GAI-TRONICS® CORPORATION
A HUBBELL COMPANY

Retrofit S.M.A.R.T. Externally Powered Emergency Phones

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Retrofit S.M.A.R.T. Externally Powered Emergency Phones

Getting Started

Product Overview

Thank you for your purchase of a GAI-Tronics S.M.A.R.T. externally powered emergency telephone. In addition to providing standard emergency telephone operation, GAI-Tronics Self-Monitoring and Reporting Telephones (S.M.A.R.T.) incorporate leading-edge technology to provide optimum performance and flexibility. For example, when interfaced to our Telephone Management Application (TMA) the health of each telephone is monitored and reported. For complete details, please refer to the on-line help included with TMA.

This manual applies to the following GAI-Tronics S.M.A.R.T. externally powered Emergency Telephones designed as retrofit models for mounting in existing RT and CB-type proprietary enclosures:

Model	Description
297-103RT4	**Flush-panel Emergency Phone** – This phone has a heavy-gauge brushed stainless steel front panel that includes an emergency push button. It provides the functionality of a standard GAI-Tronics Model 297-103 Emergency Phone, but is designed to be mounted into an existing proprietary RT-type enclosure using four mounting screws.
297-103RT6	**Provides the same functionality** as above, but is designed to be mounted into an existing proprietary RT-type enclosure using six mounting screws.
297-103CB6	**Provides the same functionality** as above, but is designed to be mounted into an existing proprietary CB-type enclosure using six mounting screws.
298-103RT4	**Flush-panel Emergency Phone with Keypad** – This phone has a heavy-gauge brushed stainless steel front panel equipped with a 12-button keypad, an emergency push button, and a call (off-hook) button. It provides the functionality of a standard GAI-Tronics Model 298-103 Emergency Phone, but is designed to be mounted into an existing proprietary RT-type enclosure using four mounting screws.
298-103RT6	**Provides the same functionality** as above, but is designed to be mounted into an existing proprietary RT-type enclosures using six mounting screws.
298-103CB6	**Provides the same functionality** as above, but is designed to be mounted into an existing proprietary CB-type enclosures using six mounting screws.

All of the above S.M.A.R.T. emergency telephones comply with the Americans with Disabilities Act (ADA). Each phone includes a Braille tag for vision-impaired individuals to identify the functions of the telephone and a visual indication for hearing-impaired individuals indicating that an emergency call has been answered.

The CALL RECEIVED WHEN LIT LED is the visual call received indicator. When a call is initiated by pressing the emergency push button, the LED will initially flash. When the telephone is answered and audio is detected, the LED will light steady. The LED remains on steady until the call is disconnected.

The GAI-Tronics S.M.A.R.T. telephone product line offers a wide variety of configurable options making the phones suitable for a diverse range of applications. Most configurable options can be changed from another telephone. However, access to all configurable options is only available through TMA. The following are examples of configurable options:

- Pre-programmed auto-dial telephone numbers

- Call termination method (automatic or manual)

- Maximum call duration

- Answering options

- Auxiliary input configuration

These functions are initially programmed during manufacturing and testing. After installation, they can be programmed remotely via DTMF data calls, either manually or through TMA. Set the emergency auto-dial phone numbers in accordance with your security plan. For most applications, the other function settings will not need to be changed from their factory defaults. For details regarding configurable options and the factory defaults, please refer to the programming section of this manual and the on-line help available with TMA.

The emergency push button can be programmed to call three unique telephone numbers. The unique telephone numbers include a primary telephone number and two backup, or roll over, numbers. In the event an emergency call cannot connect to the primary telephone number (i.e., a busy signal or no answer), the emergency phone will automatically dial the first backup, or roll over, number. Again, in the event an emergency call cannot connect to first backup telephone number, the emergency phone will automatically dial the second backup, or roll over, number. This sequence will continue either until the emergency call is answered or the programmed number of retries is reached.

All of the above S.M.A.R.T. telephones are powered by the included 12 V dc output-regulated power supply and can be connected to any of the following:

- Central Office (CO) line to the Public Switched Telephone Network (PSTN)
- 24 V dc or 48 V dc analog station port of Private Branch Exchange (PBX), Private Automatic Branch Exchange (PABX) or KSU.

Connection may not be made to pay phone extensions or shared service (party) lines.

NOTE: Each telephone requires a dedicated power supply. Multiple telephones cannot be connected to a single power supply. The power supply must provide galvanic isolation between its input and its 12 V dc output. For dc-to-dc applications, galvanic isolation is required. Galvanic isolation (separation) is achieved by using a transformer or opto-coupler.

Standard Operation

There are two types of telephones described in this manual. The first includes a single emergency push button and the second includes an emergency push button, a call push button, and telephone keypad. The operation of both is listed below.

Placing an Emergency Call from a S.M.A.R.T. Phone (All Models)

To place an emergency call:

1. Press the EMERGENCY push button to place an immediate call to a preprogrammed emergency number, typically a security office or 911.

2. As the factory default, the CALL RECEIVED WHEN LIT LED will light steady when the phone detects sound (i.e., "Hello, Security….").

3. As an alternate operation, the emergency phone can be configured to require operator action to light the CALL RECEIVED WHEN LIT LED. If this mode is configured, the operator lifts the handset, and presses **#** (or *****) to acknowledge the call and then the CALL RECEIVED WHEN LIT LED will light steady.

Placing a Non-Emergency Call (Models 298-103RT4/RT6 and 298-103CB6 Only)

To place a non-emergency call:

1. Press the CALL push button.

2. Wait for dial tone.

3. Use the keypad to dial the desired number.

4. At the end of the conversation, press the CALL push button again to put the phone on-hook.

Receiving a Call

When a S.M.A.R.T. emergency telephone is called, the phone automatically goes off-hook and a conversation can take place.

Disconnecting Calls

There are several methods included in the S.M.A.R.T. emergency telephones to disconnect calls. There are both manual and automatic disconnect methods. The disconnect methods include the following:

- Remotely disconnect an emergency call, operator enters either the **# #** or ***99** control command.

- Manually disconnect an emergency call, press the EMERGENCY button after 15 seconds (can be disabled).

- Manually disconnect a non-emergency call, press the CALL button a second time.

- Automatically disconnect;
    - All calls, loop current drop disconnect.
    - All calls, maximum call duration timeout (configurable from 1 minute to 4 ½ hours)
    - Emergency and incoming calls, call progress tones (dial tone, busy signal, fast busy (or reorder) tone)

For factory defaults and available options, please refer to the Programming section of this manual.

Installation

⚠ **ATTENTION** ⚠   Installation should be performed by qualified personnel and only in accordance with the National Electrical Code or applicable local codes.

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.
- All telephone models must be properly connected to earth ground to protect personnel and to minimize the effects of any electrostatic discharge (e.g., lightning). The telephones each include a ground terminal. Please note proper grounding does not eliminate the need for lightning protection for the telephone or the telephone system.
- An additional UL Listed lightning arrestor may be installed on any phone or phone cable that is exposed to a higher risk of lightning strikes. The lightning arrestor must be installed as close to the phone as possible to maximize the protection. It must not be installed within the enclosure supplied with the phone. Please consult our Service Center at 800-492-1212 for further information.
- 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.
- If an ac source is available within five feet of the telephone, the included power supply can be used. The ac source and power supply must be mounted in a dry location, such as a GAI-Tronics stanchion.
- If the ac source is located more than five feet from the telephone, either extend the wiring of the included power supply, or provide a UL LISTED "Class 2" 12 volt dc regulated power supply. Additionally, if the ac source is not located within the same structure or building, lightning/surge protection is required.

General Installation Guidelines

GAI-Tronics S.M.A.R.T. phones are designed to operate on telephone lines as detailed in the Product Overview section of this manual. The telephones are designed to operate with one telephone per line. If telephones are operated in parallel or "party line configuration" you may experience sporadic phone operation, difficulties with programming, or premature disconnection of calls. Additionally, if special features, e.g. voice mail, call waiting, etc, are not disabled, the phone may not function.

Tamper-Resistant Hardware

All of the telephones described in this manual are vandal resistant. The front panel for each telephone covered in this manual is attached to its enclosure with tamper-resistant screws. To ease installation, every RT Series and CB Series telephone is shipped with a tamper-resistant screwdriver bit.

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, we strongly recommend the following:

- Conduit should enter the enclosure from the bottom.
- Sealed fittings should be installed at all cable entry points.
- Silicone sealant or equivalent should be applied around and inside all conduit entries.

Installation Procedure

1. When mounting in a GAI-Tronics Model 234 Series Stanchion or for flush-mount installations, the supplied back box must be used to mount the telephone. Mount the back box to the structure using the appropriate hardware. Refer to the figures below for cutout dimensions.

2. If mounted outdoors, the installation of a telephone line suppressor (customer-supplied) on the telephone line is recommended.

3. Remove the tapered plug from the top or bottom cable entry hole in the back box, and pull the telephone line and power supply cord through.

4. Connect the power supply 4-pin connector to the P17 header jack on the PCBA.

5. Connect the telephone's modular plug to a USOC RJ11 or CA11A (Canada) modular connector or (if applicable) the telephone line suppressor. Refer to Figure 8 for the component locations. Telephone line connections directly to TB1 are acceptable.

6. If configuration changes are necessary, remove the back box, and using the Setup section of this manual,

    - Make hardware configuration changes. See the Hardware Configuration section on page 8 for details.

    - Adjust the audio levels if necessary. See the Audio Level Adjustment section on page 10 for details.

    - Perform the initial programming. See the Programming section on page 11.

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

8. Complete the installation by attaching the front panel assembly to the rear enclosure using the tamper-resistant screws.
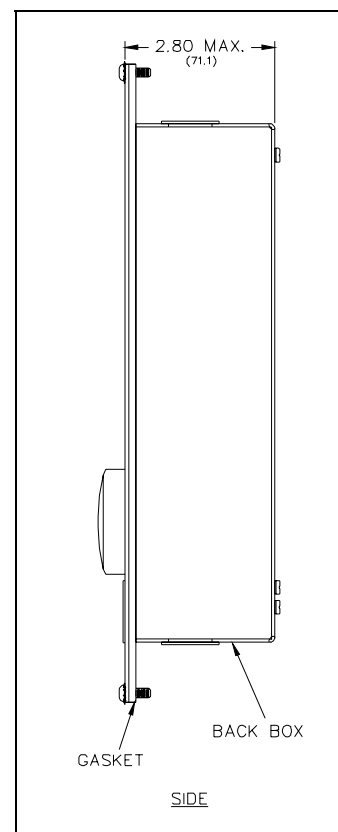

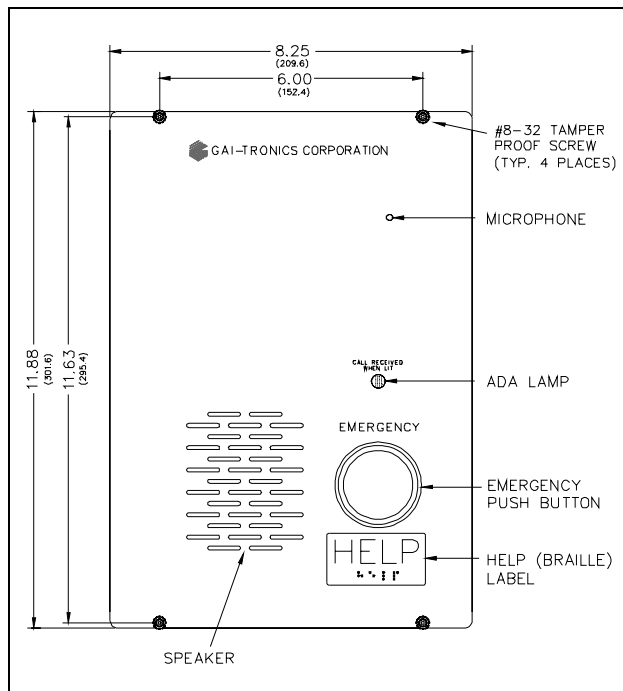Figure 1. Typical Side View of Telephone Assembly
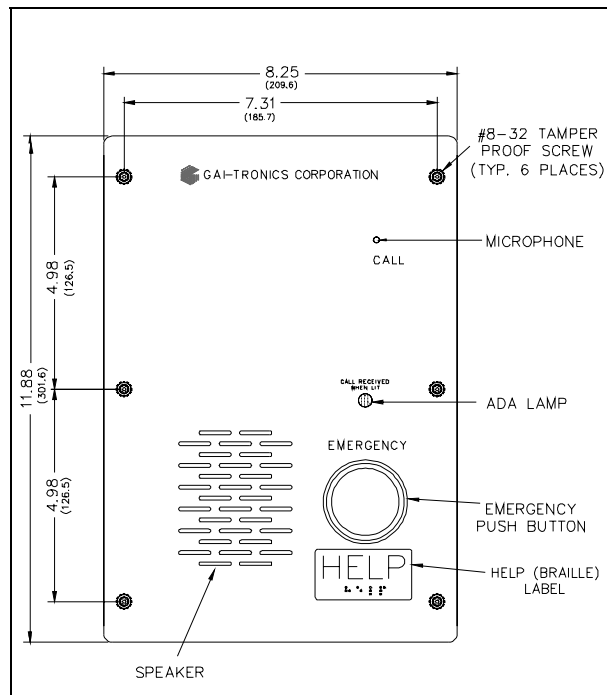
Figure 2. Model 297-103RT4
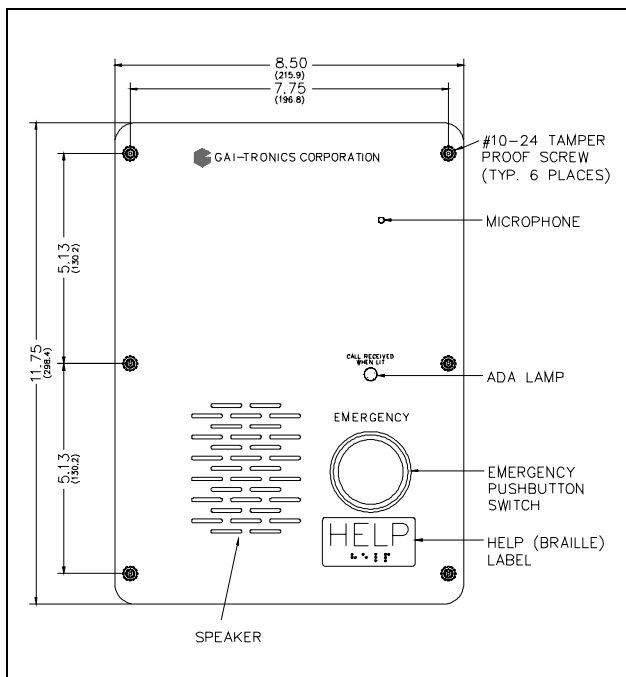
Figure 3. Model 297-103RT6
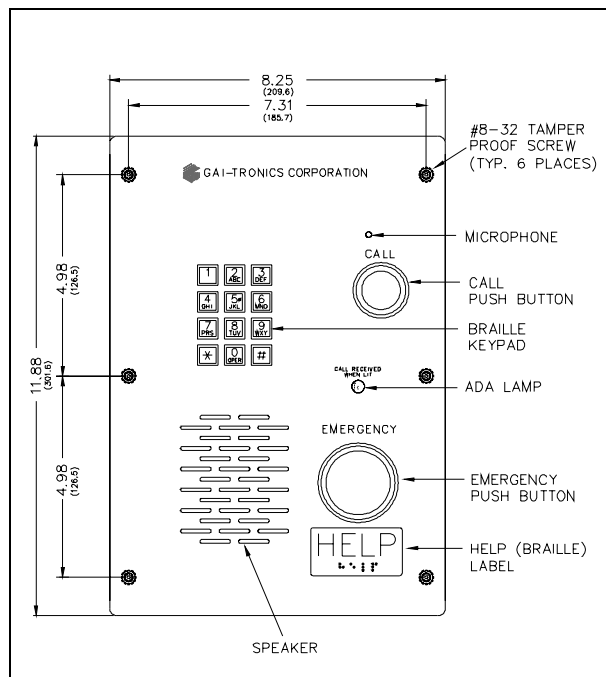
Figure 4. Model 297-103CB6
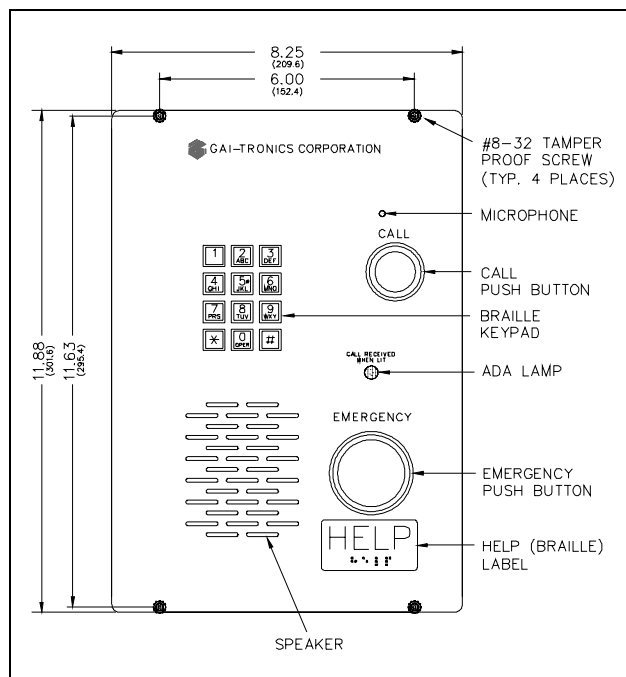
Figure 5. Model 298-103RT6
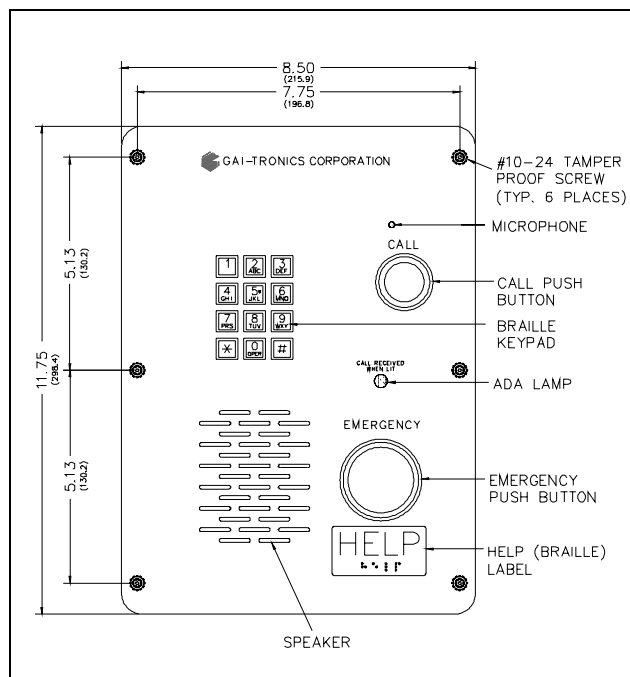
Figure 6. Model 298-103RT4

Figure 7. Model 298-103CB6

Setup

Hardware Configuration

The hardware configuration options are explained in detail in the following sections, and the necessary jumper settings are identified to enable or disable each option. We recommend reading each section, recording the selected options, making the necessary changes, and creating a record of your settings. See Figure 8 on page 9 for the jumper locations.

Auto-answer Configuration

Factory Setting: Auto-answer feature enabled

The Auto-answer feature enables or disables the automatic answering of an incoming call, which allows TMA to monitor the health of this phone via polling. When the Auto-answer feature is enabled, the phone automatically answers the call and attempts to communicate with TMA. If the caller is not TMA, then the phone connects in a normal 2-way voice call. At the start of this voice call, the phone alerts the caller and the called party with two sets of three beep tones.

Enable: Insert the J14 jumper on pins 2 and 3.

Disable: Insert the J14 jumper on pins 1 and 2 (Do not use this setting except under the direction of GAI-Tronics personnel.)

NOTE: The Auto-answer feature must be enabled during remote programming, and to allow the GAI-Tronics Telephone Management Application PC to contact the phone.

Polarity Configuration

Factory Setting: Non-polarity sensitive

This telephone can be configured to be polarity or non-polarity sensitive. With the non-polarized setting, the telephone operates regardless of tip and ring polarity. With the polarized setting, the telephone only operates with the telephone line's positive terminal connected to the tip. Use the Polarity Sensitive setting to allow a line voltage reversal disconnect signal to disconnect the call.

Non-polarity Sensitive: Insert the J6 jumper on pins 2 and 3.

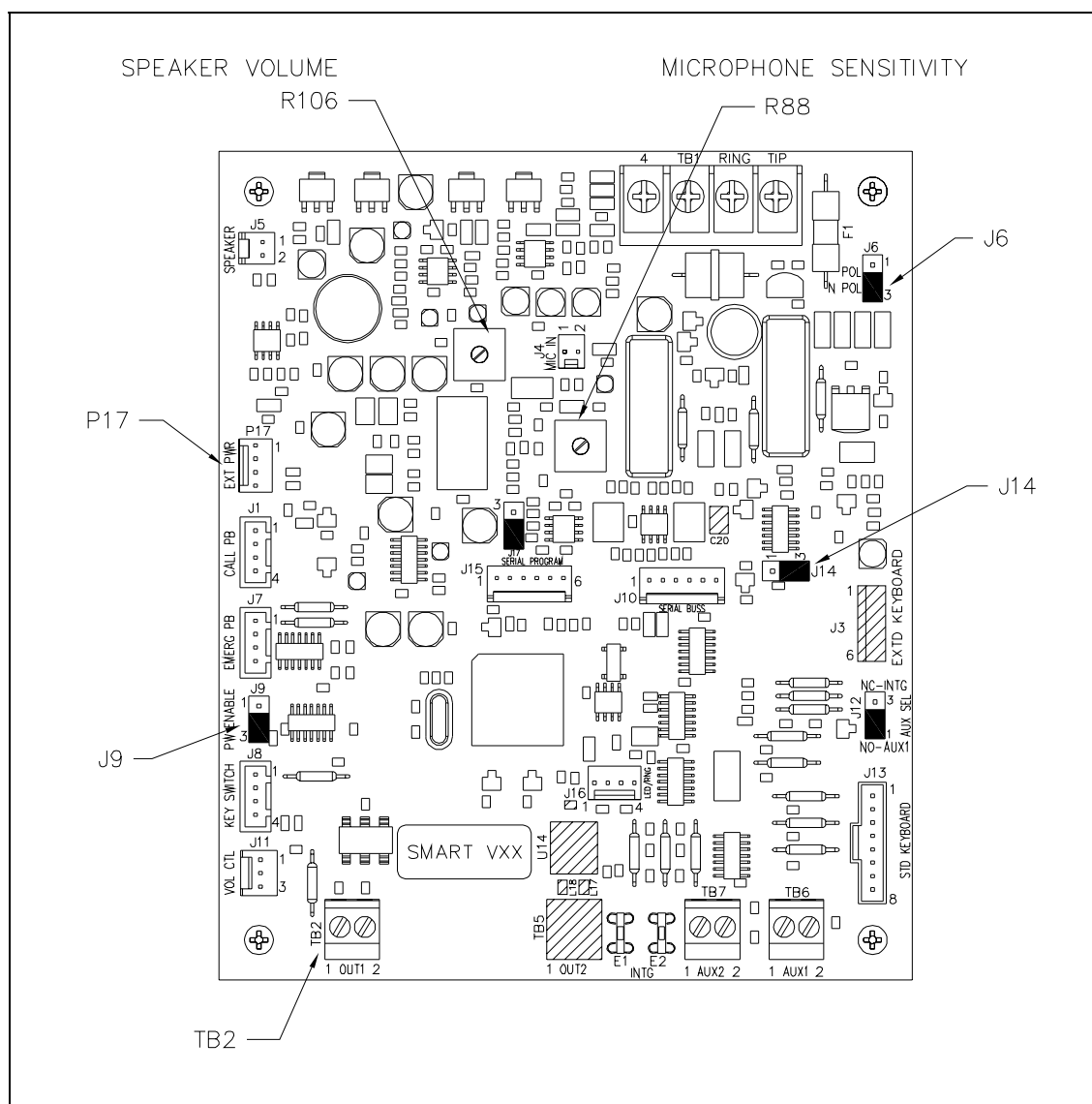*Polarity Sensitive*: Insert the J6 jumper on pins 1 and 2.

Figure 8. Emergency Phone PCBA

Audio Level Adjustment

The speaker volume and microphone sensitivity are factory set to nominal levels that are acceptable for most installations. However, some installations may require adjustments for the speaker and microphone. Both the speaker and microphone adjustments are made using potentiometers on the emergency phone PCBA. R106 is the speaker volume adjustment, and R88 is the microphone sensitivity adjustment. Refer to Figure 8 for the potentiometer locations.

Special care must be given to adjusting the speaker volume and microphone level. If one or both of the levels are set too high, acoustic feedback (howling) can occur. If acoustic feedback occurs, we recommend returning both potentiometers to the nominal factory settings and beginning the adjustment again from this point.

Additionally, the acoustical characteristics of the emergency phones are different both when the front panel is removed from the enclosure and when the front panel is tightly mounted in the enclosure. After making any volume adjustments, we recommend mounting the front panel to the enclosure and again testing the phone.

Auxiliary Output

Each telephone includes one isolated solid state switch capable of switching a maximum of 48 V dc, 125 mA or 28 V_{RMS} ac, 80$_{RMS}$ mA. TB2 (OUT1) on the emergency phone PCBA provides the connections for the auxiliary output. Refer to Figure 8 for the location of TB2.

The auxiliary output allows peripheral equipment, such as beacons, video cameras, and alarm generators, to be activated when the EMERGENCY push button is pressed. The relay remains energized for the duration of the emergency call.

In many applications, the auxiliary output is used to operate a GAI-Tronics Model 530FB/531A Beacon (sold separately). For connection details, please refer to the Model 530FB/531A installation bulletin included with the beacon. Information is also available at www.gai-tronics.com.

Programming

All S.M.A.R.T. Phone models are programmable. The phone settings are initially programmed during manufacturing and testing. Factory default settings can be found in Table R-1. The following section provides instructions for programming basic features needed to initially set up the phone from another touch-tone phone.

We recommend using a handset phone exclusively when programming the S.M.A.R.T. phone remotely. If a speakerphone is used for programming, the background noise can lead to incorrect settings. A cell phone is also not recommended.

TMA is required to access many of the programmable features of the emergency telephones. For programming using TMA, refer to the on-line help provided with the software, or contact the GAI-Tronics Field Service Department.

Enter the Programming Mode

Read the entire programming section and carefully plan your programming before beginning the process. For each setting that will be changed, we recommend writing down the key sequence from the *Command* column of **Table R-1**, *Basic Programming Commands*. Having the programming information written down allows you to enter the key sequence at a steady pace. This is important because the programming sequence times out if there is a pause of more than 5 seconds during the programming sequence.

Complete the following steps to enter the programming sequence from a remote DTMF telephone:

1. Call the telephone to be programmed. (Do not use a cellular phone.)

2. Listen for a confirmation tone during ringing, which signals that the telephone has answered.

3. Press ******* to enter the programming mode.

4. Wait two seconds.

5. Enter ****0000** (0000 is the factory default maintenance PIN #.)

6. Enter ***20**. If the phone has successfully entered into the maintenance mode, the phone will respond with six DTMF digits. If access to the maintenance mode is denied, the phone will respond with two DTMF digits. If access is denied, repeat steps 5 and 6 to again request access.

7. Complete the desired programming. Refer to the Basic Programming Commands section for options.

8. Listen for a confirmation tone at the end of each programming sequence, which indicates the programming change was accepted.

9. When finished programming, press ***99** to exit the programming mode.

Basic Programming Commands

The following programming commands can be entered from any touch-tone telephone. Acceptance of data transfer commands is indicated via a return code transmitted as an audible DTMF tone.

Auto-dial Memory

When the EMERGENCY button is pressed, the S.M.A.R.T. Phone dials a pre-programmed telephone number (the primary number). If the call cannot connect (line busy, no answer), the phone will redial using the first backup (roll-over) number. If again the call cannot connect, the phone will redial using the second backup (roll-over) number. This sequence will continue until either the emergency call is answered, or the programmed number of retries is reached.

Use the ***1** command to program these three auto-dial numbers. The three auto-dial telephone numbers are labeled as 11 (primary), 12 (first roll-over), and 13 (second roll-over). You can program these for three different numbers, or set them to the same telephone number. Each auto-dial memory storage location accommodates up to 24 characters.

To enter the auto-dial number into memory storage, or to change the number in storage, enter
*11<N><CHAR>#

*1	Data transfer command
1<N>	Auto-dial memory location (N = 1, 2, or 3)
<CHAR>	Telephone number to be stored in memory location (up to 24). Valid entries are 0-9 and the following 2-digit codes: *1 provides a 0.6-second pause in the dialing sequence, *2 provides a DTMF #, and ** provides a DTMF *.
#	End-of-string indicator

The command *1115551212#, for example, sets the primary number to 555-1212.

After each auto-dial memory storage location is successfully programmed, the phone returns a system-generated DTMF check-digit.

If the phone is installed on a ring down telephone line, clear the first auto-dial memory using the command *111#.

Call Time-out

The call time-out feature is used to limit the maximum duration of a call. The call time-out can be any duration between one minute and 4 ½ hours. The duration is set in ½ second increments and the valid range is from 120 to 32,400. To determine the value associated with a specific time duration, see the example below.

*37	Data transfer command
<120~32400>	Call duration (120 to 32400 ½ seconds) – See example below.
#	End of string indicator

Example:

To determine what to enter for the call time-out duration, multiply the desired time limit, in minutes, by 120. For example, to determine the call duration entry for a call time-out of five (5) minutes, do the following:

5 minutes × 120 = **600**

To enter a call time-out duration of five (5) minutes, enter the character string ***37600#.**

When the call time-out duration has been successfully entered, the phone returns a system-generated DTMF check-digit.

Table R-1. Basic Programming Commands

Command:	Factory Default:	Description:
*1NN <CHARAC>#	N/A	Write Memory NN (11-13) with characters (up to 24)
*37<120~32400>#	840	Write Call Time-out (120-32400 × ½ sec). Factory default is 840, or 7 minutes.
*821	N/A	Turn on the relay output (OUT1)
*921	N/A	Turn off the relay output (OUT1)
*99	N/A	End programming call. The S.M.A.R.T. phone hangs up.

Maintenance

TMA users can schedule auto-dial maintenance calls to alert maintenance personnel of any unusual sensor or fault conditions that exist. S.M.A.R.T. Phones can also be programmed to generate an auto-dial maintenance call when certain sensor events are discovered. Access to the S.M.A.R.T. Phone's maintenance mode is restricted through the use of the maintenance access PIN. The maintenance access PIN should be distributed only to trained maintenance personnel.

If your S.M.A.R.T. Phone requires service, contact your GAI-Tronics Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs will be made without charge. 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.

Specifications

TMA Compatibility profile type .... GTC S.M.A.R.T. Hands-free

Auto-dial digit limit.. 24 digits

Electrical

Audio output .... Voice - 90 dB SPL @ 1 meter independent of loop current
1 kHz tone - 90 dB SPL @ 1 meter independent of loop current

Input .... 24 or 48 V dc

Phone line requirements .... Loop start, central office (CO), or
Analog station port (PBX, PABX, or KSU)

Minimum loop start... 24 mA (with external power)
40 mA (without external power)

Auxiliary output (isolated solid state switch)... 48 V dc @ 125 mA
28 V_{RMS} @ 80 mA_{RMS}

Power supply (included) ....12 V dc, 200 mA

Signaling... DTMF 100 ms tone

Memory .... Non-volatile EEPROM

Mechanical

Operating temperature range.. -20º C to +60º C

Relative humidity .... Up to 95%, no condensation

Panel construction .... 14-gauge, brushed stainless steel

Panel dimensions – overall RT models ...... 11.88 H × 8.25 W × 2.80 D inches (301.6 × 209.6 × 71.1 mm)

Panel dimensions – overall CB models ...... 11.75 H × 8.50 W × 2.80 D inches (298.4 × 215.9 × 71.1 mm)

Hole pattern for RT 4-screw models .... 6.00 W × 11.63 H inches (154.4 × 295.4 mm)

Hole pattern for RT 6-screw models ....7.31 W × 9.96 H (w/ center screw) inches (185.7 × 253 mm)

Hole pattern for CB 6-screw models ....7.75 W × 10.26 H (w/ center screw) inches (196.8 × 260.4 mm)

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

Weight ....Approximately 6.5 lbs.

Approvals

Safety of Information Technology Equipment..UL/CSA 60950

Enclosures for Electrical Equipment .... UL 50, Type 3R

47 CFR Part 68

Certification Number... US: ADGTE04B0414HAC

Ringer Equivalence Number.. .4B

Network connection (USOC)... RJ11

IC Information (Canada)

IC Certification Number ....882B-GTC S.M.A.R.T.

Ringer Equivalence Number.. .4B

Connection Method CA11A

Replacement Parts

Part No.	Description	297-103RT4	297-103RT6	297-103CB6	298-103RT4	298-103RT6	298-103CB6
54001-003	Tamperproof Torx bit (T25)			■			■
54001-005	Tamperproof Torx bit (T15)	■	■		■	■	
12562-103	PCBA Replacement Kit (S.M.A.R.T. Hands-free)	■	■	■			
51035-005	PCBA, Keypad				■	■	■
SC2691	Tamperproof Screws 8-32	■	■		■	■	
28299-008	Tamperproof Screws 10-24×1-inch			■			■
12520-006	Push Button Replacement Kit (1.5-inch, Red)	■	■	■	■	■	■
12520-007	Push Button Replacement Kit (1.0-inch, Black)	■	■	■	■	■	■
13507-005	Microphone Replacement Kit	■	■	■	■	■	■
40419-005	Plug-in Power Supply	■	■	■	■	■	■
12522-003	Speaker Replacement Kit	■	■	■	■	■	■

Confidentiality Notice

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.

Warranty

Equipment. GAI-Tronics warrants for a period of one (1) year from the date of shipment, that any GAI-Tronics equipment supplied hereunder shall be free of defects in material and workmanship, shall comply with the then-current product specifications and product literature, and if applicable, shall be fit for the purpose specified in the agreed-upon quotation or proposal document. If (a) Seller's goods prove to be defective in workmanship and/or material under normal and proper usage, or unfit for the purpose specified and agreed upon, and (b) Buyer's claim is made within the warranty period set forth above, Buyer may return such goods to GAI-Tronics' nearest depot repair facility, freight prepaid, at which time they will be repaired or replaced, at Seller's option, without charge to Buyer. Repair or replacement shall be Buyer's sole and exclusive remedy. The warranty period on any repaired or replacement equipment shall be the greater of the ninety (90) day repair warranty or one (1) year from the date the original equipment was shipped. In no event shall GAI-Tronics warranty obligations with respect to equipment exceed 100% of the total cost of the equipment supplied hereunder. Buyer may also be entitled to the manufacturer's warranty on any third-party goods supplied by GAI-Tronics hereunder. The applicability of any such third-party warranty will be determined by GAI-Tronics.

Services. Any services GAI-Tronics provides hereunder, whether directly or through subcontractors, shall be performed in accordance with the standard of care with which such services are normally provided in the industry. If the services fail to meet the applicable industry standard, GAI-Tronics will re-perform such services at no cost to buyer to correct said deficiency to Company's satisfaction provided any and all issues are identified prior to the demobilization of the Contractor's personnel from the work site. Re-performance of services shall be Buyer's sole and exclusive remedy, and in no event shall GAI-Tronics warranty obligations with respect to services exceed 100% of the total cost of the services provided hereunder.

Warranty Periods. Every claim by Buyer alleging a defect in the goods and/or services provided hereunder shall be deemed waived unless such claim is made in writing within the applicable warranty periods as set forth above. Provided, however, that if the defect complained of is latent and not discoverable within the above warranty periods, every claim arising on account of such latent defect shall be deemed waived unless it is made in writing within a reasonable time after such latent defect is or should have been discovered by Buyer.

Limitations / Exclusions. The warranties herein shall not apply to, and GAI-Tronics shall not be responsible for, any damage to the goods or failure of the services supplied hereunder, to the extent caused by Buyer's neglect, failure to follow operational and maintenance procedures provided with the equipment, or the use of technicians not specifically authorized by GAI-Tronics to maintain or service the equipment. THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES AND REMEDIES, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Return Policy

If the equipment requires service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs or a replacement will be made in accordance with the warranty policy set forth above. 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.