) and result in poor video quality.

Security Hardware

All RED ALERT® telephones described in this manual are vandal-resistant. The front panel of each telephone covered in this manual is attached to its enclosure with security screws. A GAI-Tronics Model 233-001 Security Screwdriver or Torx T-25 security head tip (sold separately) is required to install the telephone.

Conduit Installation Details

GAI-Tronics recommends installing telephone lines in conduit to protect against accidental damage and vandalism. To prevent moisture from entering the enclosure:

- Conduit should enter the enclosure from the bottom whenever possible.

- Sealed fittings should be installed at all cable entry points.

- Silicone sealant or equivalent should be applied around and inside all conduit entries to prevent moisture ingress.

Refer to the examples below for the recommended conduit installation details.:
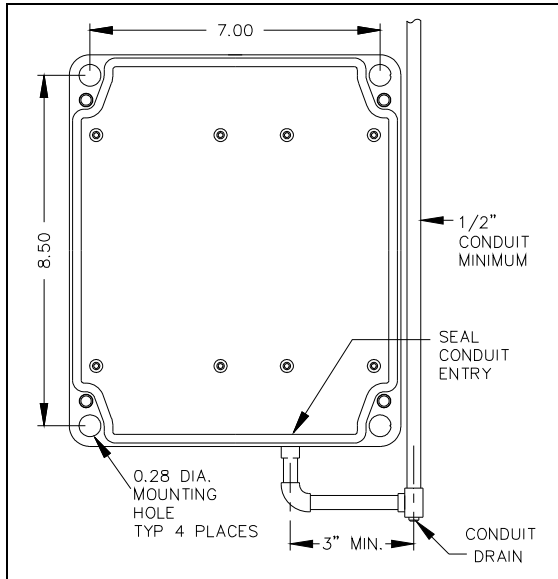

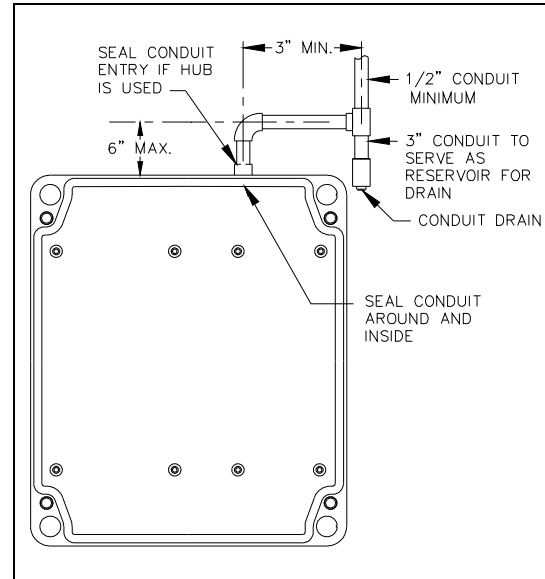Figure 1. Bottom entry conduit recommended for non-metallic enclosures

Figure 2. Top entry conduit installation for non-metallic enclosures (NOT recommended)
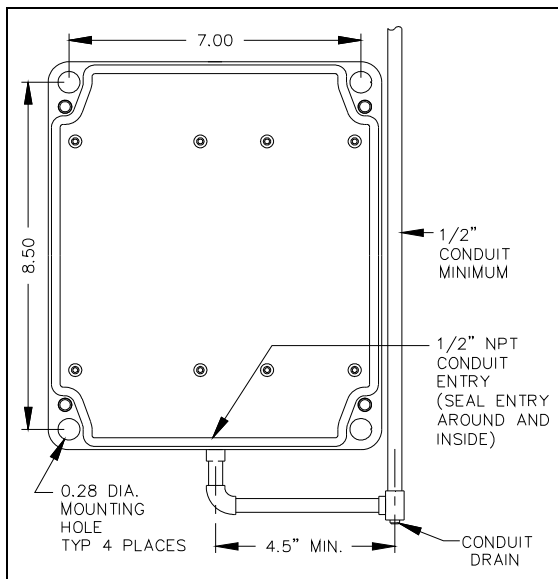
Figure 3. Bottom entry conduit installation details for metallic enclosures
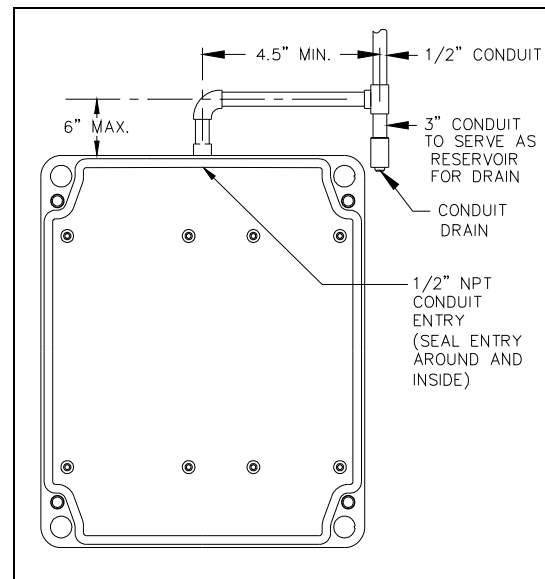
Figure 4. Top entry conduit installation details for metallic enclosures (NOT recommended)

Models 393-001CAM and 394AL-001CAM—Surface Mount Installations

The mounting and wiring instructions are as follows:

1. Remove the four security screws from the front panel and set the panel assembly aside.

2. Position the enclosure on the mounting surface.

   The enclosure provides four 0.28-inch mounting holes in a 7.0 × 8.5-inch hole pattern.

3. Secure the enclosure to the mounting surface with four ¼-inch diameter bolts of the appropriate length for the surface.

   NOTE: When using a GAI-Tronics Model 231-001 Pole Mounting Kit, follow the mounting instructions provided in the kit.

4. *For Model 393-001CAM only*:

   1. Create a conduit access hole using a Greenlee-type punch sized for the conduit diameter.

      Bottom entry is strongly recommended.

   2. Install a conduit fitting in the access hole.

5. Install conduit as required (see the Conduit Installation Details section).

   NOTE: Use silicone sealant or equivalent around and inside all conduit entries.

6. Pull the telephone line through the conduit and into the enclosure.

7. Connect the telephone line to the customer-supplied telephone line surge suppressor (if applicable) and modular jack (USOC RJ11 or CA11A) provided with the unit.

   NOTE: The modular jack may be mounted inside the telephone. Telephone line connections directly to terminal block TB1 are acceptable.

8. Connect the video cable to the video BNC connection (see Figure 7 and Figure 11).

9. Connect 12 V dc power using the screw terminal connector (see Figure 7 and Figure 11).

   NOTE: Reference the CCD camera specifications for proper power supply requirements.

10. Allow the telephone a minimum of 35 seconds to initialize.

11. Configure the telephone:

    1. Configure the hardware as required (see the Hardware Configuration section).
    2. Adjust the audio levels, if necessary (see Figure 12 for the speaker volume and microphone sensitivity potentiometer locations).
    3. Perform the initial programming (see the Programming section).

12. Verify operation by calling to and from another telephone.

13. Complete the installation by attaching the front panel assembly to the rear enclosure using the four security screws.

14. Torque the screws to 10–12 in·lb.
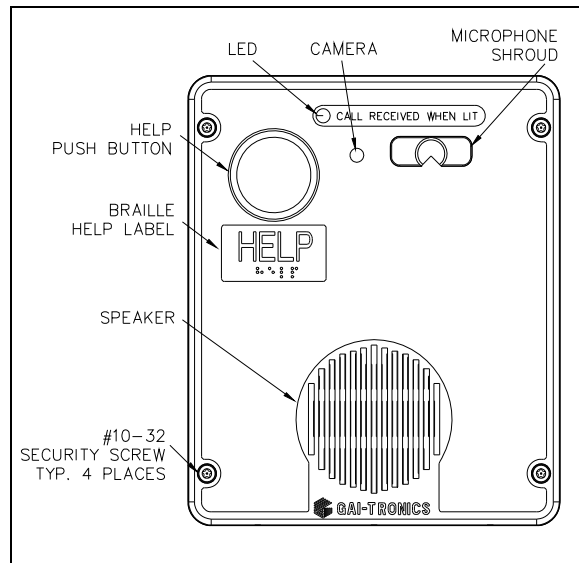
Figure 5. Model 393-001CAM Camera Telephone in a Non-Metallic Enclosure
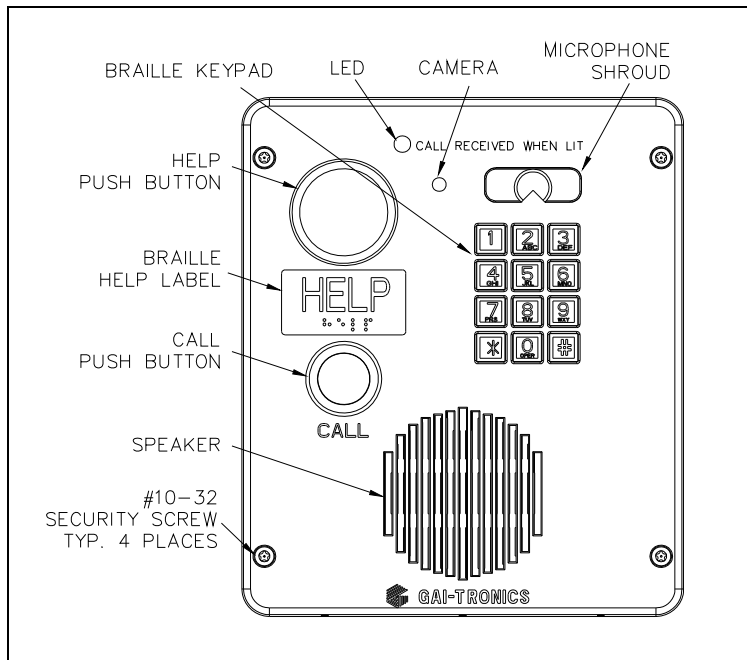
Figure 6. Model 394AL-001CAM
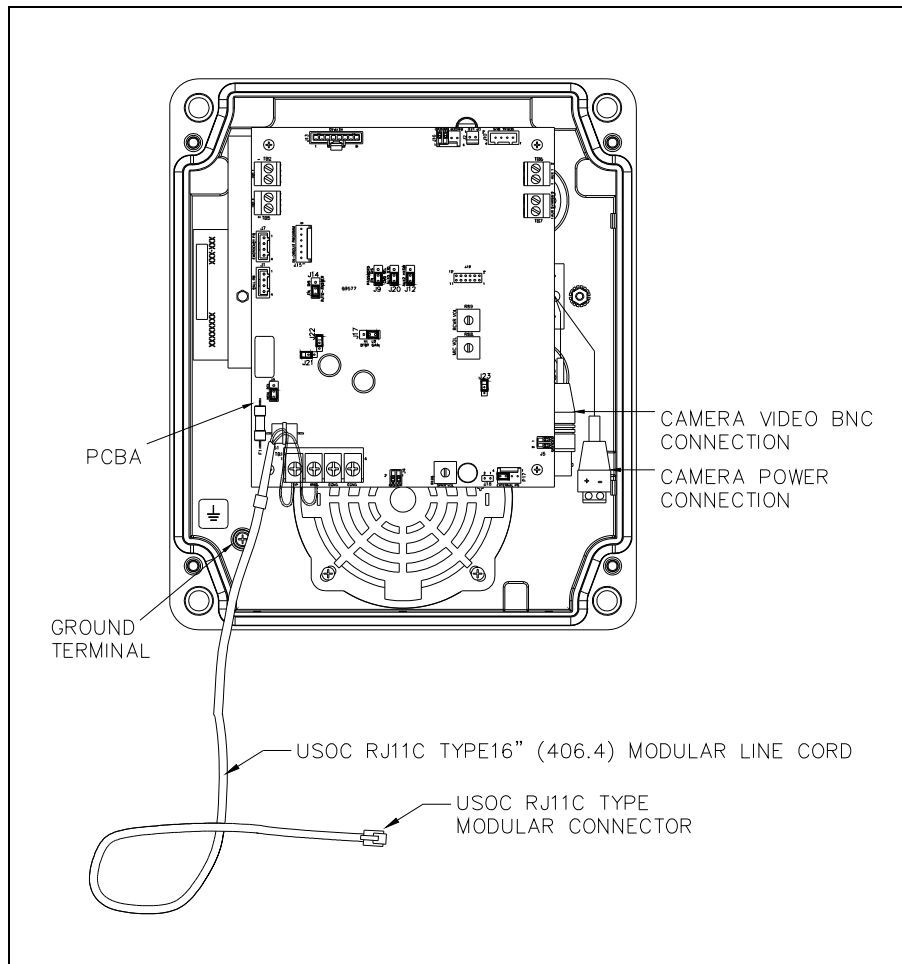
Figure 7. Model 393-001CAM and 394AL-001CAM Component Locations

Models 397-001CAM and 398-001CAM—Tower or Flush-Mount Installations

The supplied back box must be used to mount the Model 397-001CAM or Model 398-001CAM telephones for flush-mount installations or when mounting in a GAI-Tronics Model 234 Series Tower.
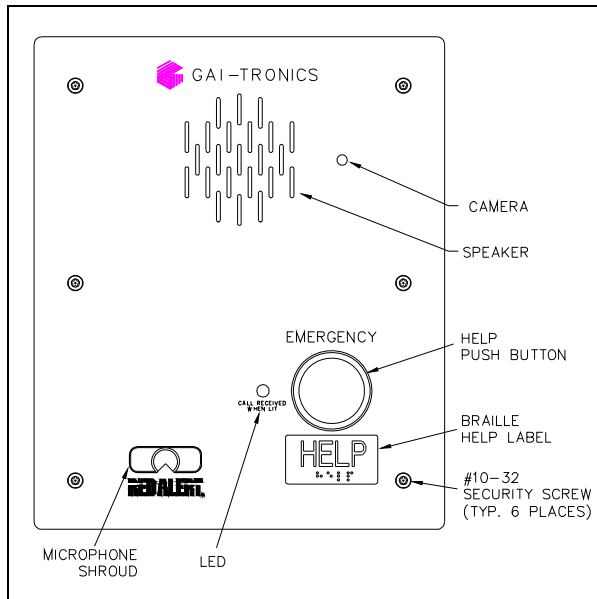
Figure 8. Model 397-001CAM
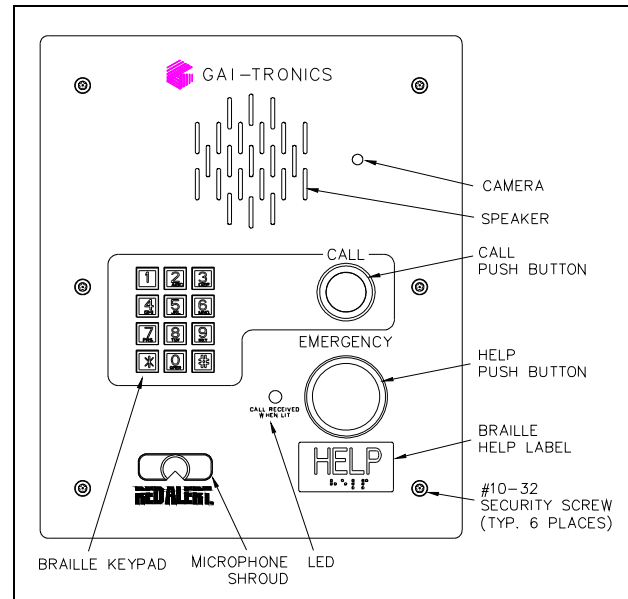
Figure 9. Model 398-001CAM

1. Mount the back box to the structure using appropriate hardware (see Figure 10 for the cutout dimensions).

   NOTE: The installation of a (customer-supplied) telephone line suppressor is recommended if the telephone is mounted outdoors.

2. Remove a tapered plug from either cable entry hole in the back box.

3. Install the telephone line and cable fitting.

   NOTE: Telephone line connections directly to terminal block TB1 are acceptable.

4. *If using the modular jack*:

   1. Remove the cover.
   2. Connect the telephone line's tip (+) wire to the green wire on the modular jack.
   3. Connect the telephone line's ring (−) wire to the red wire on the modular jack.
   4. Replace the modular jack cover.

5. Connect the telephone's modular plug to a USOC RJ11 or CA11A (Canada) modular connector or (if applicable) the telephone line suppressor (see Figure 10).

   An inline coupler is provided for use, if necessary.

6. Connect the video cable to the video BNC connection (see Figure 7 and Figure 11).

7. Connect 12 V dc power using the screw terminal connector (see Figure 7 and Figure 11).

   NOTE: Reference the CCD camera specifications for proper power supply requirements.

8. Allow the telephone a minimum of 35 seconds to initialize.

9. Configure the telephone:

    1. Configure the hardware as required (see the Hardware Configuration section).
    2. Adjust the audio levels, if necessary (see Figure 12 for speaker volume and microphone sensitivity potentiometer locations).
    3. Perform the initial programming (see the Programming section).

10. Verify operation by calling to and from another phone.

11. Attach the front panel assembly to the rear enclosure mounting flanges using the six supplied #10-32 security screws and washers.

12. Torque the screws to 10–12 in·lb.
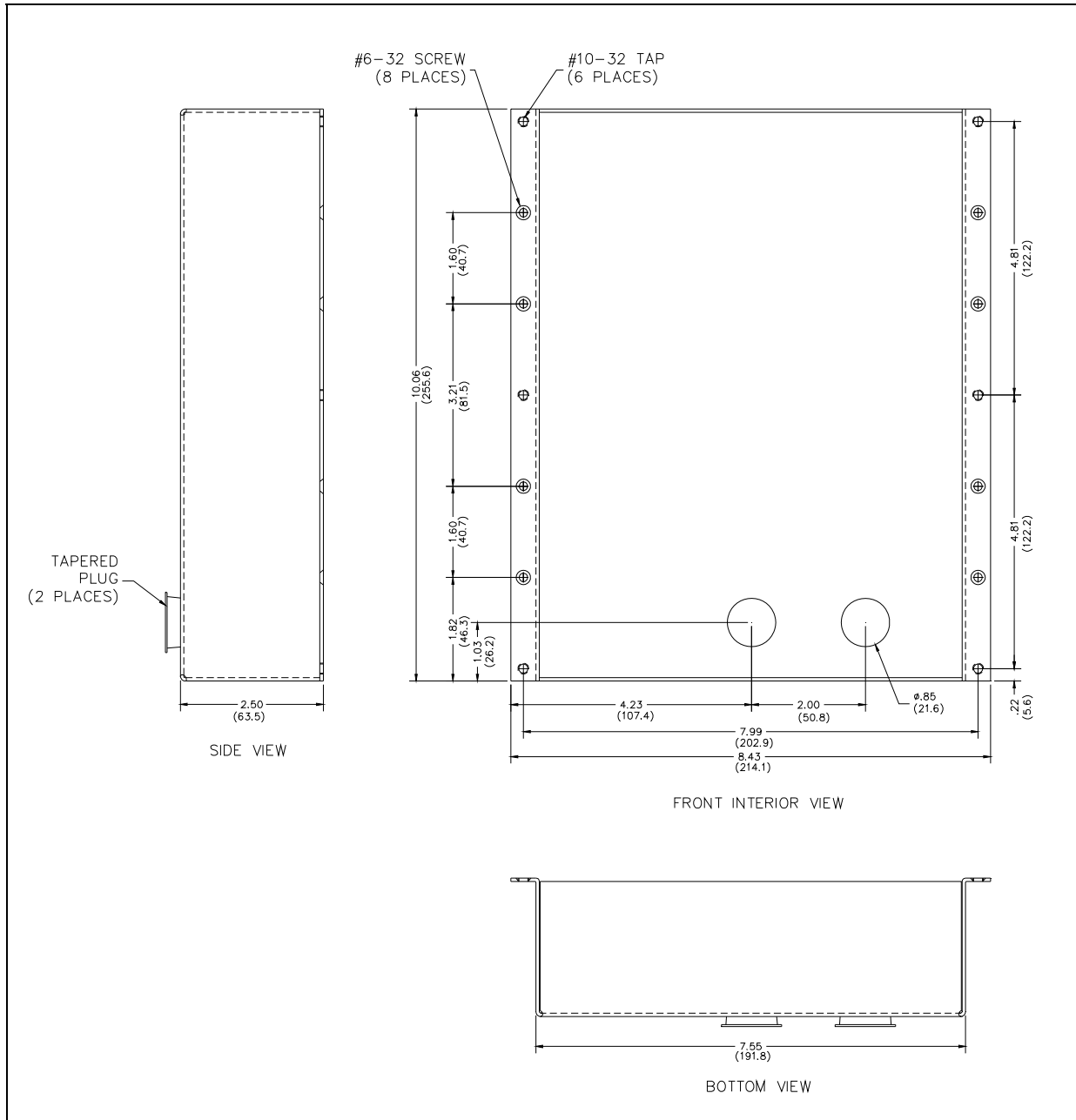
Figure 10. Model 397-001CAM and 398-001CAM Mounting Details

Connecting a GAI-Tronics Strobe

A typical connection detail of a GAI-Tronics 530-001/531A strobe (sold separately) is shown below.
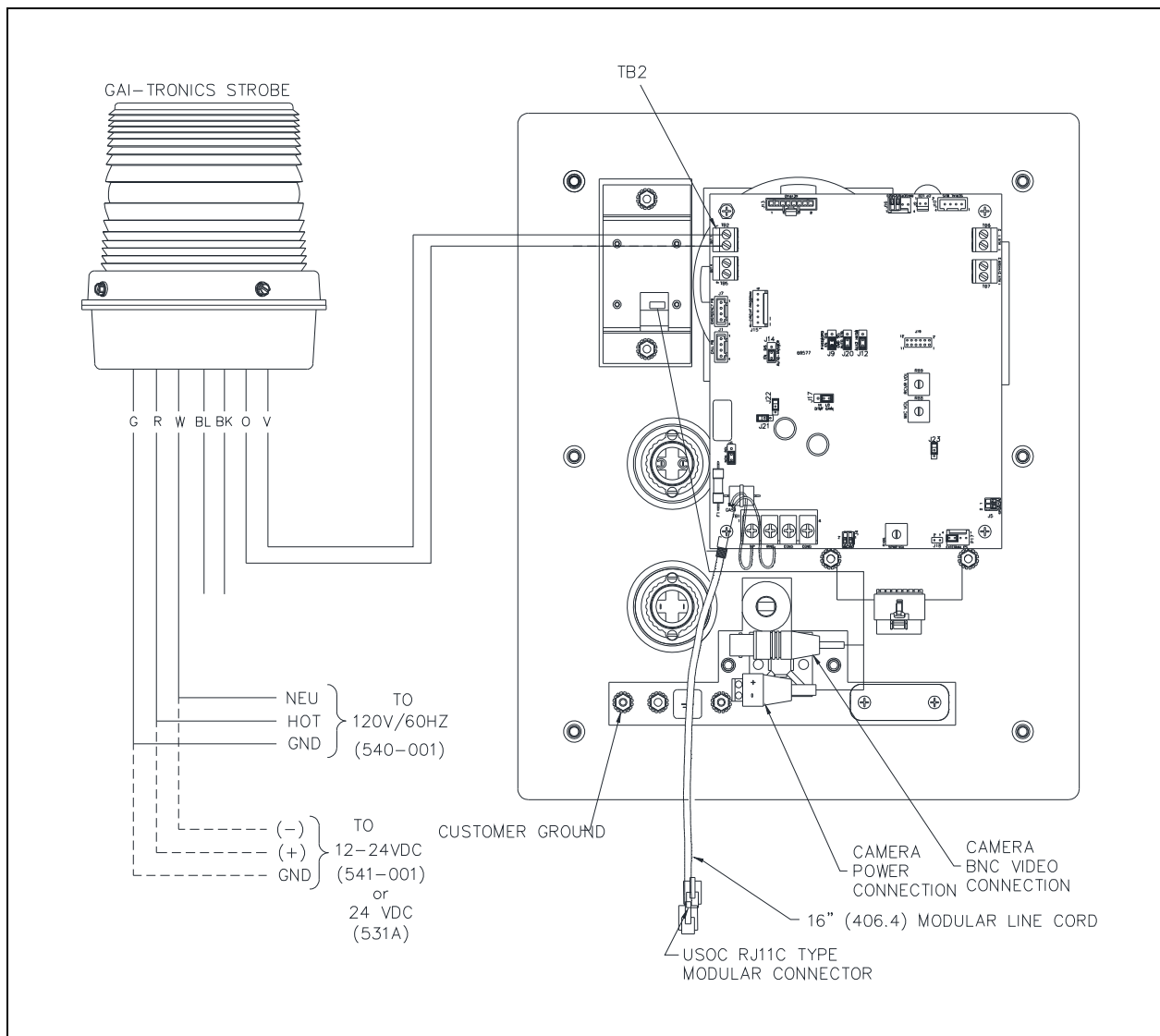
Figure 11. (Model 398-001CAM is shown as an example)
Connection to optional GAI-Tronics 530-001/540-001/531A Strobe

Hardware Configuration

The hardware configuration options are explained in the following sections and the necessary jumper settings are identified to enable or disable each option. Read each section and record the selected options (see Table 2) prior to making the necessary changes (see Figure 12 for the jumper locations).
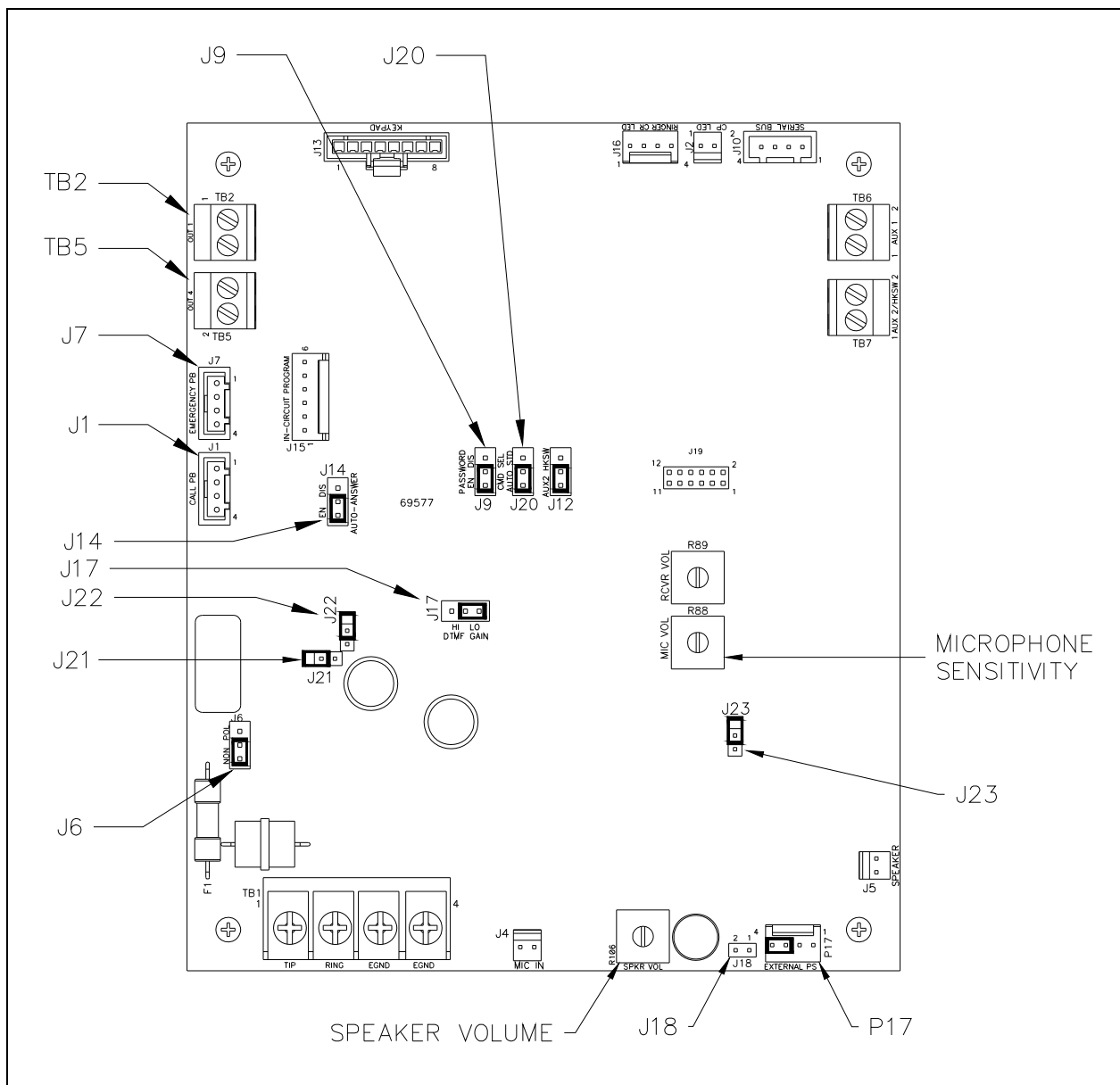
Figure 12. No. 69577-101 Emergency Telephone PCBA (Top View)

Auto-Answer

Factory Setting: Auto-answer feature enabled

The auto-answer feature enables or disables the automatic answering of incoming calls. This allows TMA to monitor the health of the telephone via polling with SMART operation enabled. When the auto-answer feature is enabled, the telephone automatically answers the call and attempts to communicate with TMA. If the caller is not TMA, the telephone automatically transitions to standard two-way communication.

- *Enable*: jumper J14 in position **EN**

- *Disable*: jumper J14 in position DIS (Do not use this setting except under the direction of GAI-Tronics personnel.)

NOTE: The auto-answer feature must be enabled to allow the GAI-Tronics TMA PC to contact the telephone or to allow remote touch-tone programming.

Polarity

Factory Setting: Non-polarity sensitive

The telephone can be configured as polarity or non-polarity sensitive. The telephone operates regardless of tip and ring polarity when configured for non-polarity. The telephone will only operate when the telephone line's positive terminal is connected to the tip terminal when configured for polarity. Use the polarity sensitive setting to allow a line voltage reversal disconnect signal to disconnect the call.

- *Non-polarity Sensitive*: jumper J6 in position **NON**

- *Polarity Sensitive*: jumper J6 on in position POL

DTMF Gain Select

Factory Setting: Low gain selected

Two gain selections are available in the DTMF detection circuit. The low gain setting is recommended for most installations. The high gain setting may be necessary if the telephone does not respond to manual or TMA-generated DTMF commands.

- *Low Gain Selected*: jumper J17 in position **LO**

- *High Gain Selected*: jumper J17 in position HI

Password Enable/Disable

Factory Setting: Password enabled

This telephone can be configured to enable or disable the password protection for programming (standard mode only). This can be useful when initially programming the telephones.

- *Password Enabled*: jumper J9 jumper in position **EN**

- *Password Disabled*: jumper J9 in position DIS

Command Select

Factory Setting: Auto

Jumper J20 enables or disables the automatic transition to SMART operation. SMART operation is disabled when the jumper in the STD position.

- *SMART Operation Enabled (Auto)*: jumper J20 in position **AUTO**

- *SMART Operation Disabled (Standard)*: jumper J20 in position STD

Low-Power Mode

Factory Setting: Low-power mode disabled

The performance of the telephone may be improved for installations with minimal loop current available by enabling this feature. Symptoms of minimal loop current may include low speaker volume and/or momentary muting of audio. The low-power mode should be disabled in most applications. The low-power mode is enabled by installing the following three jumpers: J21, J22, and J23.

- *Low-Power Mode Enabled*: jumpers installed at J21, J22, and J23

- *Low-Power Mode Disabled*: jumpers **NOT** installed at J21, J22, and J23

Auxiliary Outputs

Each telephone includes two isolated solid-state switches capable of switching a maximum of 125 mA at 48 V dc, or 80 mA at 28 V ac. **TB2 (OUT1)** and **TB5 (OUT4)** on the emergency telephone PCBA provide the connections for the auxiliary outputs (see Figure 12).

Refer to the Auxiliary Output Control section for additional information.

Auxiliary Output Control

Output one connects to terminal block **TB2** on the telephone's PCBA (see Figure 12). This output closes when an emergency call begins (**HELP** push button activation only) and remains in that state for the duration of the telephone call. The typical use of this output is to activate the flashing sequence on a GAI-Tronics strobe.

Output one can be programmed to remain closed for up to 255 minutes (in 1-minute increments) after the emergency call ends. This output can be deactivated before the call is disconnected via an external switch or by pressing ***921** on the keypad of the called telephone. The RED ALERT® telephone will acknowledge acceptance of this deactivation command with a short beep. Retry the command if the beep is not initially received.

NOTE: This feature requires the use of GAI-Tronics No. 40404-045 plug-in power supply (120 V ac source required).

Output four connects to terminal block **TB5** on the telephone's PCBA (adjacent to **TB2**). This output is remotely controlled by a DTMF command from the called telephone. This remote-control output can be used to activate or control a door latch, gate relay solenoid, alarm, etc. from the called party location (see Figure 12).

Auxiliary control example: Output four used for gate entry

A Model 397-001CAM RED ALERT® camera telephone is installed at the entrance to a gated/secure community. A visitor or delivery person approaches the gate and presses the **CALL** push button that automatically calls the security office. The security guard presses the pre-programmed, DTMF *open gate* command after verifying entry approval. This command causes the RED ALERT® telephone's output four relay contact to close for a pre-programmed amount of time then release. The RED ALERT® telephone acknowledges acceptance of this deactivation command with a short beep. Retry the command if the beep is not initially received.

Figure 13. Example of RED ALERT® Telephone Installed for Gate Operation

Because the contact is only rated for 125 mA, an interposing relay is required to switch a higher voltage to the gate solenoid when energized, causing the gate to open (see Figure 13).

The output pulse duration (closure) and the DTMF code used for the *open gate* command are user programmable (see the Output Four Control section).

TMA can be used to change the contact closure settings if the RED ALERT® telephone is operating in SMART mode.

Hardware Settings

Table 2. Hardware Settings Table

Function	Default Settings		User Settings	
	Setting	Jumper/Position	Setting	Jumper/Position
Auto-answer	Enabled	J14/EN		
Password Protection	Enabled	J9/EN		
Line Polarity	Non-polarized	J6/NON		
Command Select	Auto	J20/AUTO		
DTMF Gain Select	Low Gain	J17/LO		
Low-Power Mode	Disabled	J21, J22, J23 not installed		

Programming

Read this entire section and record the desired key sequences in Table 12 before programming the RED ALERT® camera telephone.

There are two methods to program RED ALERT® emergency telephones; *Standard Mode* and *SMART Mode*. Standard mode programming is used if the telephone system installation does not include TMA PC software. SMART mode programming should be used with TMA installed and the telephones should be configured for monitoring. Normal telephone operation is identical for both modes of operation.

Each RED ALERT® camera telephone is factory-programmed to receive standard mode commands (see Table 12 for the factory-default settings).

Password Disabled Programming

The programmable features of the RED ALERT® camera telephones are protected by a factory default or user specified password. A telephone may need to be configured for password disabled programming if the password has been changed from the default and has been forgotten or is unknown.

To configure a RED ALERT® camera telephone for password disabled programming:

1. Access the telephone's PCBA and disable the password protection feature by moving jumper J9 to the **DIS** position.

2. Confirm the auto-answer feature is enabled (jumper J14 must be in the **EN** position).

3. Call the RED ALERT® telephone using a touch-tone telephone.

   The telephone automatically answers the call and generates a splash tone (low to high sequence) followed by a success tone (single beep).

4. Begin entering the desired key sequences (see the Programming Sequences section).

Standard Mode Programming

Set up each RED ALERT® camera telephone locally using *local* access programming (keypad required) or remotely by calling the telephone from another telephone using *remote* access programming.

Local Access Programming

RED ALERT® telephones that do not include an integral keypad require a No. 51035-011 Keypad and No. 61504-048 Keypad Cable Assembly (purchased separately) to program these units locally (see Figure 12).

1. Connect the keypad cable assembly to the keypad and to J13 on the telephone PCBA.

   The CALL push button connector J1 is used exclusively for local programming.

2. *RED ALERT® Telephones that include only the HELP push button*: Move the switch harness plug from the HELP connector J7 to the CALL push-button connector J1 on the telephone PCBA.

3. Press the CALL or HELP push button (whichever is connected to J1).

4. Simultaneously press the **1** and # keypad buttons when the dial tone is heard from the speaker.

   The RED ALERT® telephone automatically answers the call and generates a splash tone (low to high sequence), followed approximately by a 1.5-second delay, followed by a success tone (short beep). The timing sequence to connect to the telephone, authenticate, and enter a programming sequence is shown below (see Figure 14).

5. Continue programming the telephone (see the Programming Sequences section).

Remote Access Programming

1. Enable the auto-answer feature (see the Auto-Answer section).

2. Call the RED ALERT® camera telephone using a touch-tone telephone.

   The emergency telephone automatically answers the call and generates a splash tone (low to high sequence), followed approximately by a 1.5-second delay, followed by a success tone (short beep). The timing sequence to connect to the telephone, authenticate, and enter a programming sequence is shown below (see Figure 14).

3. Continue programming the telephone (see the Programming Sequences section).
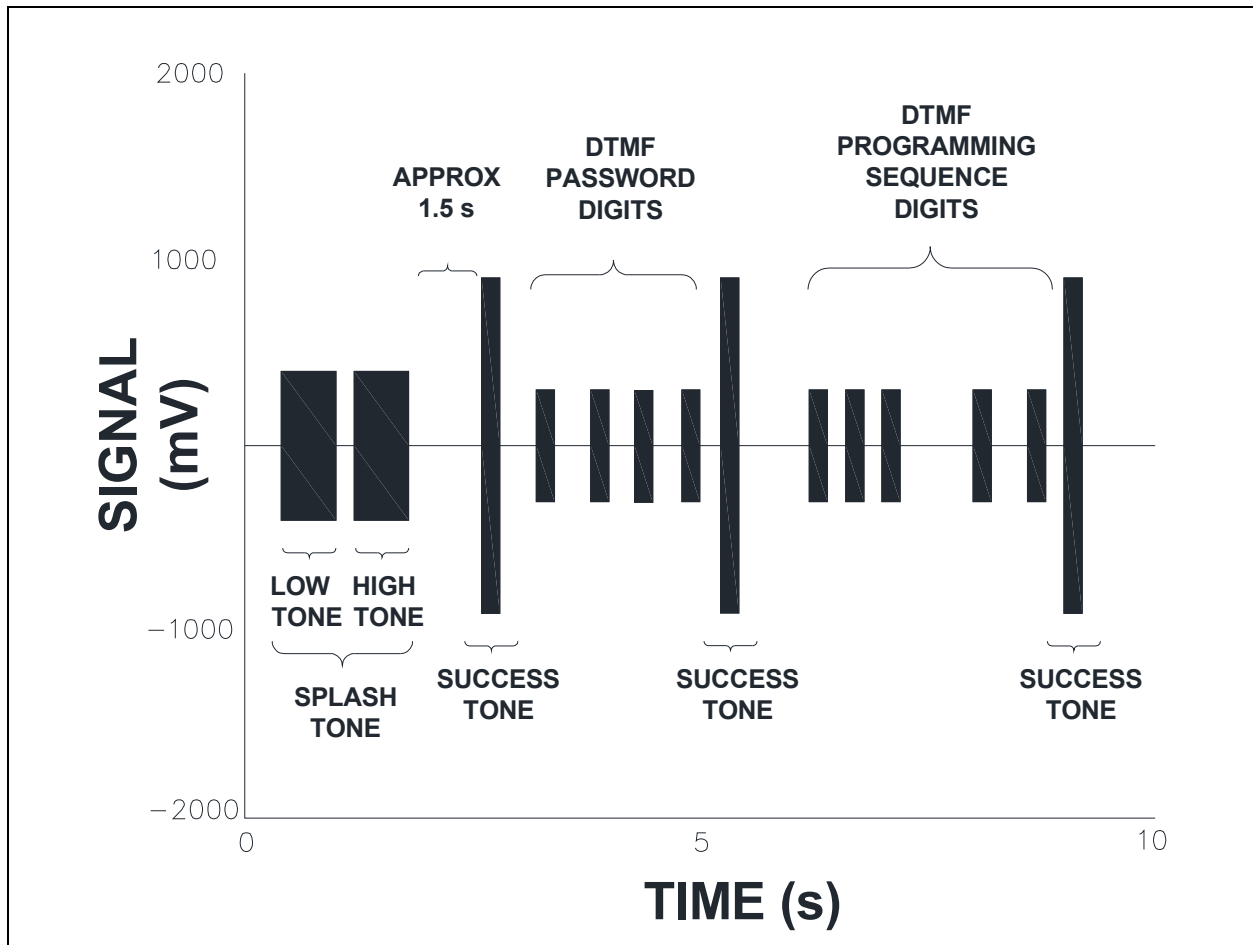
Figure 14. Telephone Programming Timing Diagram

Programming Sequences

The information on the following pages explains the programming options. The telephone is shipped from the factory with default parameters configured (see Table 2). A column is included in the table to record the modified programming parameters.

Programming Legend
D = digit 0–9, *, or #
N = digit 0–9
L = 0—Disable; 1—Enable

The following instructions are common to both local and remote access programming. Follow these directions to configure the telephone to the desired operating parameters.

1. Connect to the telephone locally (see the Local Access Programming section) or remotely (see the Remote Access Programming section).

2. Dial the factory-default password **2468** (or appropriate customer-selected password). A success tone (short beep) is generated to indicate that *standard* programming mode has been accessed.

3. After hearing the password success tone, begin entering each desired programming key sequence (see the Programming Sequences section).

    A success tone (short beep) is generated each time a new key sequence is accepted.

    An error tone (two low tones) is generated to indicate errors.

4. Verify the key sequence and reenter the sequence if an error tone is generated.

5. To terminate the programming call:

- Local—Press the CALL or HELP push button (whichever is connected to J1) to end the call. Restore any moved push-button harness connectors to their original position (if necessary).
- Remote—Place the programming telephone on hook. The RED ALERT® telephone will automatically end the programming call within 20 seconds.

NOTES:

- RED ALERT® camera telephones automatically time out and disconnect after 20 seconds elapses between digit entries or if an invalid password is entered.

- RED ALERT® camera telephones exit programming mode and revert to a standard voice call if DTMF digits are not dialed within 3 seconds of the first success tone.

- The telephone failed to recognize the password if the password success tone is not generated. The telephone must then be programmed with the password disabled if the correct password is not known (see the Password Disabled Programming section).

Dialing Methods

The telephone can be configured for either auto-dialing or ring-down operation. Select the dialing method that fits the application. The dialing methods are explained in detail below.

Auto-dialing

The HELP push button can be programmed to call up to three unique telephone numbers. The unique telephone numbers include a primary telephone number and two rollover numbers. The emergency telephone will automatically dial the first rollover number (if configured) if the emergency call cannot connect to the primary telephone number (i.e., a busy signal or no answer). The emergency telephone automatically dials the second rollover number (if configured) if the emergency call cannot connect to first rollover telephone number. This sequence will continue until the emergency call is answered, or all numbers have been attempted (one attempt each).

The number of attempts to call each programmed number can be increased when operating in SMART mode (two attempts each, three attempts each, etc.). All three auto-dial memories must be programmed with valid telephone numbers for the rollover feature to function properly. The three auto-dial numbers can all be the same or any combination of telephone numbers. The numbers will only be dialed one time if the telephone has only one or two auto-dial numbers programmed.

The telephones can be programmed to access outside CO lines if connected to a PBX, PABX, KSU, etc. telephone system. Access to a CO line typically requires adding a digit (e.g. 9) to the auto-dial number. A *pause* may also be required in the auto-dial number. The pause is normally required to wait for the secondary (CO line) dial tone (see Table 3, HELP button AUTO-DIAL Number 1 for examples).

The telephones also have a programmable *Primary Dial Tone Delay* and *Secondary Dial Tone Delay* in addition to the pause capability. Both delays determine the amount of time the telephone will wait before dialing the stored telephone number.

NOTE: The secondary dial tone delay can only be used if a 9 must be entered to gain access to the CO line.

The AUTO-DIAL2 push button can only be programmed for a single telephone number when operating in standard mode. Configure the telephone for SMART mode with TMA to program the AUTO-DIAL 2 button for three-number rollover.

Table 3. Auto-Dialing Key Sequence Setup

Feature	Key Sequence	Description	Default
HELP Button Auto-dial Number 1	*DD* ... *1	Assigns a telephone number to the auto-dial memory 1. *DD...* represents the telephone number digits. Telephone numbers can be up to 24 digits long. A pause may be required in the telephone number to wait for a secondary dial tone for access to an outside line. The ***#** key combination represents a pause in the telephone number. *Examples:* To assign the police emergency number 911 to the auto-dial button, enter **911*1**. To assign 911 when a 9 is required to gain access to a CO line, enter **9*#911*1**. To store * or # as part of the auto-dial number, (such as for speed dialing), enter these digits twice in succession.	None
HELP Button Auto-dial Number 2	*DD* ... *2	Same as HELP Button Auto-dial Number 1 except the sequence ends in *2 instead of *1.	None
HELP Button Auto-dial Number 3	*DD* ... *3	Same as HELP Button Auto-dial Number 1 except the sequence ends in *3 instead of *1.	None
CALL or ASSISTANCE Button Auto-dial	*DD* ... *4 *DD* ... *5 *DD* ... *6	Same as HELP Button Auto-dial Number 1 except the sequence end digits. **NOTE:** The *5 and *6 telephone numbers are used only when operating in SMART mode.	None
Primary Dial Tone Delay	# 1 0 *N N*	Dial tone delay is the amount of time the telephone waits for a dial tone before auto-dialing the telephone number. (00 [20 seconds] | 01–15 seconds) *Example:* Enter **# 1 0 0 5** to wait 5 seconds for a dial tone.	03 (3seconds)
Secondary Dial Tone Delay	# 1 1 *N N*	This feature is only used if a 9 must be dialed to access an outside line. It determines the amount of time (00–15 seconds) that the telephone waits for a second dial tone. In the example for the AUTO-DIAL 1 Number 1 feature above, the 9*# digits prefix the auto-dial number to add the pause. This programming parameter allows choosing the amount of time the telephone waits after sending the 9 before dialing the auto-dial number. *Example:* Enter **# 1 1 1 0** to wait 10 seconds for the second dial tone.	02 (2 seconds)
Ring-down Operation	*1	This option clears the telephone number to prevent auto-dialing when the button is pressed. The ring-down system must detect the loop current and ring-down to the appropriate telephone after the button is pressed.	None

Ring-down Operation

Ring-down operation enables the telephone to go off-hook when the HELP push button is pressed. The ring-down system must detect loop current and ring-down to the appropriate telephone.

Password Protection

The password protection feature allows changing the four-digit password required to program the telephone. Each telephone is password protected to maintain the integrity of programmed information and should not be disabled.

The password is required to enter the programming mode when programming the telephone locally or from a remote location. Jumper J9 must be in the **EN** position to enable the password protection feature. Complete the key sequence to change the four-digit password.

Table 4. Password Programming

Feature	Key Sequence	Description	Default
Password Protection	# 1 4 *N N N N*	A four-digit password must be supplied to remotely program the telephone. If the password has been changed and programming mode can't be accessed (see Password Disabled Programming section). *Example*: To program the password 1234, enter **# 1 4 1 2 3 4**.	2468

Auto-Answer Alert

When auto-answering an incoming call, the RED ALERT® telephone will generate a splash tone on the telephone line. This tone is always heard by the calling party. This tone can be pre-programmed to also be heard over the telephone's integral speaker using this key sequence.

Table 5. Auto-Answer Alert Programming

Feature	Key Sequence	Description	Default
Auto-answer Alert	# 1 6 *L*	The auto-answer alert feature allows a person to call the emergency telephone and monitor the area around the telephone with or without sounding a splash tone over the unit's integral speaker. (Disable alert tone), *L*=0. (Enable alert tone), *L*=**1**.	1 (Enabled)

Off-Hook Ringing

The telephone can generate a ringing signal from the speaker when the telephone is called. The factory default setting for this feature is *disabled*.

NOTE: In addition to enabling this feature, the auto-answer feature must also be enabled for proper operation.

Table 6. Off-Hook Ringing

Feature	Key Sequence	Description	Default
Off-Hook Ringing	# 2 2 *L*	Enabling the *off-hook ringing* feature allows a person to call the telephone and have the telephone function as a normal telephone. The telephone will ring after the splash tone is heard in the receiver if remote programming is not commenced within 7 seconds of the splash tone. To enable the ringing feature (enable splash tone and ringing), *L*=1. To disable the ringing feature (only splash tone on the phone), *L*=**0**. **NOTE:** Answering a call by pressing the CALL push button is only available on phones equipped with a CALL push button.	0 (Disabled)

Disconnect Options

Several options are available for disconnecting a call. Any combination of disconnect options may be used. Select the method that best suits the application and follow the appropriate programming directions.

Table 7. Disconnect Options

Feature	Key Sequence	Description	Default
HELP Push-button Disconnect Option	# 1 7 *L*	The HELP push button cannot be used to disconnect a call for 10 seconds after initially pressing the push button. However, the HELP push button can be used to disconnect calls after the 10-second push button lockout period elapses when *L*=1. To prevent the HELP push button from disconnecting the call, set *L*=0. *Example*: To enable the HELP push button disconnect, enter **# 1 7 1**. To disable the HELP push button disconnect, enter **# 1 7 0**.	1 (Enabled)
Call Time-out Disconnect Option	# 1 2 *N N*	This feature programs the maximum length of a call if no other disconnect features are used. The valid entries are 1–99, representing 1-minute increments and 0 representing 4.5 hours. The call duration timer begins when the emergency telephone goes off-hook. The telephone automatically disconnects after the programmed time-out period elapses. The user can immediately press the HELP button to reconnect the autodial number. This feature helps prevent non-emergency calls from tying up emergency lines for long lengths of time. *Example*: To make the maximum call length 2 minutes, enter **# 1 2 0 2**.	10 (10 minutes)

Feature	Key Sequence	Description	Default
Dial Tone Disconnect Option	# 1 9 *L*	**NOTE:** Use this option only if no other disconnect options are available. If this option is enabled, the telephone automatically terminates a call if it detects a dial tone continuously for 10 seconds, such as if the called party hangs up. To enable the dial-tone disconnect, *L*=1. To disable the dial-tone disconnect, *L*=**0**. *Example*: To enable the dial tone disconnect, enter **# 1 9 1**. To disable the dial tone disconnect, enter **# 1 9 0**.	0 (Disabled)

ADA (Americans with Disabilities Act) Programming

The ADA features provide the following benefits:

- CALL RECEIVED WHEN LIT indication—This lamp provides indication to hearing-impaired individuals that the emergency call has been answered.

- The Location Identification Code—This feature enables security personnel to quickly and easily locate an individual in trouble.

- DTMF Call Disconnect—Enables the security operator to disconnect the call by pressing ##.

Table 8. ADA Programming

Feature	Key Sequence	Description	Default
DTMF Disconnect Option	# 1 8 *L*	This option controls the DTMF ## disconnect feature. To enable, set *L*=**1**. To disable, set *L*=0.	1 (Enabled)
Location Identification ID Setup	# 1 3 *L N N N*	This option enables and stores the three-digit location identification ID number. To enable the ID feature, set *L*=1. To disable the ID feature, *L*=0. Enter the three-digit location identification code in the sequence *N N N*. *Example*: To enable the location ID feature and store the three-digit ID code 357, enter **# 1 3 1 3 5 7**. To disable the location ID feature, enter **# 1 3 0 0 0 0**. **NOTE:** The ADA options must also be enabled.	No default setting. The user must complete this step to have the identification code transmitted.

Extended Strobe Operation (Requires External Power Supply)

Output one can be programmed for extended operation (remain closed) for up to 255 minutes (in 1-minute increments) after the emergency call ends.

Table 9. Extended Strobe Operation

Feature	Key Sequence	Description	Default
Extended Strobe Operation	# 2 5 *N N N*	Sets the duration of the activation of the output one contact starting at the end of a call. Use entries 001–255, representing 1 minute to 255 minutes in 1-minute increments. Use 000 to disable this feature. To set a duration of 7 minutes, enter **# 2 5 0 0 7**.	0 0 0 (Disabled)

Output Four Control

The command (DTMF key sequence) that triggers the timed activation of output four contact closure (TB5) is configurable. The sequence can contain up to eight DTMF digits in the range 0–9. The first digit must <u>not</u> be 0 (zero). Some examples of valid control sequences are: 87654321, 832, and even a single digit such as 7. The duration of the activation (closure) of output four can be set in the range of 0.1 to 12.7 seconds in 0.1-second increments.

Table 10. Output Four Control Options

Feature	Key Sequence	Description	Default
Control Sequence	*N N...* * 8	Assigns the digits NN... as the command key sequence that triggers the timed activation of output four. NN is a sequence of 1–8 digits, with the first digit not zero. To assign 726 as the control sequence, enter **7 2 6 * 8**.	90125
Duration of Timed Activation	# 2 6 *N N N*	Sets the duration of the activation of the Output 4 contact when triggered by the control sequence. Use entries 001–127, representing 0.1 second to 12.7 seconds in 0.1-second increments. Use 000 to disable this feature. To set a duration of 7 seconds, enter **# 2 6 0 7 0**.	5 seconds

Early Microphone Option

The microphone in each telephone activates only after the unit determines connection to the called party. This will occur in one of two ways based on factory-default programming; when the telephone receives a DTMF ***** from the called party, or when the telephone detects that no more ring-backs from the called number are occurring. This ring-back determination may take 4–6 seconds to detect, rendering the microphone non-active for that time.

Enabling *early microphone* activates the microphone when the telephone <u>begins</u> checking for ring-back tones, typically less than 1 second after the unit completes the dialing sequence. Early microphone operation will occur for both emergency and non-emergency call operation of the Model 398-001CAM and 394AL-001CAM camera telephones when enabled.

Use of the early microphone feature includes an operational risk that ring-back tones can be missed, or audio received by the microphone can be recognized by the telephone, causing it to operate as if the call had been answered. This could prevent call *rollover* from occurring.

NOTE: The early microphone feature should only be used if the telephone number being called by the emergency telephone is attended 24 hours per day. If call rollover is desired, the appropriate feature setting is early microphone option disabled.

Table 11. Early Microphone Option

Feature	Key Sequence	Description	Default
Early Microphone Option Enable	# 7 1 1	Provide microphone activation within 1 second of dial sequence completion.	No
Early Microphone Option Disable	# 7 1 0	Returns telephone to default operation of microphone.	Yes

SMART Mode Programming

TMA software is designed to remotely program RED ALERT® camera telephones for SMART mode operation. Although they can be locally programmed for SMART operation, there is no advantage to having a RED ALERT® telephone set up for SMART mode without having TMA installed.

RED ALERT® telephones should be programmed for standard-mode operation when installed in systems that do not have TMA installed but will have TMA operational in the future. The installed telephones can be reprogrammed from the TMA PC upon installation of TMA.

Table 12. Programming Documentation Table

Function	Key Sequence	Default Setting	User Settings
Auto-dial or Ring-Down Programming (see Table 3Error! Reference source not found.)			
HELP Button Auto-dial Number 1	*DD**1	None	
HELP Button Auto-dial Number 2	*DD**2	None	
HELP Button Auto-dial Number 3	*DD**3	None	
CALL Button Auto-dial Number	*DD**4	None	
Primary Dial Tone Delay	#10*NN*	3 seconds	
Secondary Line Dial Tone Delay	#11*NN*	2 seconds	
Ring-down Operation	*1	None	
Password Protection Feature Programming (see Table 4)			
Password Protection	#14*NNNN*	2468	
Disconnect Options Programming (see Table 7)			
Emergency Push-button Disconnect	#17*L*	1 (enabled)	
Call Time-out Disconnect	#12*NN*	10 minutes	
Dial Tone Disconnect	#19*L*	0 (disabled)	
ADA Programming (see Table 8)			
DTMF Disconnect Option	#18*L*	#181	
Identification Code Entry	#13*LNNN*	None	
Other Programming Features			
Auto-Answer Alert Feature (see Table 5)	#16*L*	0 (disabled)	
Off-Hook Ringing Feature (see Table 6)	#22*L*	0 (disabled)	
Extended Strobe Operation (see Table 9)	#25*NNN*	0 0 0 (disabled)	
Output Four Control Setup (see Table 10)	*NN*…*8 #26*NNN*	90125 #26050 (5 sec.)	
Early Microphone Option (see Table 11)	#71*L*	0 (disabled)	
Table Legend: D = DTMF digit 0–9, *, or # N = Numeric digit 0–9 L = 0—Disable, 1—Enable			

Maintenance

⚠**WARNING** ⚠ —Always remove power to this station prior to servicing.

General Information

1. Inspect and replace frayed or cracked wiring.

2. Secure/replace loose wires and terminal lugs.

3. Remove corrosion from terminals.

Service

Contact your GAI-Tronics regional service center for a RA # (return authorization number). Ship equipment prepaid to GAI-Tronics with a return authorization number and a purchase order number. Repairs will be made without charge if the equipment is under warranty. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 inside the USA or 610-777-1374 outside the USA for help identifying the regional service center closest to you.

Preventive Maintenance for Flush-Mount Telephones

Stainless steel does not normally require maintenance to prevent corrosion from occurring. Different installation locations may require more regular maintenance than others, depending on the environment and exposure to airborne contaminants. The following maintenance steps should be performed on a regular basis or when corrosion is first noticed on your Model 397-001CAM or 398-001CAM camera telephone.

Cleaning

• For the camera provided inside the telephone, periodic cleaning of the clear plastic lens on the front cover is recommended to ensure satisfactory viewing from the internal camera. DO NOT use any chemicals, solvents, or abrasive materials to clean the lens. Water mixed with a mild soap or detergent and a soft cotton cloth should adequately clean the lens surface without risk of scratching the clear plastic material.

• For general cleaning, wipe the surface with a cleanser or a cleanser and water mixture. Any cleanser that is safe for glass is usually safe for stainless steel. Wipe dry.

• If corrosion or rusting is noticed, remove with a non-abrasive commercial cleanser and water. Rub stained areas in the same direction as the existing grain. Stubborn stains may be removed with a magnesium oxide, ammonia, and water paste. Wipe clean with water rinse and dry.

Prevention

Automotive wax provides the best results in preventing corrosion on stainless steel. Simply apply wax, let dry to a haze, and buff to a shine with a clean dry cloth. This application should protect the telephone surface for many months as it will allow natural reformation of the chromium oxide layer.

Do NOT use steel wool, sandpaper, mineral acids, bleaches, or chlorine cleansers on the stainless surface.

Replacement Parts

Part No.	Description	393-001CAM	394AL-001CAM	397-001CAM	398-001CAM
233-001	Model 233-001 Security Screwdriver	■	■	■	■
12562-108	PCBA, Replacement	■	■	■	■
12562-109	PCBA, Voice Annunciation Kit	■	■	■	■
51035-005A	PCBA, Keypad Assembly				■
51035-019	PCBA, Keypad Assembly		■		
69838-001	Sony CC-9606 1/3-inch Super HAD CCD Sensor	■	■	■	■
12542-002	Security Screws, (Torx T-25), ½ inch, Pack of 15			■	■
12516-003	Security Screws, (Torx T-25), 1-½ inches, Pack of 10	■	■		
12520-009	Push Button Replacement Kit (HELP)	■	■	■	■
12520-010	Push Button Replacement Kit (CALL/ASSISTANCE)		■		■
12521-004	Microphone Replacement Kit	■	■	■	■
12522-007	Piezo Speaker Replacement Kit	■	■	■	■

Specifications

TMA compatibility profile type..GTC SMART Hands-free

Auto-dial digit limit .... 24 digits

Electrical

Audio output .... 1 kHz tone—87 ±3 dB SPL @ 1 meter with 40 mA loop current

Battery voltage (tip and ring)...24 V dc or 48 V dc

Phone line requirements...loop start, central office (CO), or

analog station port (PBX, PABX, or KSU)

Minimum loop current .... 24 mA (35 mA recommended)

Auxiliary output (Isolated solid-state switch)..48 V dc @ 125 mA

28 V $_{RMS}$ ac @ 80 mA $_{RMS}$

Signaling ....DTMF 100 ms tone

Memory..non-volatile EEPROM

Mechanical

Telephone operating temperature range...−4 ℉ to +140 ℉ (−20 ℃ to +60 ℃)

Camera operating temperature range .... 14 ℉ to 122 ℉ (−10 ℃ to 50 ℃)

Relative humidity.. to 95%, non-condensing

Model 393-001CAM

Enclosure construction...........................Valox® (high-impact, glass-reinforced polyester in safety yellow)

Dimensions ....9.5 H $\times$ 8.0 W $\times$ 4.0 D in (241.3 $\times$ 203.2 $\times$ 101.6 mm)

Weight.. 4.0 lb (1.8 kg)

Model 394AL-001CAM

Enclosure construction...cast aluminum painted safety yellow

Dial pad...chrome-plated zinc

Dimensions ....9.5 H $\times$ 8 W $\times$ 4 D in (241.3 $\times$ 203.2 $\times$ 101.6 mm)

Weight.. 8.5 lb (3.8 kg)

Models 397-001CAM and 398-001CAM

Construction

    Panel ....14-gauge, Type 304 brushed stainless steel

    Back box... 16-gauge cold-rolled steel with black polyurethane finish

    Dial pad (Model 398-001CAM only)...chrome-plated zinc

Dimensions

    Front panel.. 12.00 H $\times$ 10.00 W in (305 $\times$ 254 mm)

    Back box (overall) .... 10.06 H $\times$ 8.43 W $\times$ 2.50 D in (256 $\times$ 214 $\times$ 63.5 mm)

    Cutout for mounting back box... 10.13 H $\times$ 7.63 W in (257 $\times$ 194 mm)

Weight

    Model 397-001CAM .... 6.5 lb (2.9 kg)

    Model 398-001CAM .... 7.2 lb (3.3 kg)

Camera Specifications

Image pick-up device ....1/3-inch Super HAD CCD sensor

Effective picture element ....NTSC; 510*492, PAL: 500*582 (H*V)

Horizontal resolution ....380 lines (TV)

Minimum illumination .... 0.2 LUX @ F2.0

S/N ratio.. more than 48 dB

Auto electronic shutter................NTSC: 1/60 s ~ 1/100,000 s, PAL: 1/50 s ~1/110,000 s on/off switchable

Auto iris control .... video-drive iris control

Auto gain control ....high/low switchable

Auto white balance ....color temperature: 2500–9500K

Back-light compensation .... on/off switchable

Flickerless mode ....on/off switchable; fixed shutter speed: NTSC=1/100s; PAL=1/120s

Gamma characteristic.. 0.45

Synchronous system... internal, negative sync

Video output...1 V $_{P-P}$ @ 75 Ω

Power supply requirement (customer supplied)................12 V dc, 500 mA maximum certified/recognized,

Class 2 or LPS

Power consumption...120 mA (1.44 W)
Lens type..cone-type pin-hole lens F5.5 mm/F3.5

Approvals

Safety of Information Technology Equipment ....UL/CSA 60950
Enclosures for Electrical Equipment... Type 3R

47 CFR Part 68

Certification Number ....US: ADGTE05BGTC2010
Ringer Equivalence Number...0.5 B
Network connection (USOC)..RJ11

IC Information (Canada)

IC Certification Number 822B-GTC2010
Ringer Equivalence Number...0.5 B
Connection Method..CA11A

User Instructions (USA)

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

User Instructions (Canada) CP-01, Issue 8, Part I: Section 14.1

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document (s). The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CP-01, Issue 8, Part I: Section 14.2

NOTICE: The **Ringer Equivalence Number** (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.