



**GAI-TRONICS® CORPORATION**  
A HUBBELL COMPANY

# VoIP Telephones

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## VoIP Telephones

### Getting Started

#### Product Overview

Thank you for purchasing a GAI-Tronics Voice Over Internet Protocol (VoIP) telephone. The VoIP Telephones are designed for connection to a 10/100 baseT Ethernet. These telephones will operate from Power-over-Ethernet or an external power source. The VoIP Telephones provide direct point-to-point communications between personnel throughout the facility over the existing LAN.

In addition to providing standard telephone operation, GAI-Tronics VoIP telephones feature real-time alarm reporting that enables system supervisors to monitor the phones activity and address caller needs or maintenance issues immediately. Also, four user configurable inputs and two outputs have been provided for customer use. This manual applies to the following GAI-Tronics VoIP Telephones:

Model	Description
<b>293-700</b>	<b>VoIP Phone</b> – This phone is housed in a safety yellow, glass-reinforced polyester enclosure that is designed to be surface-mounted and includes an emergency push button.
<b>293AL-700</b>	<b>VoIP Phone</b> – The vandal-resistant phone is housed in a cast aluminum enclosure painted safety yellow that is designed to be surface-mounted and includes an emergency push button.
<b>294AL-702</b>	<b>VoIP Phone with Keypad</b> – A cast aluminum enclosure painted safety yellow that is designed to be surface-mounted and includes a 12-button Braille keypad, an emergency push button and a call (off-hook) button.
<b>297-700</b>	<b>Flush-panel VoIP Phone</b> – This is a flush-mount phone with a heavy-gauge brushed stainless steel front panel, and includes an emergency autodial push button.
<b>297-701</b>	<b>Flush-panel VoIP Phone</b> – This is a flush-mount phone with a heavy-gauge brushed stainless steel front panel, and includes an emergency autodial push button and a call (off-hook) autodial button.
<b>297-702</b>	<b>Flush-panel VoIP Phone</b> – This is a flush-mount phone with a heavy-gauge brushed stainless steel front panel, and includes two call (off-hook) autodial buttons.
<b>297-703</b>	<b>Flush-panel VoIP Phone</b> – This is a flush-mount phone with a heavy-gauge brushed stainless steel front panel, and includes three call (off-hook) autodial buttons.
<b>298-701</b>	<b>Flush-panel VoIP Phone with Keypad</b> – This is a flush-mount phone with a heavy-gauge brushed stainless steel front panel, and includes a 12-button Braille keypad and a call (off-hook) autodial button.
<b>298-702</b>	<b>Flush-panel Emergency Phone with Keypad</b> – This flush-mount phone with a heavy-gauge brushed stainless steel front panel includes a 12-button Braille keypad, an emergency push button, and a call (off-hook) button.

All of the listed VoIP Telephones, except for Models 297-702, 297-703 and 298-701 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 GAI-Tronics VoIP Phone product line provides 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 phone's non-volatile memory. The telephone configuration options include:

- Web pages
- Configuration file
- Command Line Interface (CLI)

## System Requirements and Limitations

Each VoIP Telephone requires Power-over-Ethernet or a local 48 V dc power source for operation. Two VoIP telephones can be connected in a peer-to-peer configuration without the need for a LAN. However, a 10/100 baseT Ethernet with SIP Server is required for systems containing three or more VoIP Telephones. Conferences are limited by the customer's LAN media capabilities and the services available at each end point.

## Tips for VoIP Subscribers

If you have or are thinking of subscribing to an interconnected VoIP service, you should:

- Provide your accurate physical address to your interconnected VoIP service provider to ensure that emergency services can quickly be dispatched to your location.
- Be familiar with your VoIP service provider's procedures for updating your address, and promptly update address information in the event of a change.
- Have a clear understanding of any limitations of your 911 service.
- Inform children, babysitters, and visitors about your VoIP service and its 911 limitations, if any.
- If your power is out or your internet connection is down, be aware that your VoIP service may not work. Consider installing a backup power supply, maintaining a traditional phone line, or having a wireless phone as a backup.
- If you have questions about interconnected VoIP and 911 or about VoIP in general, see <http://www.fcc.gov/cgb/consumerfacts/voip.html>.

## Features and Functions

The voice-over-internet protocol (VoIP) hands-free versions include the following features:

- SIP compatible (RFC3261)
- Automatic call divert (memory list)
- Weather and vandal resistant
- Real-time alarm reporting via email or Syslog
- Power-over-Ethernet compatible
- Configurable via web page, serial link or download
- Four auxiliary inputs, two volt-free contact outputs

# Operation

## Placing an Emergency Call from a VoIP Phone

Models 293-700, 293AL-700, 294AL-702, 297-700, 297-701 & 298-702

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 call is answered.

## Placing a Non-Emergency Call

Models 294AL-702, 298-701 & 298-702

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.

Models 297-701, 297-702 and 297-703

To place a non-emergency autodial call:

1. Press the black autodial push button to place an immediate call to a preprogrammed number.
2. On the Model 297-701 only, the **CALL RECEIVED WHEN LIT LED** will light steady when the call is answered.

## Receiving a Call

When a VoIP Emergency Telephone is called, the phone automatically goes off-hook and a conversation can take place.

## Disconnecting Calls

There are both manual and automatic methods included in the VoIP emergency telephones to disconnect calls. The disconnect methods include the following:

- To manually disconnect a non-emergency call, press the **CALL** button a second time.
- To automatically disconnect; the user must wait for the maximum call duration timeout.



## Americans with Disabilities Act (ADA) Functionality

The **CALL RECEIVED WHEN LIT** lamp indicates to hearing-impaired individuals that the emergency call has been answered. When the individual presses the emergency push button and the person receiving the call answers, the telephone illuminates the **CALL RECEIVED WHEN LIT** lamp.

# Installation

## General Information

 **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 listing in the Specification 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 equipment, please adhere to the following guidelines to ensure the safety of all personnel:

- Do not install wiring during a lightning storm.
- **Electrostatic Discharge (ESD) Protection:** Your VoIP 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 has to 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.
- Do not install jacks in wet locations unless the jack is specifically designed for wet locations.

## Station Placement

To prevent feedback problems in the system, volume settings, and station placement must be taken into consideration. Unpleasant feedback problems can be reduced by:

- Pointing the telephone away from other telephones located nearby
- Reducing volume levels

## 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. A GAI-Tronics Model 233-001 Tamper-Resistant Screwdriver (sold separately) is recommended for installing the tamper-resistant screws.

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.

Please refer to the examples below for the recommended conduit installation details.

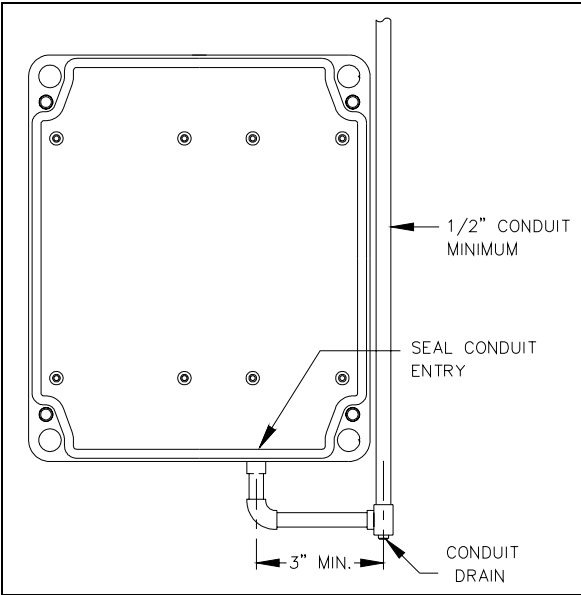


Figure 1. Bottom entry conduit recommended for non-metallic enclosures

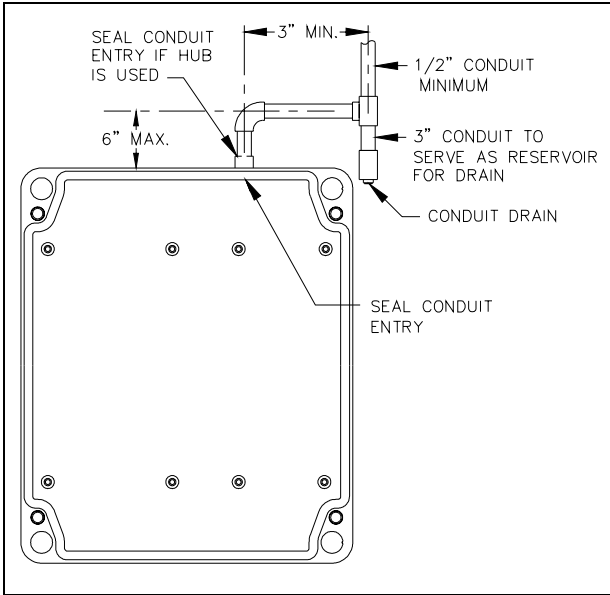


Figure 2. Top entry conduit installation for non-metallic enclosures (NOT recommended)

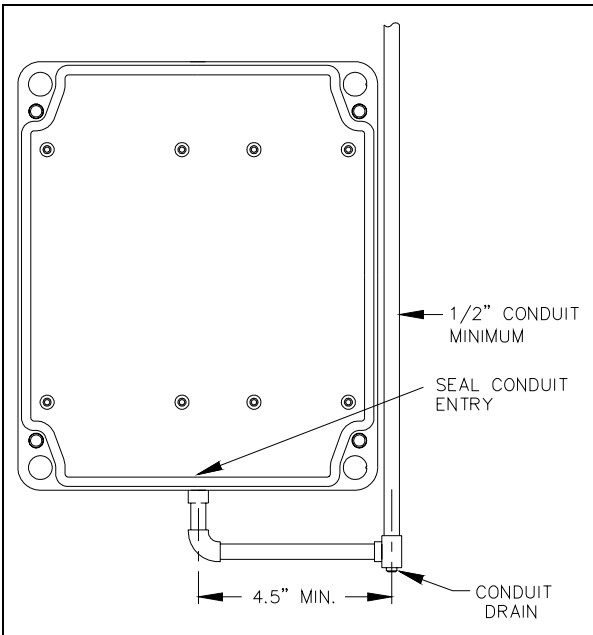


Figure 3. Bottom entry conduit installation details for metallic enclosures

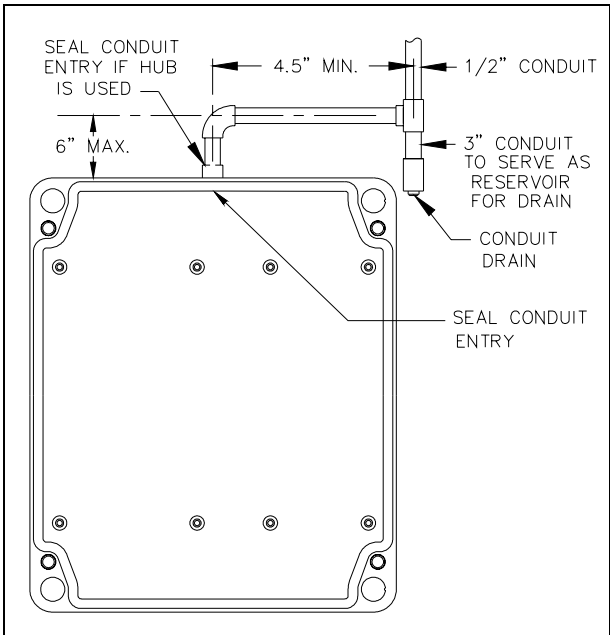


Figure 4. Top entry conduit installation details for metallic enclosures (NOT recommended)

## Models 293-700, 293AL-700, and 294AL-702

The mounting and wiring instructions for Models 293-700, 293AL-700 and 294AL-702 are as follows:

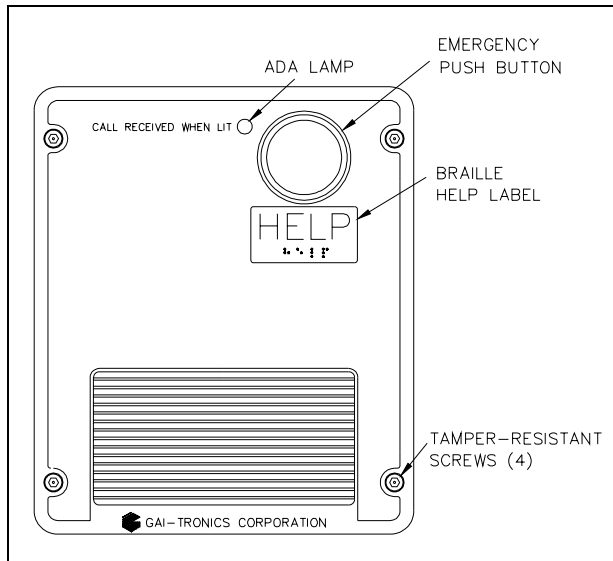


Figure 5. Model 293-700 VoIP Phone in a Non-metallic Enclosure

1. Remove the four tamper-resistant screws from the front panel.
2. Position the enclosure on the mounting surface. The enclosure provides four 0.28-inch mounting holes. Secure it with the four ¼-inch diameter bolts of the appropriate length for the mounting surface.  
**NOTE:** When using the GAI-Tronics Model 231-001 Pole Mounting Kit, follow the mounting instructions provided in the kit.
3. For Model 293-700 only: Create an access hole using a Greenlee-type punch that is equivalent in size to the conduit diameter. Bottom entry is strongly recommended. Insert a conduit fitting in the access hole. Refer to conduit installation details on page 5.  
**NOTE:** Use silicone sealant or equivalent around and inside all conduit entries.
4. Pull the cable through the conduit. Install the cable as shown in the Field Wire Installation section on page 11.
5. Make hardware configuration changes, if necessary. Refer to page 14 for more information.
6. Perform the initial programming of the phone. Refer to the Programming section on page 16. Verify that the phone is operating properly by calling to and from another phone.
7. Adjust the speaker levels if necessary. Refer to the Speaker Level section on page 15.
8. Complete the installation by attaching the front panel assembly to the rear enclosure using the four tamper-resistant screws.



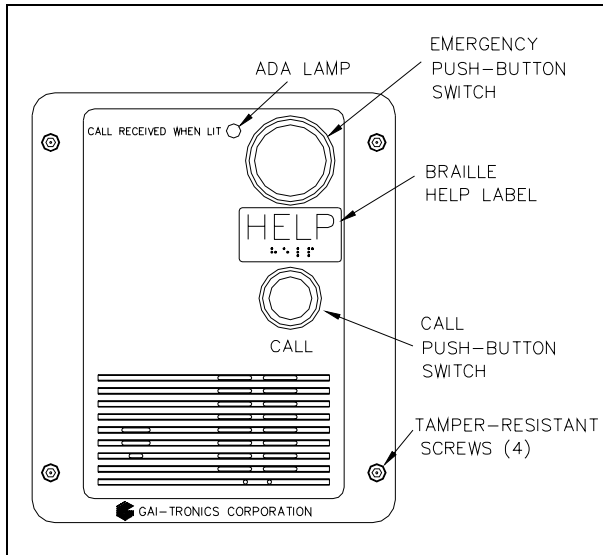


Figure 6. Model 293AL-700

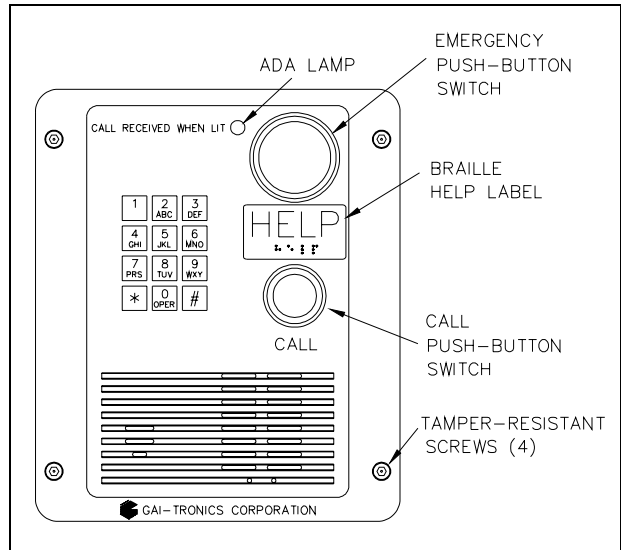


Figure 7. Model 294AL-702

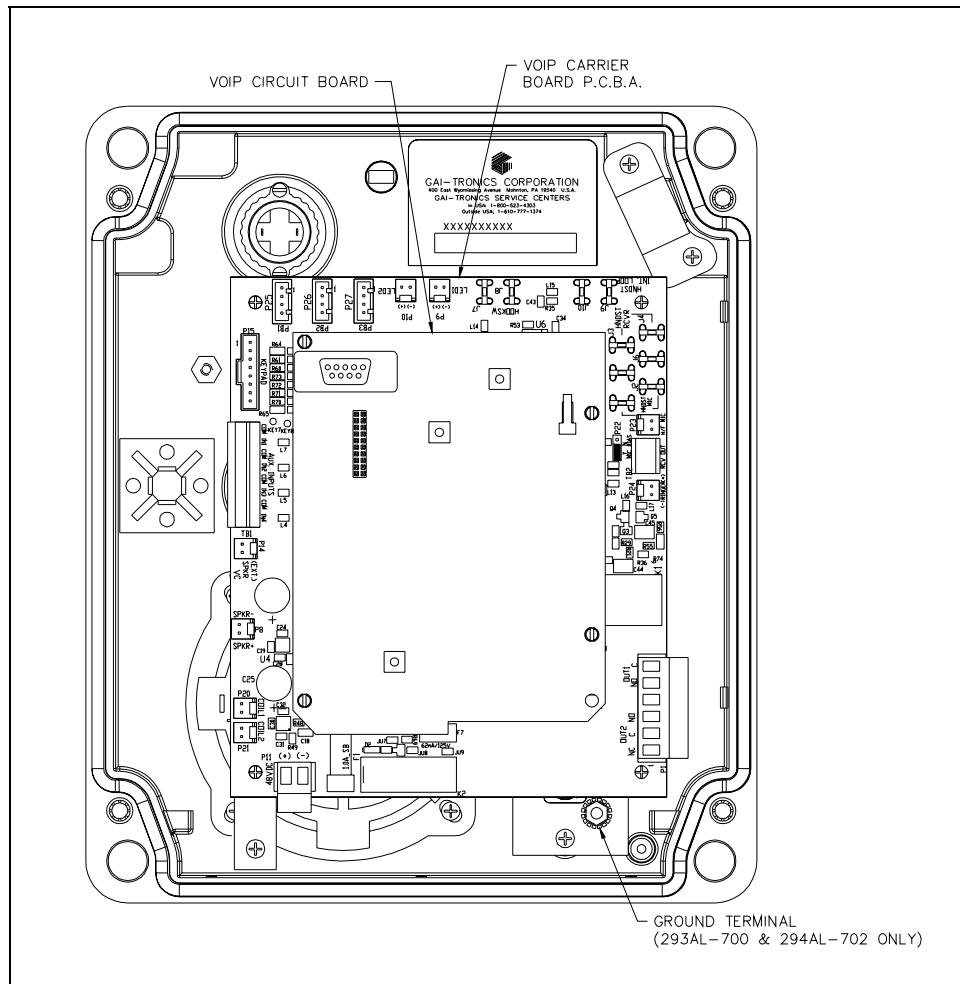


Figure 8. Component Locations for Models 293-700, 293AL-700, and 294AL-702

## VoIP Flush-Mount Telephones

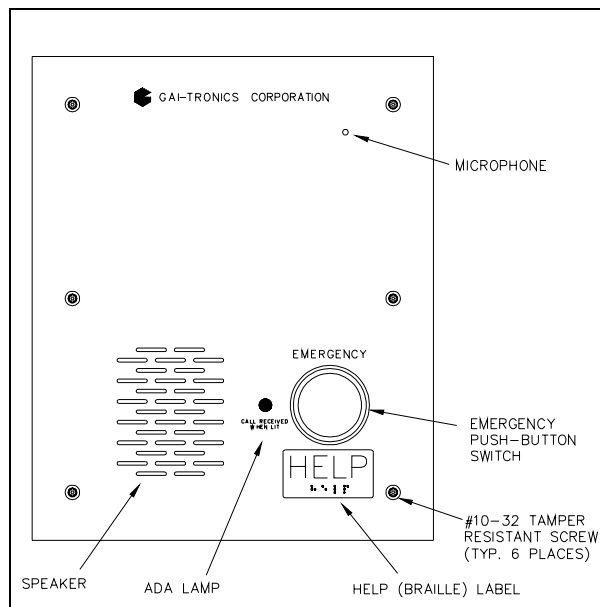


Figure 9. Model 297-700

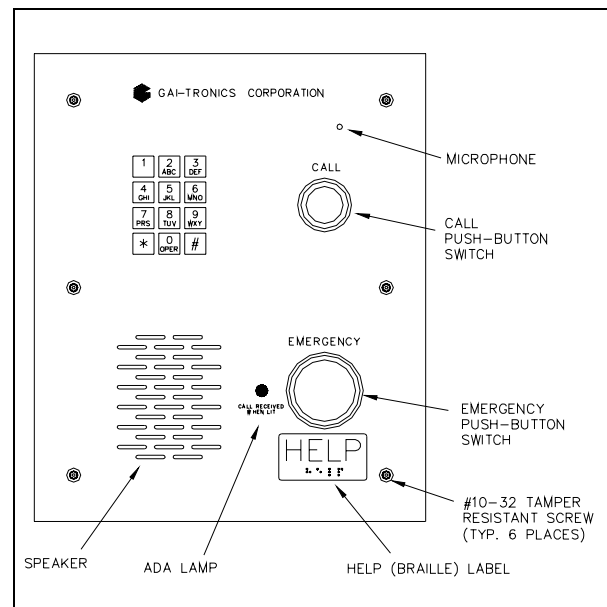


Figure 10. Model 298-702

### Stanchion or Flush-mount Applications

1. Use the supplied back box to mount the Model 297-700, 297-701, 297-702, 297-703, 298-701 and 298-702 VoIP Telephones in flush-mount applications or in a GAI-Tronics Model 234 Series Stanchion. Mount the back box to the structure using the appropriate hardware. Refer to Figure 15 cutout dimensions.
2. Remove the tapered plug from the top or bottom cable entry hole in the back box, and install the cable and cable fitting. See the Field Wire Installation section on page 11.
3. Make hardware configuration changes, if necessary. Refer to page 14.
4. Perform the initial programming of the phone. Refer to the Programming section beginning on page 16. Verify operation by calling to and from another phone.
5. Adjust the speaker levels if necessary. Refer to the Speaker Level section on page 15.
6. Attach the telephone's front panel to the mounting flanges of the back box using the six supplied #10-32 tamper-resistant screws and washers.

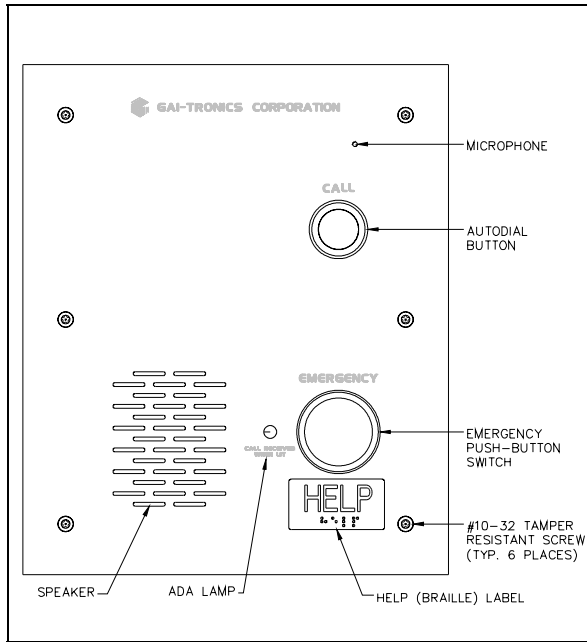


Figure 11. Model 297-701

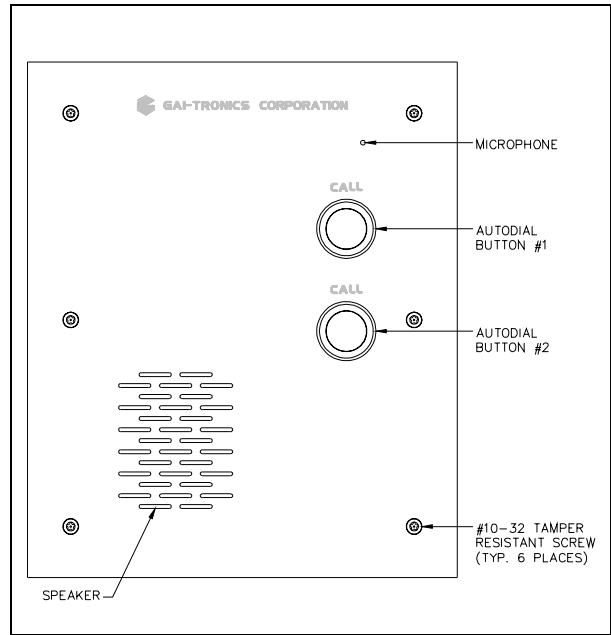


Figure 12. Model 297-702

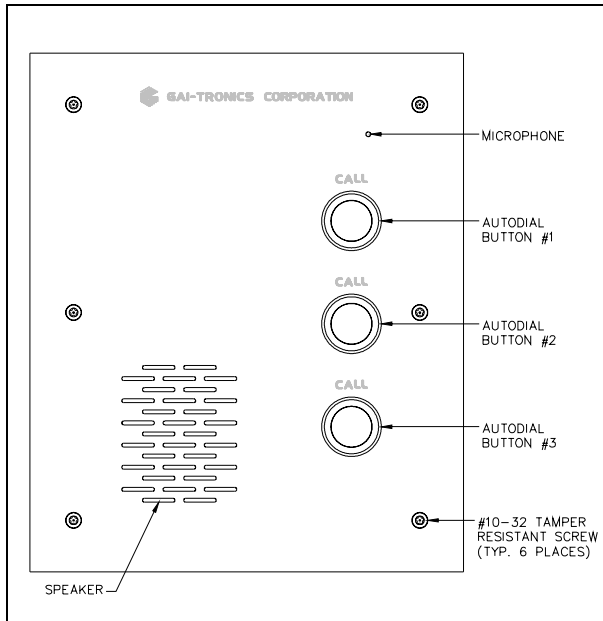


Figure 13. Model 297-703

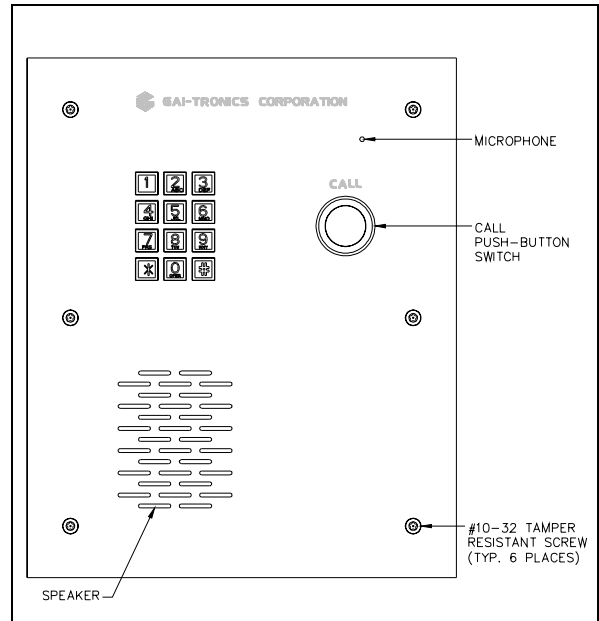


Figure 14. Model 298-701

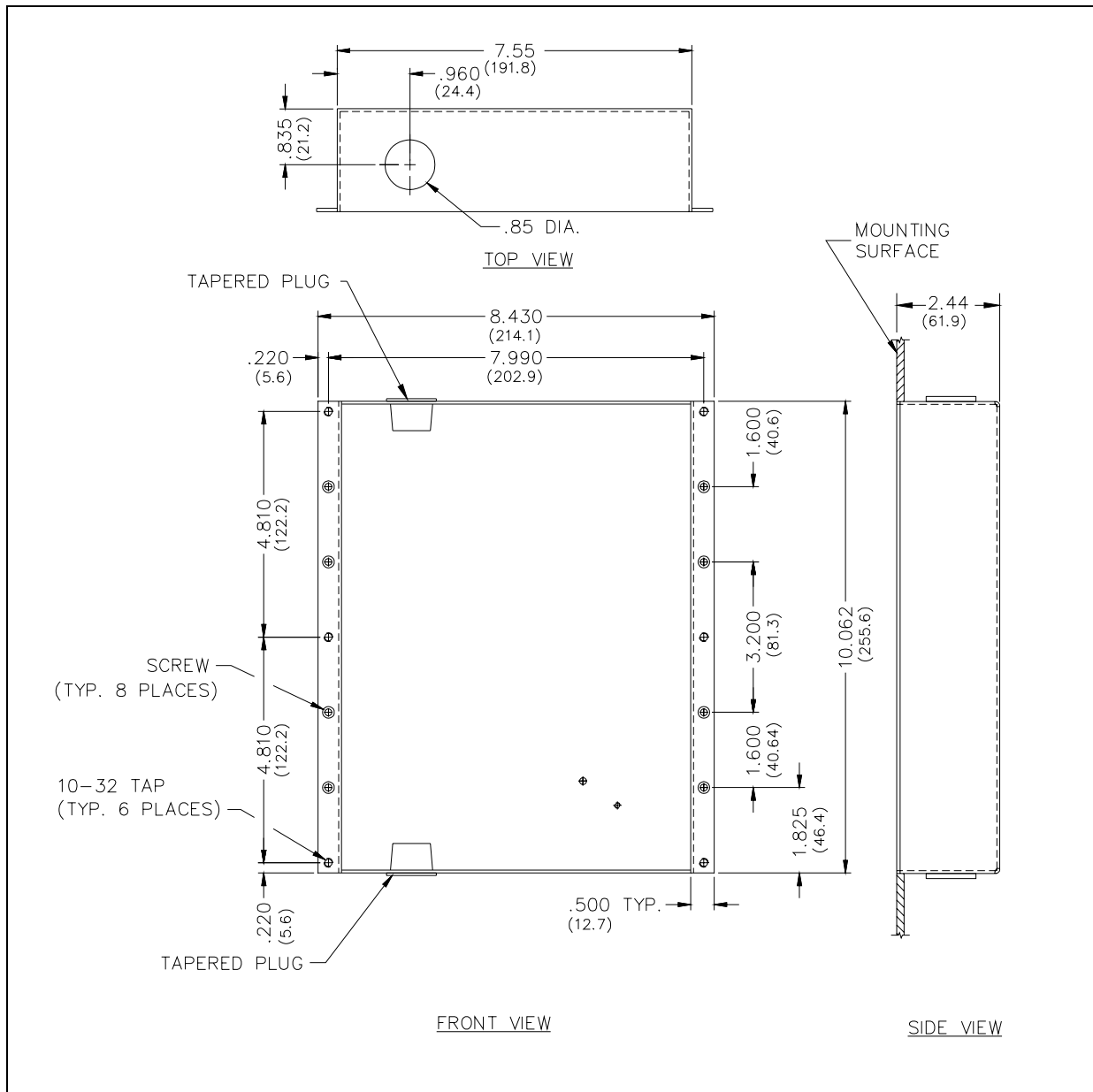


Figure 15. Flush-Mount VoIP Telephone Mounting Details

# Setup

## Field Wire installation

After all the field wires are pulled through the rear enclosure, install all connections as indicated below. Refer to Figure 16 for wiring details. Refer to Table 1 on page 12 for the recommended conductor sizes.

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

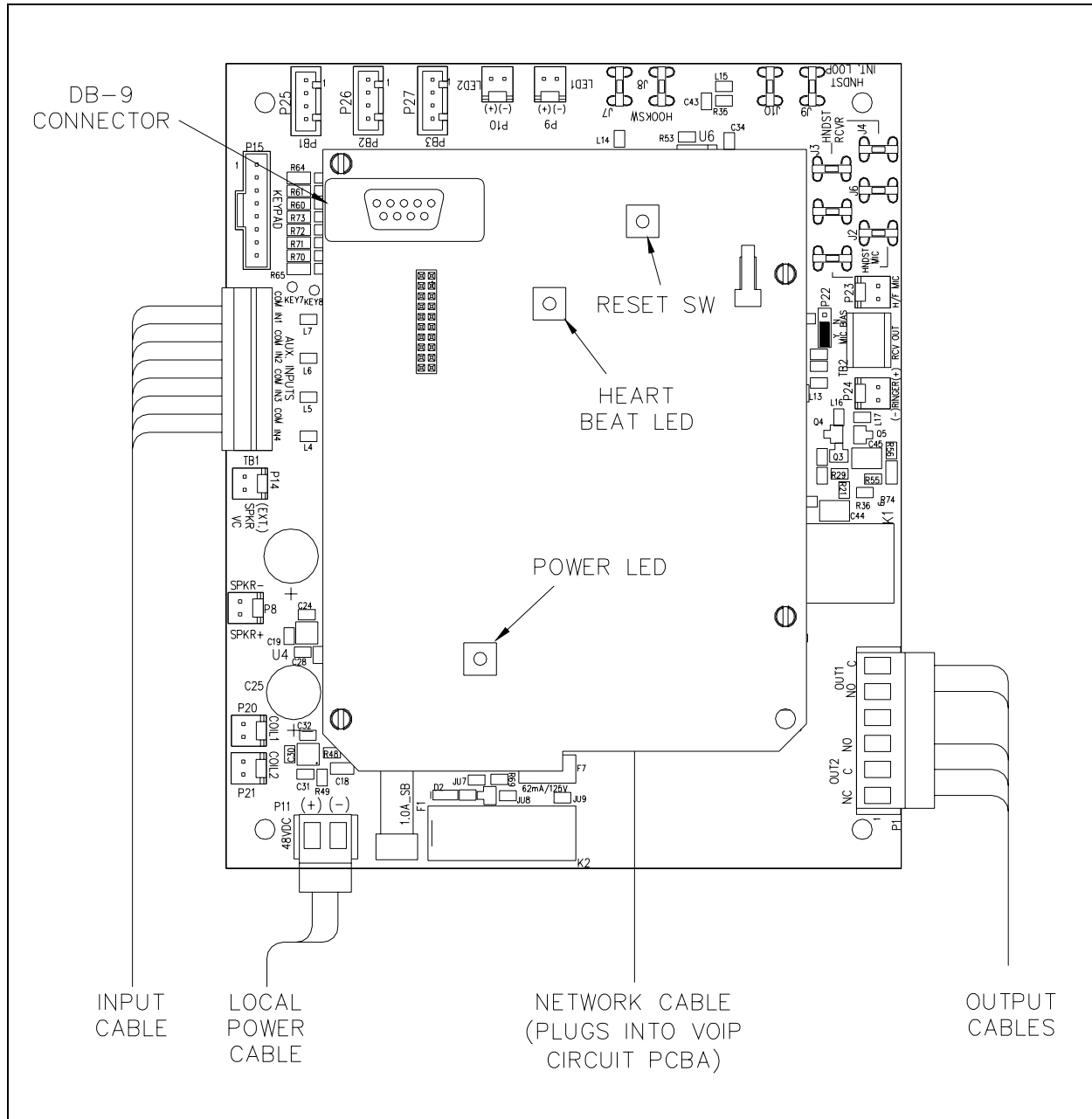


Figure 16. VoIP Phone PCB Assembly

## Power

### Power-Over-Ethernet (POE)

Connect power to the system as indicated in your POE equipment manual.

### Local Power

When POE is not available, this telephone can operate from a local 48 V dc power source. A removable terminal block P11 has been provided for connection of local power to the telephone. Connect the positive conductor to the (+) terminal and the negative conductor to the (-) terminal of P11.

### Ground

The enclosure of each phone must be connected to earth ground. Install a #6 ring lug on the ground conductor prior to connection to the ground screw located on the rear of the front panel.

## Network Cable

Connect a Cat5 or Cat5e UTP cable with an RJ45 connector between the Local Area Network (LAN) and the VoIP PCBA.

## I/O

### Inputs

Four auxiliary inputs have been provided for customer use. Terminations for these inputs are provided on terminal block TB1. Connect each input between the desired input (INPUT 1-4) and common (COM) on terminal block TB1. Please refer to the Inputs section of Pub. 42004-396 for programming instructions for these inputs.

### Outputs

Two outputs have been provided for customer use. Terminations for these outputs are provided on connector P1. Output 1 is a single pole, N.O. contact. Output 2 is a single pole with both a N.O. and N.C. contact. Please refer to the Outputs section of Pub. 42004-396 for programming instructions for these outputs.

## Recommended Cabling

Table 1. Recommended Cabling	
Cable Use	Size
LAN	Cat5 or Cat5e UTP cable with an RJ45 connector
Power	2-conductor, No. 22 AWG is typical
Inputs	2-conductor, No. 22 AWG is typical
Output contacts	2 or 3-conductor, No. 18 AWG is typical

## Connecting a Beacon

Each phone includes two solid state relays. Contact 1 on P1 of the VoIP Carrier PCBA provides the connections for a beacon output. Refer to Figure 17 for the connection details.

Contact 1 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 output is used to operate a GAI-Tronics Model 530-001/531A Beacon (sold separately). For connection details, please refer to the Model 530-001/531A installation instructions included with the beacon. Information is also available at [www.gai-tronics.com](http://www.gai-tronics.com).

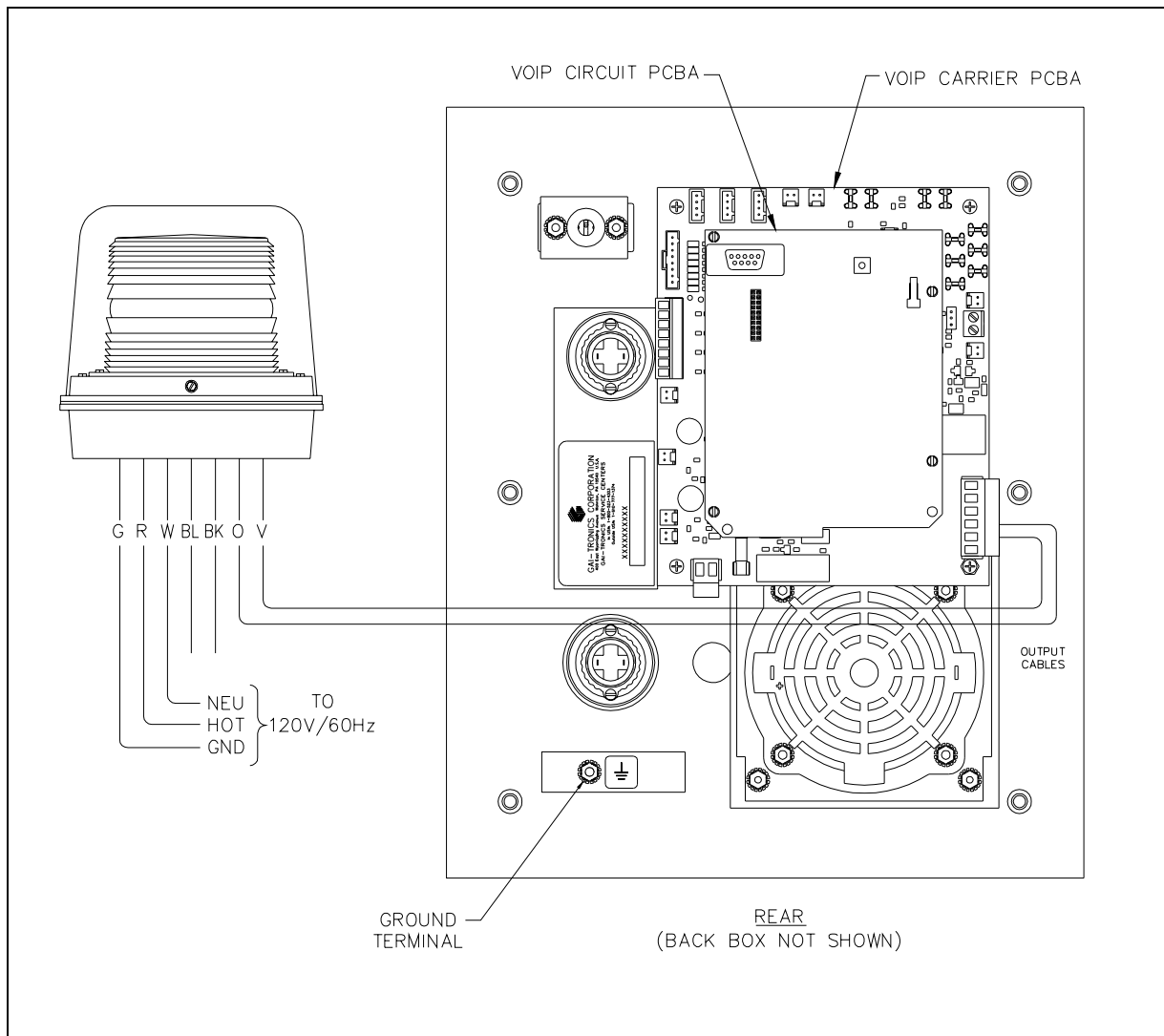


Figure 17. Model 297-700 and 298-701 - Component Locations  
(shown with connection to optional GAI-Tronics 530-001/531A Beacon)

## Hardware Configuration

### Mic Bias

Configuration jumper P22 has been provided to enable/disable the bias to the microphone. Set the MIC BIAS to Y for hands-free telephones, and to N for handset telephones.

### Handset Enable

Configuration jumper P29 has been provided to enable audio from the handset microphone only. Set the Handset Enable (HNDST) jumper to Y for handset telephones and to N for hands-free telephones. This jumper will be factory set for proper default operation.

### Inductive Loop Source

Configuration jumper P19 has been provided to set the Inductive Loop Source. Set the Inductive Loop Source to SPKR for hands-free telephones, and to EAR for handset telephones.

## Status Indication

### Power

The Power LED located on the VoIP PCBA illuminates when power is applied to the telephone.

### Heartbeat

The Heartbeat LED located on the VoIP PCBA will flash once communication over the LAN is established.



## Internal Controls

### Speaker Level- Local Control

A post header, P14, has been provided for adjustment of the speaker volume. The speaker volume adjustment operates as follows:

- The initial direction of the volume (increase or decrease) is determined by prior activity. The initial direction will be opposite to that of the previous activity.
- Changing the direction is accomplished by allowing a period of inactivity (open across P14) for greater than 1 second or by moving the wiper to the end of the potentiometer range.

**Example /Volume Increase:** Short across P14. The volume begins to decrease. Remove short across P14 and wait 1 second. Short across P14 again. The volume begins to increase. Remove short across P14 when the desired volume has been reached.

P14 can also be used as an optional front panel volume control switch.

### Speaker Level- Remote Control

The speaker volume level can also be controlled remotely by changing the setting in the configuration file. Please refer to the Speaker Volume section of Pub. 42004-396 for programming instructions.

**NOTE:** The local speaker volume setting using P14 should be set for the maximum volume (factory default) prior to adjusting the speaker volume remotely.

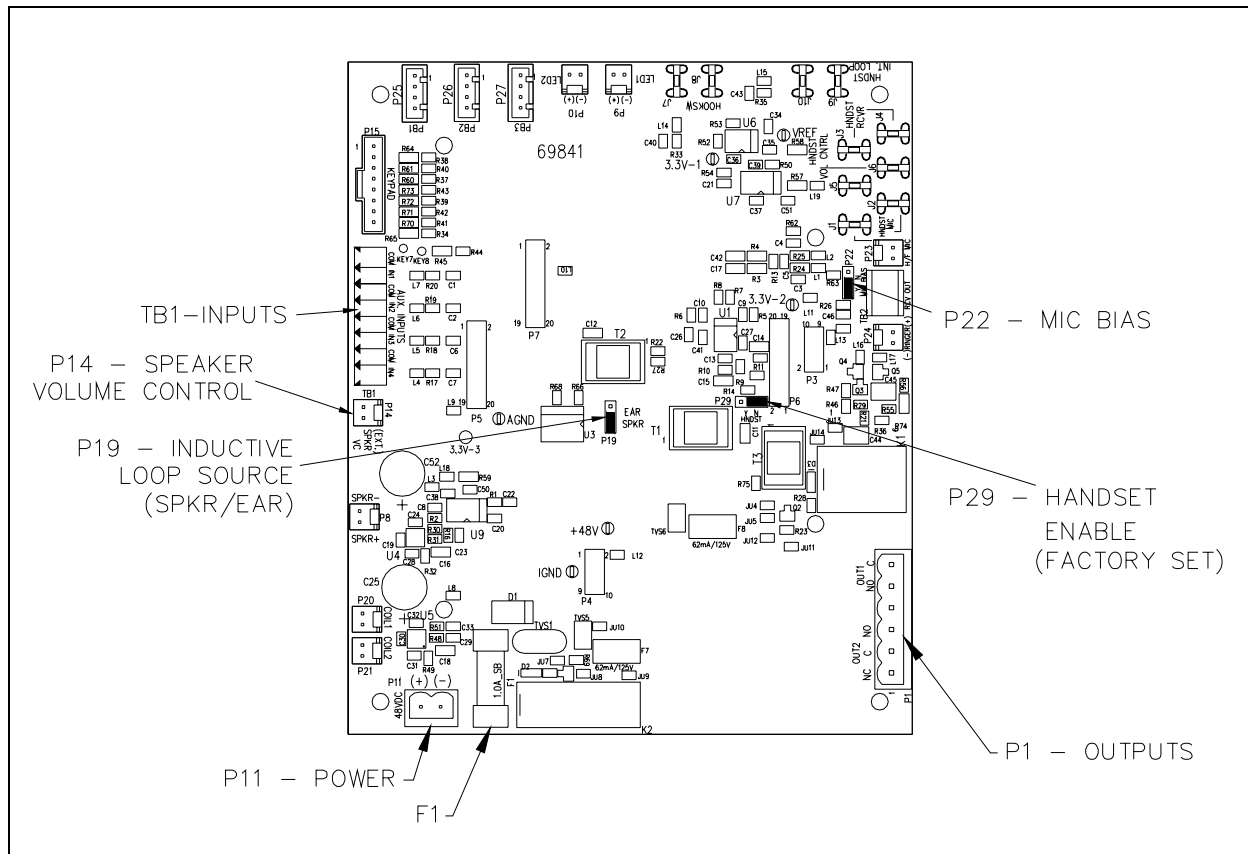


Figure 18. VoIP Carrier PCBA Component Locations

# Programming

Refer to Pub. 42004-396, VoIP Telephone Configuration Guide for detailed programming and configuration instructions.

## Quick Start Guide

The general sequence for set up and use is:

Stage of Process	Comments
Initial network configuration	<b>Essential:</b> Each phone must be set up for the network prior to installation.
Assign a host name	<b>Recommended:</b> The host name provides identification of the different VoIP phones on the network.
Change user name and password	<b>Recommended:</b> This security measure helps to prevent unauthorized changes to the phone's configuration.
Mounting	Physically mount the phone at the intended location.
Installation	Provide phone connections and cabling to the network at the intended location.
Final configuration (can also be done prior to installation)	Set the autodial numbers, etc. Configuration changes can be performed remotely, if desired.
Test	Verify that calls can be made successfully.
Maintain	Monitor alarms. Set up auto-updates.

The easiest way to get started is to make a network connection to the unit and log on via a web browser. The unit is initially set with a static IP address:

IP address      192.168.1.2

A user name and password will be requested. The initial factory settings are:

User Name      user

Password      password

The phone's home page is as shown below, and allows access to all the other configuration pages. Use the Network page to change IP settings appropriate for the intended network.

**! ATTENTION !** Be sure to assign a unique host name (located on the UNIT settings page) for each telephone on the network. The factory default host name in each unit is its serial number prefixed by "GT".

Full help is available from: [www.gai-tronics.co.uk/voipsupport.htm](http://www.gai-tronics.co.uk/voipsupport.htm)

A CD containing all help files and the configuration file tool is available from GAI-Tronics on request.



## Alternative Configuration Methods

There are three methods for configuring GAI-Tronics VoIP telephones:

- Web pages
- Configuration file
- Command Line interface (CLI)

Web pages (held within the telephone) can be accessed over the network using a browser such as Internet Explorer™, to view and change settings within a single unit.

Configuration files are ASCII text files containing configuration options that can be read and edited by VCONF (a dedicated software configuration tool), or directly by a knowledgeable user. The telephone can automatically download a configuration file from the network, providing a controlled method of configuring multiple telephones.

The telephone can also be configured using a command line interface, either via the local serial port or remotely via a TELNET session over the network.

VCONF and the complete syntax and command structures of configuration files and the CLI are available as free downloads from [www.gai-tronics.co.uk/voipsupport.htm](http://www.gai-tronics.co.uk/voipsupport.htm), and are also available on a CD on request from GAI-Tronics.

# Maintenance

 **WARNING**  **This product can contain hazardous voltages. 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.
4. Inspect fuse F1 on the VoIP Carrier PCBA.

## Preventive Maintenance for Models 297-70x and 298-70x

Stainless steel does 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 297-70x and 298-70x Telephones.

### Cleaning

For general cleaning, wipe surface with a cleanser or 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 paste made from magnesium oxide, ammonia, and water. 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 naturally re-formation of the chromium oxide layer.

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

## Service

If your GAI-Tronics phone 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 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.

## Troubleshooting

Problem	Possible Solution
Low volume	Increase the volume settings using button P14 on the VoIP Carrier PCBA. If the volume setting is still low, increase the volume level in the telephone's configuration.
High volume	Decrease the volume settings using button P14 on the VoIP Carrier PCBA. If the volume setting is still high, decrease the volume level in the telephone's configuration.
Front panel push buttons are not operational	Verify the pushbuttons are properly configured.
Inputs not operational	Check the input connections. Verify the inputs are properly configured.
Outputs not operational	Check the output connections. Verify the outputs are properly configured.
Cannot make or receive calls	Check the connection of the LAN cable. Verify that power is applied to the unit. Verify the LAN parameters have been configured properly. Verify the phone has been set up on the network.
No power indication	Check the power connections. If using POE, check the operation of the POE equipment.
Feedback	<ol style="list-style-type: none"><li>1. Point the speakers away from the interfering station.</li><li>2. Reduce the speaker volume.</li><li>3. Increase the distance between the speaker and the interfering station.</li></ol>

# Specifications

Power ..... Power-over-Ethernet, 802.3af compliant (via RJ45), or  
External power supply - 36–56 V dc, 200 mA  
A separate, isolated supply must be provided for each telephone.

Network ..... 10/100 BaseT Ethernet RJ45, Cat5 or Cat5e UTP  
Static IP provisioning or DHCP STUN client (NAT traversal)

Call Control Signaling ..... SIP (RFC3261 compliant) Loose routing

Microphone, Electret..... 13507-005

## Inputs

Keypad\* ..... 3 × 4 matrix

Push buttons\* ..... Call, Autodial, Emergency Autodial

Configurable inputs..... 4

## Outputs

Output 1 ..... 8 A @ 30 V ac/dc (resistive load)

Output 2 ..... 5 A @ 30 V ac/dc (resistive load)

## Controls

External\* ..... Keypad, push-button inputs

Internal ..... Speaker volume, mic bias, reset switch, handset enable

## Indicators

External ..... Call received LED

Internal ..... Power, Heartbeat, & EACT LEDs

Audio output ..... 90 dB SPL or greater @ 0.5 meters (@ 1 kHz)

Codecs and audio ..... G.711 A-Law

G.711  $\mu$ -Law

G.722

G.729

G.723.1 MP-MLQ

G.723.1 ACELP

Codec preference sequence

DTMF in-band / out-of-band (RFC2833)

Configurable comfort tones (to emulate national tones)

Configuration ..... Embedded web server

Embedded Telnet server

Configuration file download

Configuration file building tool (Vconf.exe)

Direct serial connection

(9-way D-type female connector)

Command line interface

SNTP with time zone and daylight saving

Automatic updating via TFTP

Password protection

\*Not available on all models.

Monitoring and reporting .....	Real-time over TCP/IP proprietary Syslog application or email Embedded SMTP client Automatic fault reporting
Call Diversion .....	Configurable call lists (max 20 entries) Numbers or URIs (with comfort tones) Divert to next in list if the call fails
Compliance to Standards .....	FCC CRF 47 Part 15
Mechanical	
Temperature range	
Operating .....	-4° F to +140° F (-20° C to +60° C)
Storage .....	-40° C to +70° C
Relative humidity .....	Up to 95%, non-condensing
PCBA (printed circuit board assembly) .....	Conformal coated

**Model 293-700**

Enclosure construction.....	Valox (high impact, glass-reinforced polyester) painted safety yellow
Dimensions .....	9.5 H × 8 W × 4 D inches (241.3 × 203.2 × 101.6 mm)
Weight.....	4.0 lbs.

**Models 293AL-700 and 294AL-702**

Enclosure construction.....	Cast aluminum painted safety yellow
(Model 294AL-702 only) Braille dial pad.....	Chrome-plated zinc
Dimensions .....	9.5 H × 8 W × 4 D inches (241.3 × 203.2 × 101.6 mm)
Weight	
Model 293AL-700.....	7.8 lbs.
Model 294AL-702.....	8.5 lbs.

**Models 297-700, 297-701, 297-702, 297-703, 298-701 and 298-702**

Construction	
Panel .....	14-gauge, type 304 brushed stainless steel
Back box.....	16-gauge cold-rolled steel with black polyurethane finish
(Model 298-702 only) Braille dial pad.....	Chrome-plated zinc
Dimensions	
Panel .....	12.0 H × 10.0 W inches (304.8 × 254 mm)
Back box (depth from mounting surface).....	2.38 inches (60.5 mm)
Panel Cutout .....	10.1 H × 8.43 W inches (255.57 × 214.12 mm)
Weight	
Model 297-700 .....	6.5 lbs.
Model 297-701 .....	6.5 lbs.
Model 297-702 .....	6.5 lbs.
Model 297-703 .....	6.5 lbs.
Model 298-701 .....	7.2 lbs.
Model 298-702 .....	7.2 lbs.

Replacement Parts

Part No.	Description	293 -700	293AL- 700	294AL- 702	297 -700	297 -701	297 -702	297 -703	298 -701	298 -702
233-001	Model 233-001 Tamper-Resistant Screwdriver	■	■	■	■	■	■	■	■	■
69841-001	VoIP Carrier PCBA	■	■	■	■	■	■	■	■	■
100-02- 7013-000	VoIP Circuit PCBA	■	■	■	■	■	■	■	■	■
51035-005	PCBA, Keypad, metallic			■					■	■
28299-007	Tamper-resistant Screws (Flush-mount models)				■	■	■	■	■	■
28229-004	Tamper-resistant Screws, 1-1/8 inch	■	■	■						
12520-006	Push Button Replacement Kit (1.5-inch, Red)	■	■	■	■	■				■
12520-007	Push Button Replacement Kit (Black)			■		■	■	■	■	■
12521-002	Microphone Replacement Kit	■	■	■						
12521-003	Microphone Replacement Kit				■	■	■	■	■	■
12522-006	Piezo Speaker Replacement Kit	■	■	■						
12522-005	Piezo Speaker Replacement Kit				■	■	■	■	■	■
21245-003	Terminal Block Connector, 2-Position (External Power)	■	■	■	■	■	■	■	■	■
21245-004	Terminal Block Connector, 6-Position (Outputs)	■	■	■	■	■	■	■	■	■
62317-208	8-Point Connector (Inputs)	■	■	■	■	■	■	■	■	■



## Confidentiality Notice

This manual is provided solely as an installation, operation, and maintenance guide and contains sensitive business and technical information that is confidential and proprietary to GAI-Tronics. GAI-Tronics retains all intellectual property and other rights in or to the information contained herein, and such information may only be used in connection with the operation of your GAI-Tronics product or system. This manual may not be disclosed in any form, in whole or in part, directly or indirectly, to any third party.

# Warranty

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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

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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.