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GAI-TRONICS®
A HUBBELL COMPANY

RED ALERT®

Hands-free VoIP WiFi Telephone Manual

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Hands-free VoIP WiFi Telephone Manual

Confidentiality Notice

Product Overview

RED ALERT® telephone VoIP WiFi telephones connect to WLANs (wireless local area networks) that meet the IEEE 802.11a/b/g/n standard. These telephones operate from an external power source and provide direct point-to-point communications between personnel over an existing LAN.

Features and Functions

RED ALERT telephone VoIP WiFi telephones include the following features:

- SIP compatible (RFC3261)
- automatic call diversion (memory list)
- weather and vandal-resistant
- real-time alarm reporting via SNMP, syslog, or TMA
- configurable via web page, serial link, or download
- four auxiliary inputs
- two dry-contact outputs
- ADA (Americans with Disabilities Act) compliant
- multicast capability, up to eight addresses

The following RED ALERT telephone VoIP WiFi telephones are detailed in this manual:

Table 1. Model Chart

Model	Description
393-810A	**Surface-Mount VoIP WiFi Telephone**, weatherproof, yellow engineered plastic enclosure, HELP autodial push button, CALL RECEIVED WHEN LIT LED, and 24 V dc power supply.
393AL-810A	**Surface-Mount VoIP WiFi Telephone**, weatherproof, cast-aluminum enclosure painted safety yellow, HELP autodial push button, CALL RECEIVED WHEN LIT LED, and 24 V dc power supply.
394AL-812A	**Surface-Mount VoIP WiFi Telephone**, weatherproof, cast-aluminum enclosure painted safety yellow, HELP autodial push button, CALL (off-hook) button, 12-button Braille keypad, CALL RECEIVED WHEN LIT LED, and 24 V dc power supply.
397-810A	**Flush-Mount VoIP WiFi Telephone**, weatherproof, brushed stainless steel front panel, HELP autodial push button, CALL RECEIVED WHEN LIT LED, and 24 V dc power supply.
397-811A	**Flush-Mount VoIP WiFi Telephone**, weatherproof, brushed stainless steel front panel, HELP autodial push button, ASSISTANCE autodial push button, CALL RECEIVED WHEN LIT LED, and 24 V dc power supply.
398-811A	**Flush-Mount VoIP WiFi Telephone**, weatherproof, brushed stainless steel front panel, CALL (off-hook) push button, 12-button Braille keypad, CALL RECEIVED WHEN LIT LED, and 24 V dc power supply. This telephone is simply a rugged, hands-free telephone and is not intended for emergency use.
398-812A	**Flush-Mount VoIP WiFi Telephone**, weatherproof, brushed stainless steel front panel, HELP autodial push button, CALL (off-hook) button, 12-button Braille keypad, CALL RECEIVED WHEN LIT LED, and 24 V dc power supply.

System Requirements and Limitations

RED ALERT VoIP WiFi telephones require a 24 to 48-volt dc power source for operation (24 V dc supply provided). Two telephones can communicate wirelessly in a peer-to-peer configuration without the need for a LAN connection. A wireless access point connected to a 10/100 BaseT Ethernet network with a SIP (Session Initiation Protocol) server is required for systems containing three or more VoIP WiFi telephones (or a combination of WiFi and network cabled VoIP telephones). Conferences are limited by the customer's LAN media capabilities and the services available at each telephone.

These telephones also receive multicast broadcasts. A multicast audio stream is sent to multiple end points simultaneously to achieve multi-point paging or public address functionality over IP. Multicast requires the use of a SIP server that specifically supports multicast functionality and each telephone must be configured (enabled) to receive multicast packets.

VoIP Subscriber Tips

New and existing subscriptions to an interconnected VoIP service provider should address the following points:

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

Operation

Autodial Emergency Calls

Models 393-810A, 393AL-810A, 394AL-812A, 397-810A, 397-811A & 398-812A

Press the HELP push button to immediately call the preprogrammed emergency number; typically, a security office or 911.

- The CALL RECEIVED WHEN LIT LED illuminates steadily in accordance with the ADA (Americans with Disabilities Act) when the call is answered.
- The call cannot be terminated by the initiator.
- The call is terminated by any of the following:
  - the receiving caller hangs up
  - the defined call-duration timeout is exceeded
  - the SIP server disconnects the call

Autodial Non-Emergency Calls

Model 397-811A

To place a non-emergency call:

Press the ASSISTANCE push button to immediately call the preprogrammed non-emergency number (garage, dorm, etc.).

- The CALL RECEIVED WHEN LIT LED illuminates steadily in accordance with the ADA (Americans with Disabilities Act) when the call is answered.
- The call is terminated by the any of the following:
  - pressing the ASSISTANCE push button again
  - the receiving caller hangs up
  - the defined call-duration timeout is exceeded
  - the SIP server disconnects the call

General Telephone Calls

Models 394AL-812A, 398-811A, and 398-812A

To place a general telephone call:

1. Press the CALL push button.
2. Wait for the dial tone.
3. Use the keypad to dial the desired number.
    - The CALL RECEIVED WHEN LIT LED illuminates steadily in accordance with the ADA when the call is answered.
    - The call is terminated by any of the following:
        - pressing the CALL push button again
        - the receiving caller hangs up
        - the defined call-duration timeout is exceeded
        - the SIP server disconnects the call.

Receive a Call

RED ALERT VoIP emergency telephones automatically go off-hook (auto-answer) when called. A conversation can then take place.

Multicast Broadcast Reception

When making a multicast call, the SIP server sends the page request to a specific IP address and multiple telephones accept and play the subsequent audio. GAI-Tronics' VoIP telephones are programmable for up to eight multicast addresses to permit the receipt of multicast broadcasts from different sources or to enable zoning of broadcasts. Each multicast address can be assigned a priority (via programming) to define broadcast override. A telephone with multicast enabled can still make and receive normal calls (peer-to-peer or SIP server). Normal calls can be assigned a priority level, defining whether calls can override multicasts or vice versa.

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 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 the NEC.

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 must be ensured for safe and stable communication. 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. A Cat5 data line lightning surge protector is recommended for telephones subject to any electrostatic discharge (e.g. lightning).
- Do not install jacks in wet locations unless the jack is specifically designed for wet locations.

Station Placement

Volume settings and station placement must be taken into consideration to prevent feedback problems in the system. Reduce unpleasant feedback problems by:

- pointing the telephone away from other telephones located nearby
- reducing speaker volume levels

Security Hardware

The telephones described in this manual are vandal resistant. The front panel of each telephone 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 for installing the telephone.

Conduit Installation (Surface-Mount Models)

GAI-Tronics recommends installing power 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 for surface-mount telephones.

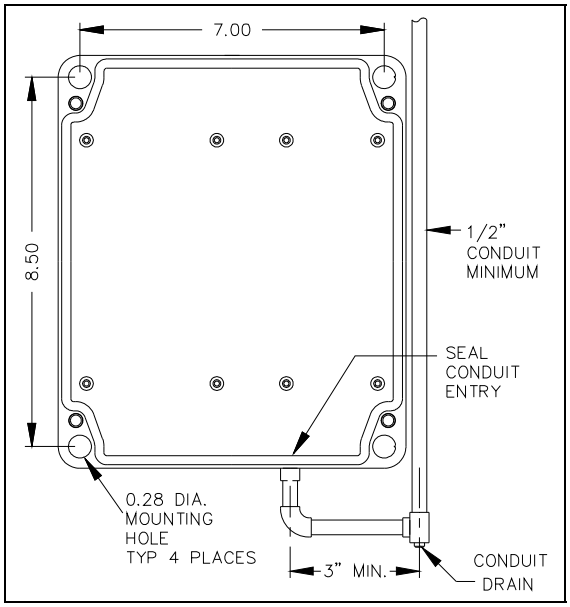

Figure 1. Bottom entry conduit recommended for non-metallic enclosures

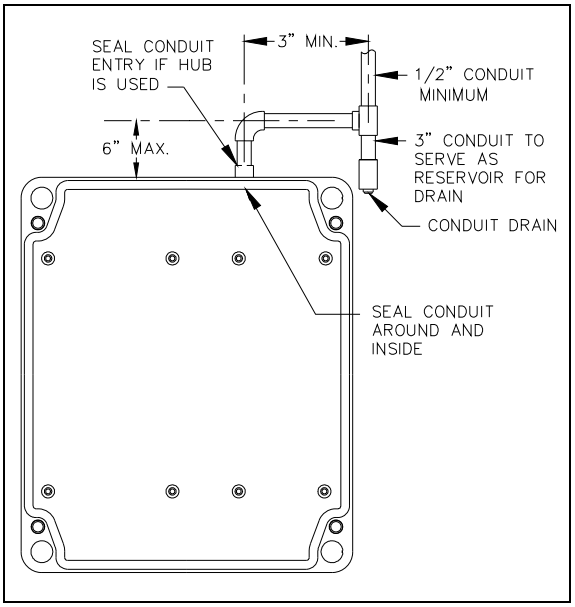

Figure 2. Top entry conduit installation for non-metallic enclosures (NOT recommended)

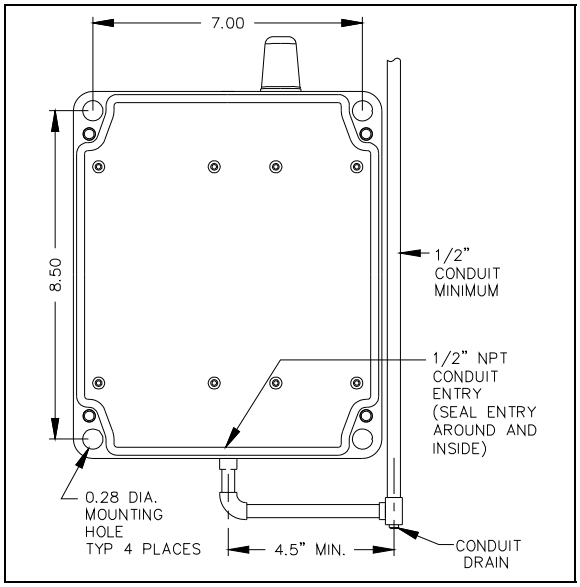

Figure 3. Bottom entry conduit installation details for metallic enclosures

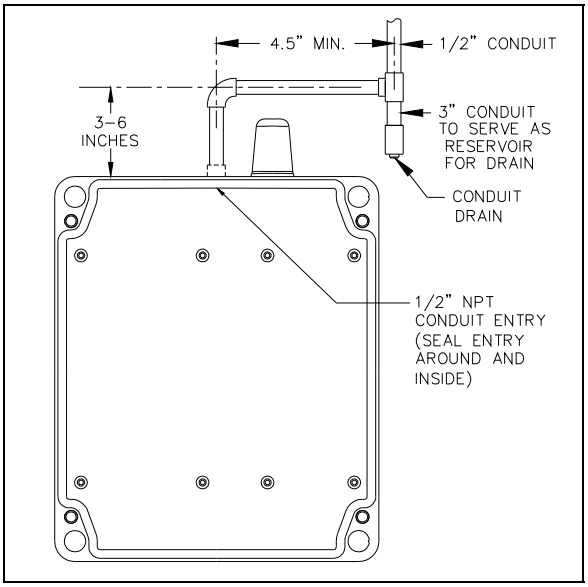

Figure 4. Top entry conduit installation details for metallic enclosures (NOT recommended)

Models 393-810A, 393AL-810A, and 394AL-812A (Surface Mount Applications)

1. Remove the four security screws from the front panel.
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 its mounting surface with four ¼-inch diameter bolts of the appropriate length for the surface.

   NOTES:

   - When using the GAI-Tronics Model 231-001 Pole Mounting Kit, follow the mounting instructions provided in the kit.
   - When mounting outdoors, installation of a (customer-supplied) surge suppresser on the power line is recommended.

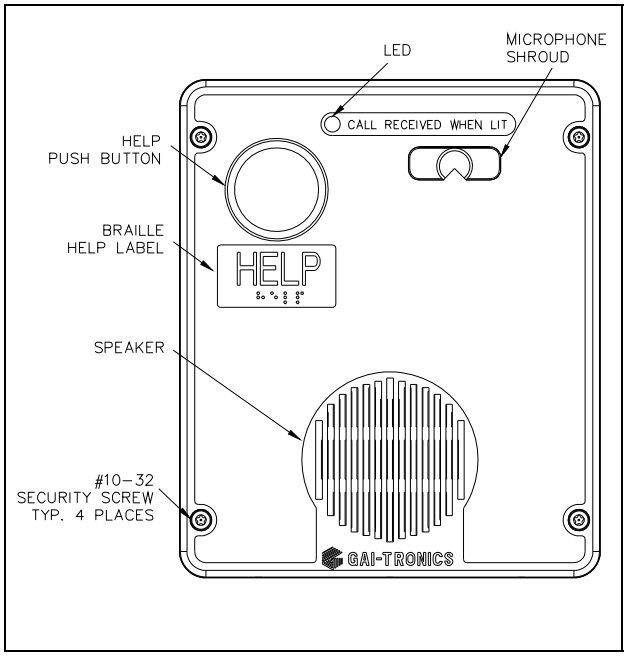

Figure 5. Model 393-810A VoIP Telephone in a Non-metallic Enclosure

4. *Model 393-810A only*: Create a conduit access hole using a hole punch equivalent in size to the conduit diameter. Bottom entry is strongly recommended. Insert a conduit fitting in the access hole.
5. Install conduit as required (see the Conduit Installation (Surface-Mount Models) section on Page 8).

   NOTE: Use silicone sealant or equivalent around and inside all conduit entries.
6. Pull the power and ground cable through the conduit and terminate the cable (see the Field Wiring section on Page 14).

   NOTE: If mounted outdoors, the installation of a (customer-supplied) surge suppressor on the power line is recommended.
7. Connect any desired peripheral devices (see the Auxiliary I/O section on Page 16).
8. Perform the initial programming of the telephone (see the Programming section on Page 17).
9. Verify operation by calling to and from another telephone.
10. Attach the front panel assembly to the rear enclosure using the four security screws.
11. Torque the screws to 10–12 in·lb.

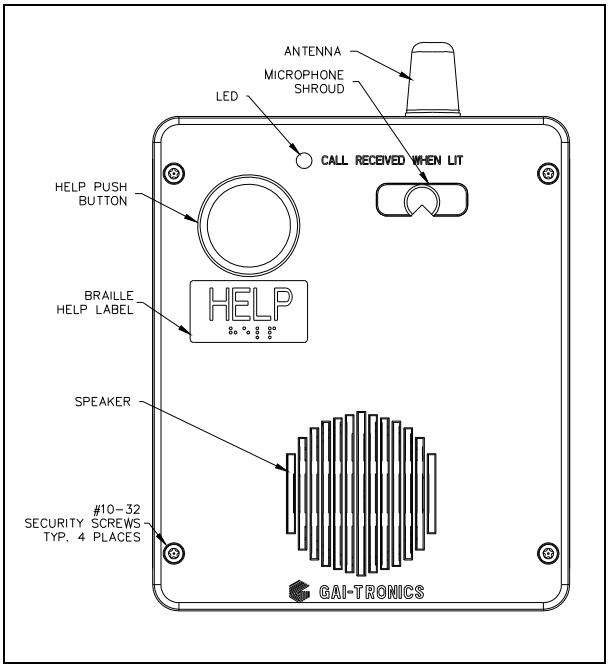

Figure 6. Model 393AL-810A

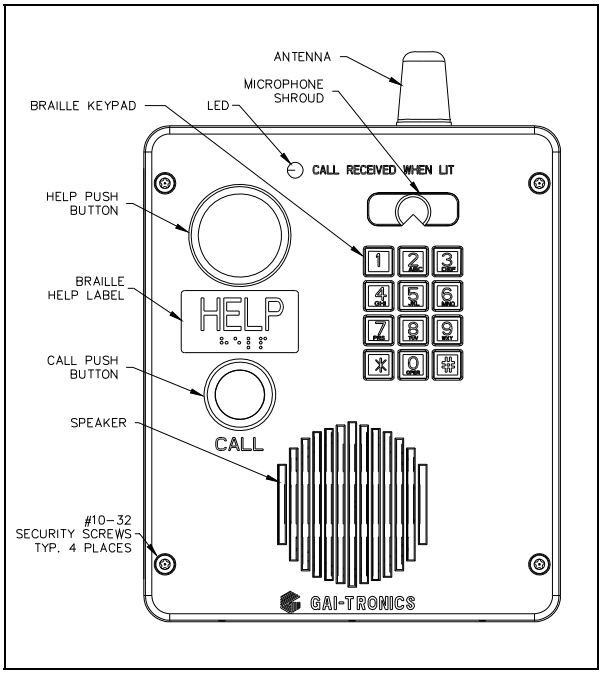

Figure 7. Model 394AL-812A

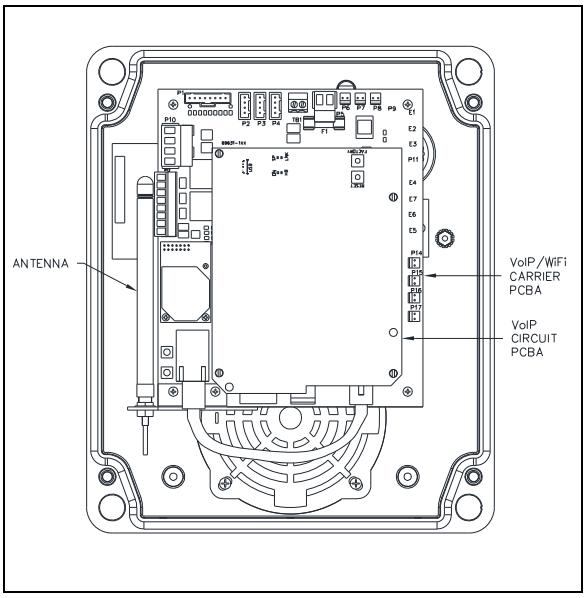

Figure 8. Model 393-810A
Component Locations

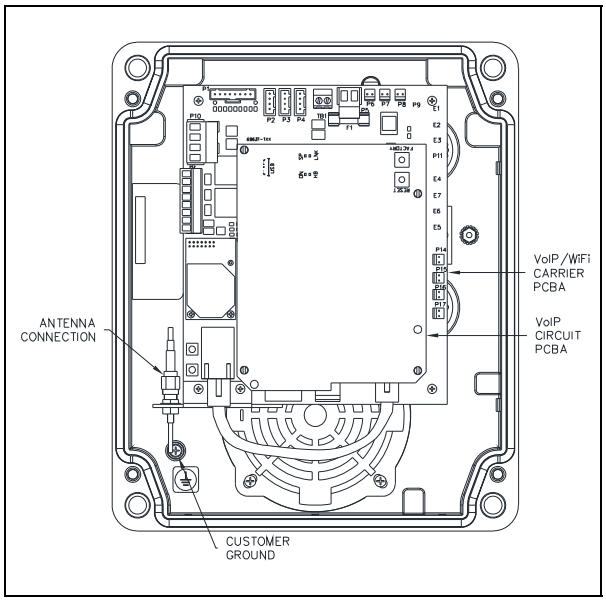

Figure 9. Models 393AL-810A and 394AL-812A
(Antenna is mounted on back box.)

Model 397-81*x*A and 398-81*x*A Telephones (Flush-Mount Applications)

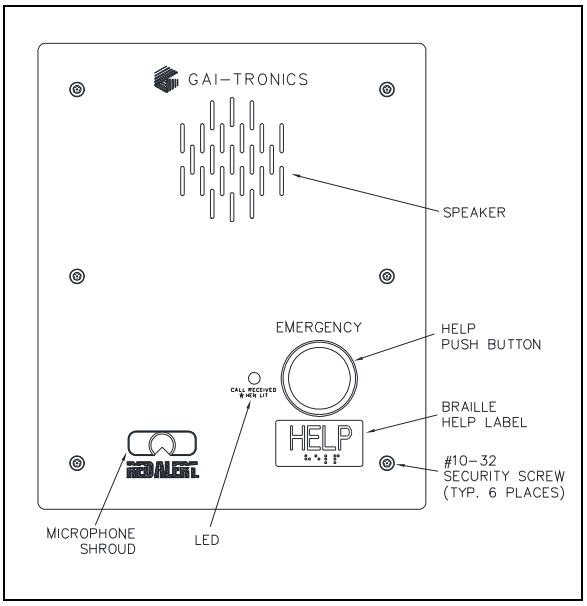

Figure 10. Model 397-810A

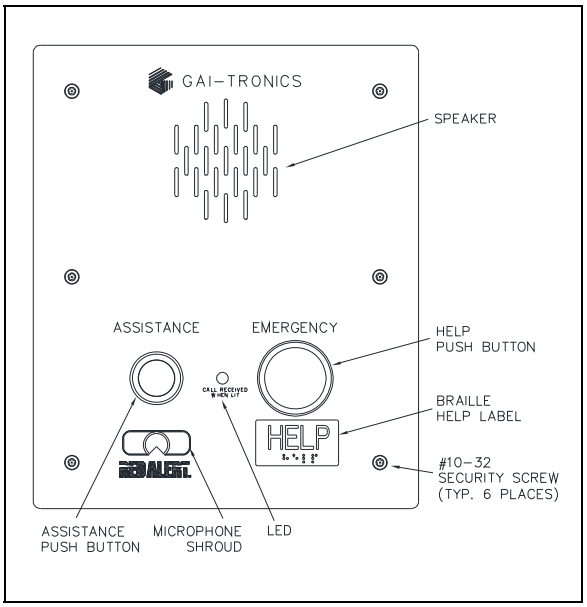

Figure 11. Model 397-811A

1. Use the supplied back box to mount the Model 397-810A, 397-811A, 398-811A and 398-812A VoIP WiFi telephones in flush-mount applications or in a GAI-Tronics Model 234 Series Communication Station. Mount the back box to the structure using the appropriate hardware (see Figure 15).

   NOTES:

   - When installing a RED ALERT flush-mount VoIP telephone in a GAI-Tronics 236-00*x* Series or 238-001 Surface-Mount Enclosure, the front panel assembly mounts directly to the enclosure (back box is not required.)
   - When mounting outdoors, the installation of a (customer-supplied) surge suppressor on the power line is recommended.

2. Remove the tapered plug from the one of the rear cable entry holes in the back box and install the power and antenna cable and cable fitting (see the Field Wiring section on page 14).
3. Connect all peripheral devices (see the Auxiliary I/O section).
4. Perform the initial programming of the telephone (see the Programming section on Page 17).
5. Verify operation by calling to and from another telephone.
6. Attach the telephone's front panel to the mounting flanges of the back box using the six supplied #10-32 security screws and washers.
7. Torque the screws to 10–12 in·lb.

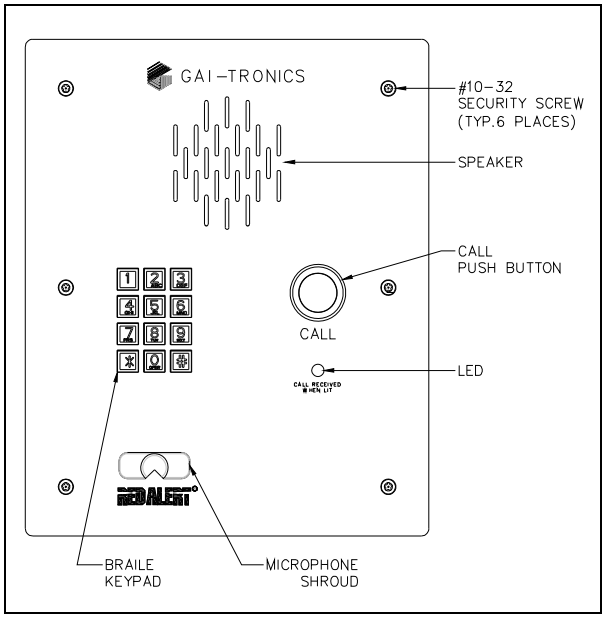

Figure 12. Model 398-811A

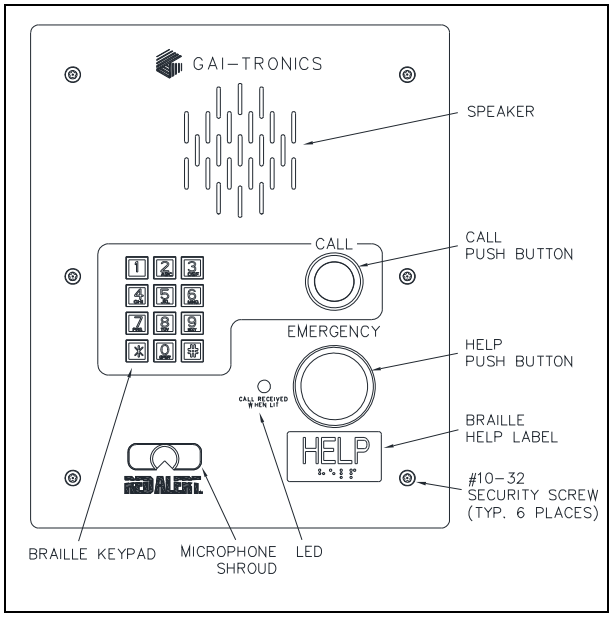

Figure 13. Model 398-812A

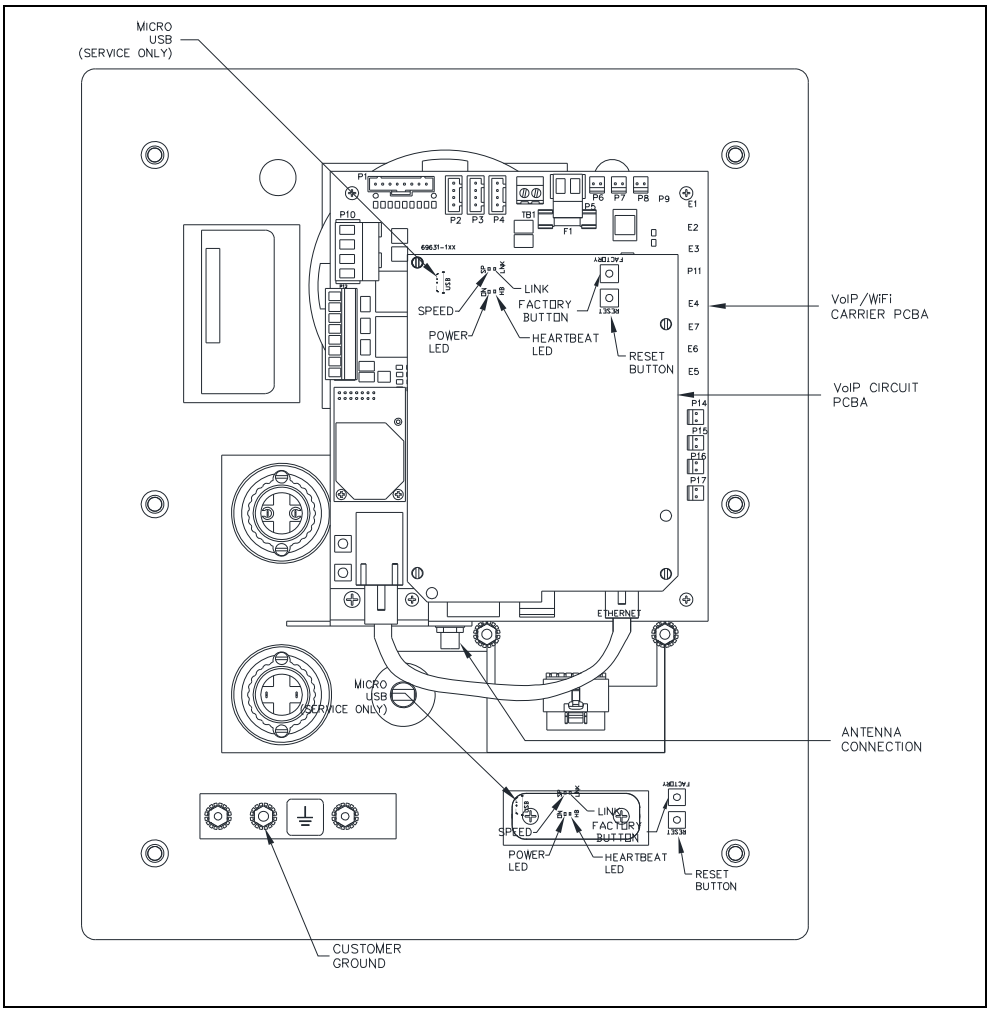

Figure 14. Component Locations for Models
397-810A, 397-811A, 398-811A, and 398-812A (Shown)

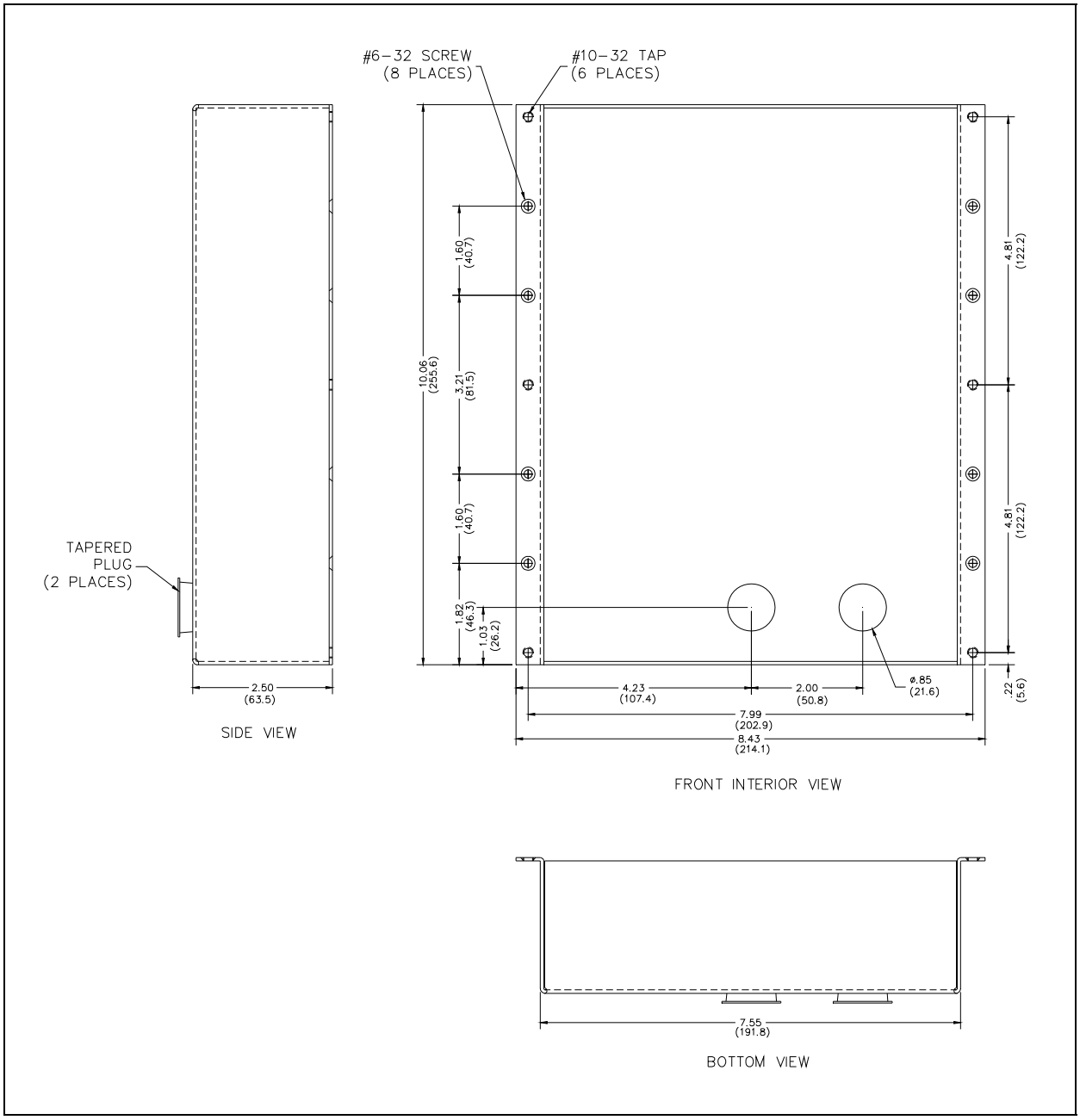

Figure 15. Flush-Mount Telephone Back Box Mounting Detail
Panel Cut-Out: 10.13 H × 7.63 W inches (257 × 194 mm)

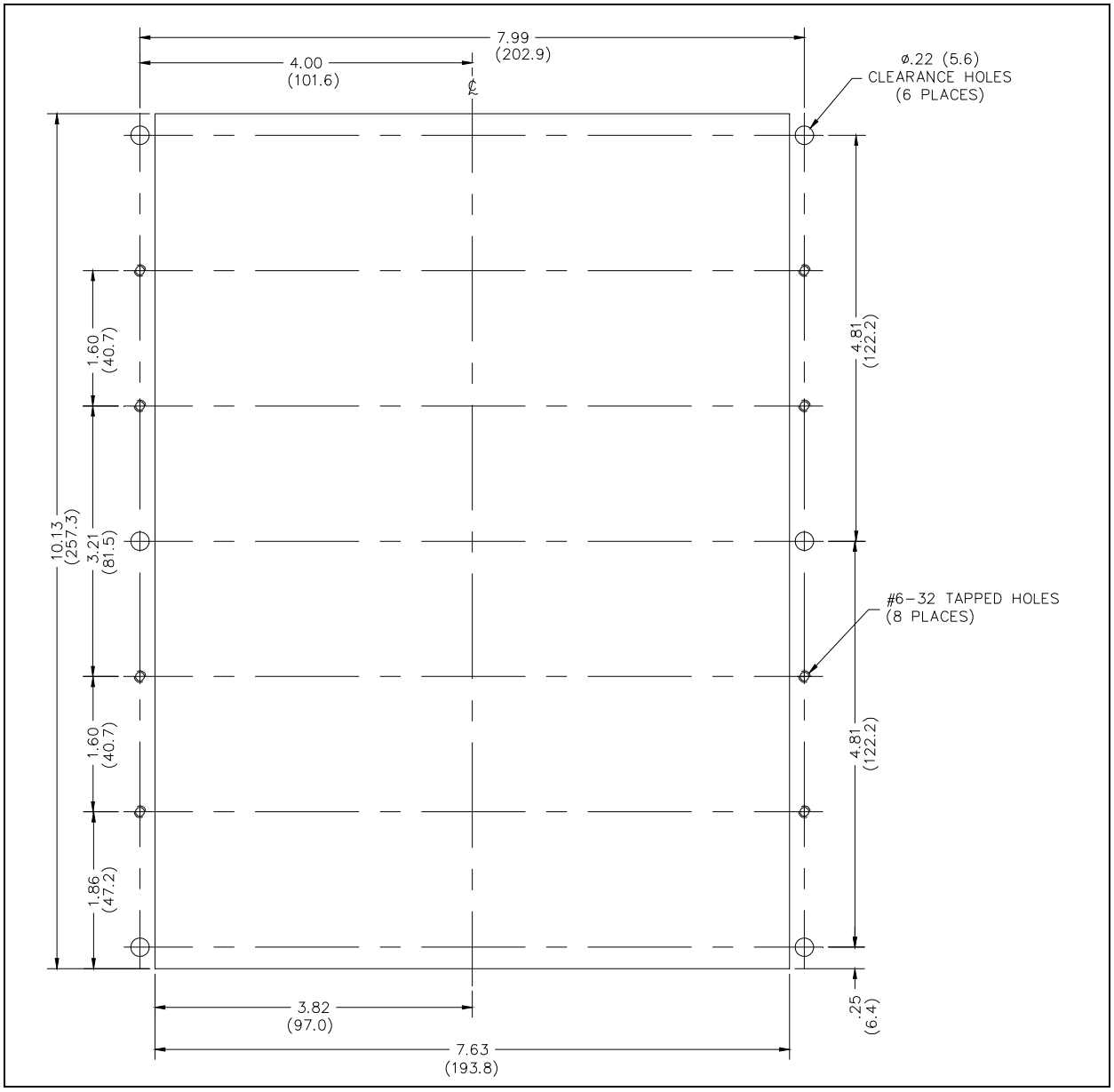

Figure 16. Cutout for Models 397-810A, 397-811A, 398-811A, and 398-812A

Field Wiring

Pull the required field cables into the rear enclosure and install all connections as indicated in the following subsections (see Table 2 and Figure 17).

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 local and national codes. Class 2 circuit wiring must be performed in accordance with the NEC.

Recommended Cable

Table 2. Recommended Cable

Cable Use	Size and Type
Power	Two-conductor, No. 22 AWG is typical
Inputs	Two-conductor, No. 22 AWG is typical
Output contacts	Two-conductor, No. 18 AWG is typical
Antenna	RG58 coaxial cable

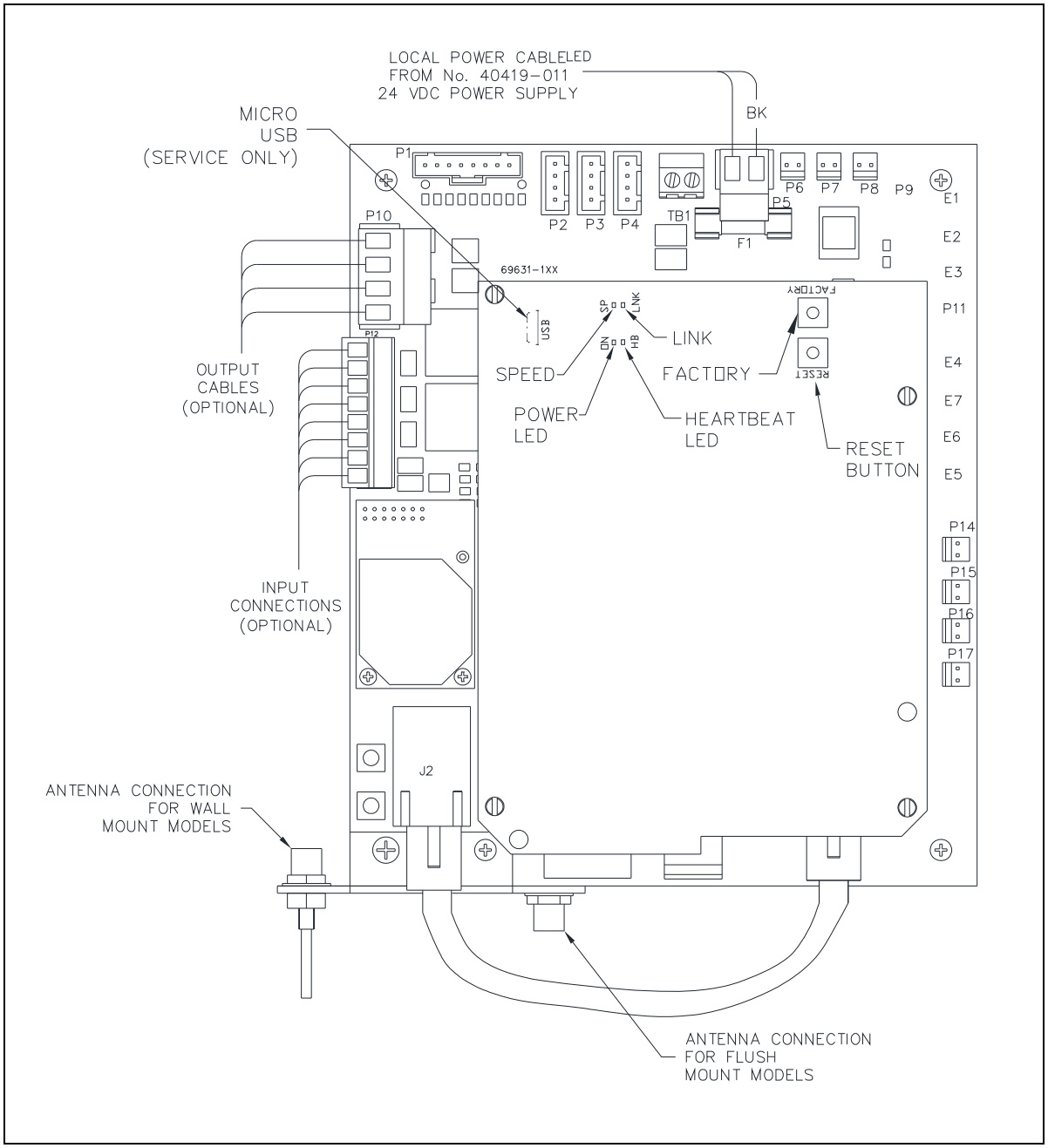

Figure 17. VoIP WiFi Telephone PCB Assembly

Power

Ground

The enclosure must be connected to earth ground (see Figure 9 and Figure 14):

1. Install a #6 ring lug on the ground conductor.
1. Secure the ground conductor to the ground terminal, located on the rear of the front panel.

NOTE: Not applicable to Model 393-810A.

Local Power

WiFi telephones require a local (isolated 24 to 48 V dc) power source to operate. Connect the local 24–48 V dc power source to removable terminal block, P5 (see Figure 17), on the VoIP Carrier PCBA:

1. Install ferrules or tin the wire ends.
2. Connect the positive conductor to the (+) terminal of P5.
3. Connect the negative conductor to the (−) terminal of P5.
4. Install the removable terminal block onto pin header P5, on the VoIP carrier PCBA.

Table 3. Power—P5

Pin	Label	Description
1	(+)	Positive
2	(−)	Negative

Network

Connection to the WLAN is via the on-board WiFi transceiver.

Antenna

An SMA connector is provided for the antenna connection (see Figure 17). The connector is mounted on an L-bracket on top of the unit's PCBA and is labeled ANTENNA.

- Models 393AL-810A and 394AL-812A include an integral, low-profile, WiFi antenna (secured to the exterior of the top surface of the back box on the right side, when facing the unit.) This antenna is pre-connected to the internal antenna connector.
- The Model 393-810A uses an internal antenna.
- Models 397-81*x*A and 398-81*x*A require the use of an external WiFi antenna. The antenna cable must be fed through the rear enclosure of the telephone and secured to the SMA connector.

NOTE: The antenna used in non-stanchion, flush-mount installations is customer-supplied.

A Model 12234-102 Antenna/Lens Kit (sold separately) should be used when installing the Model 397-81*x*A and 398-81*x*A in a GAI-Tronics 234 Series Communication Station.

Auxiliary I/O

Inputs

The telephones have four auxiliary inputs for customer use. Terminate these inputs to terminal block P12, on the VoIP Carrier PCBA (see Figure 17).

Table 4. Auxiliary Inputs—P12

Pin	Label	Function
1	IN4	Input 4
2	GND	Common
3	IN3	Input 3
4	GND	Common
5	IN2	Input 2
6	GND	Common
7	IN1	Input 1
8	GND	Common

Outputs

The telephones have two dry-contact outputs for customer use. Terminate these outputs to connector P10, on the VoIP Carrier PCBA (see Figure 17).

Table 5. Output Contacts—P10

Pin	Label	Description
1	OUT1	Common Output 1
2		Normally Open Output 1
3	OUT2	Common Output 2
4		Normally Open Output 2

Programming

The network configuration must provide VoIP service (using the SIP protocol) between the desired locations before attempting to configure a GAI-Tronics VoIP telephone.

First Time WiFi Interface Setup

Setup the WiFi interface to configure the telephone's WLAN connection security:

1. Power on the telephone by connecting 24 to 48 V dc to terminal block P5.

   The factory default configuration of the VoIP WiFi telephone's interface is an access point on a network named (SSID) **HF-A11x_AP**.

2. connect to the HF-A11x_AP network using a PC/laptop with a wireless adapter.

   The yellow LED on the telephone's WiFi interface should be ON when the PC is connected to the HFA11_AP network

3. Open a web browser on the PC and enter ***10.10.100.254*** into the address field and press **ENTER**.

   The HF-A11x_AP WiFi log in window opens.

4. Enter ***admin*** for both the user and password, and log in.

   The Working Mode Configuration web page opens:

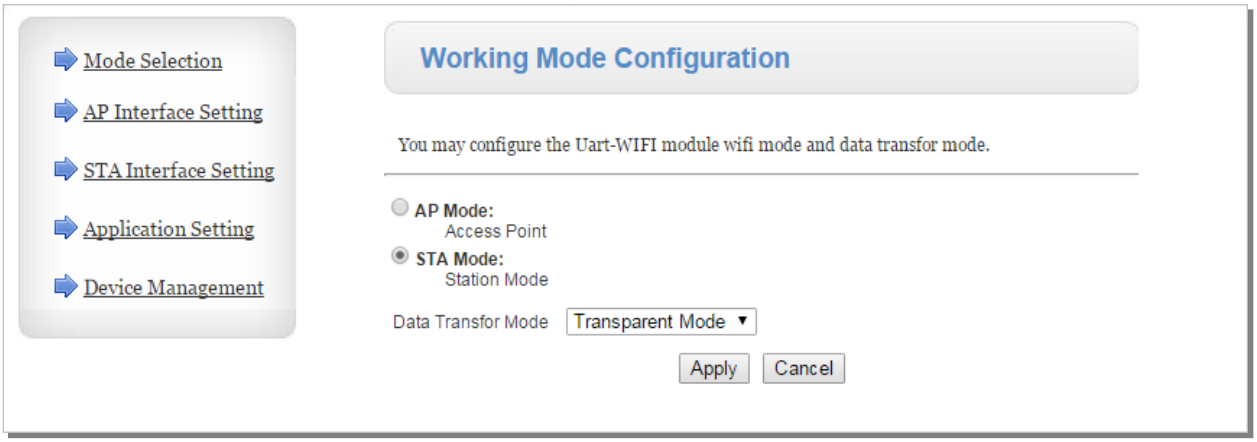

Figure 18. WiFi Interface Working Mode Configuration Web page

5. Select STA MODE then click the APPLY button.

   NOTE: Verify that the PC's wireless network adapter is set to DCHP (Obtain an IP address automatically) to connect to the HF-A11x_AP access point.

   the web page will show **Set Successfully, Restart to use new setting**.

6. Restart to use the new setting, and then click on the STA INTERFACE SETTING selection

   The **STA Interface Setting** web page opens:

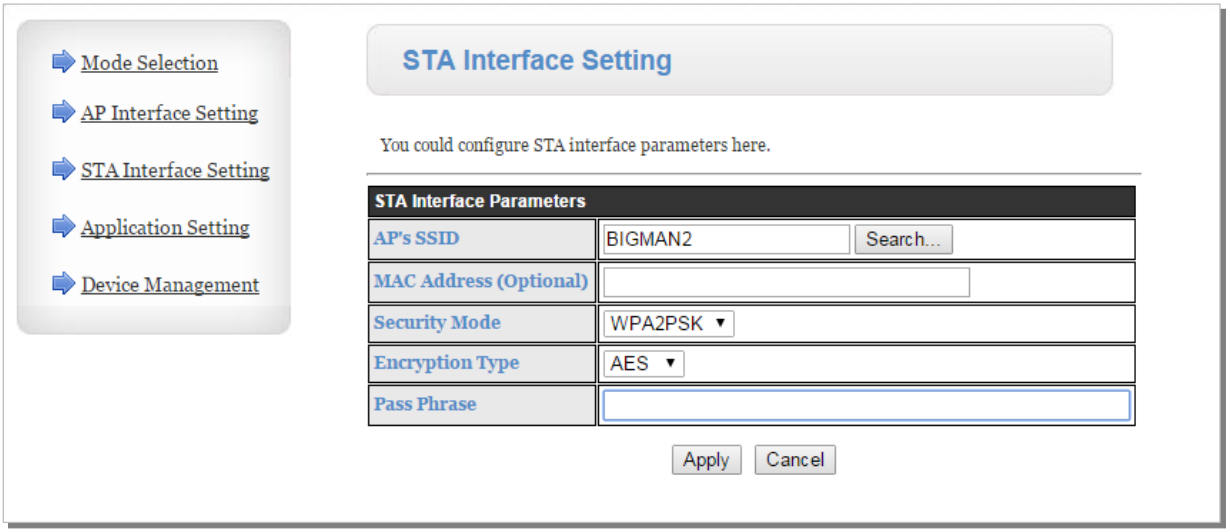

Figure 19. WiFi Interface STA Interface Setting Web page

7. Click the SEARCH button, to the right of in the AP's SSID field, to find the WiFi network that the VoIP telephone will operate in.

   The **Site Survey** webpage opens, showing all available networks.

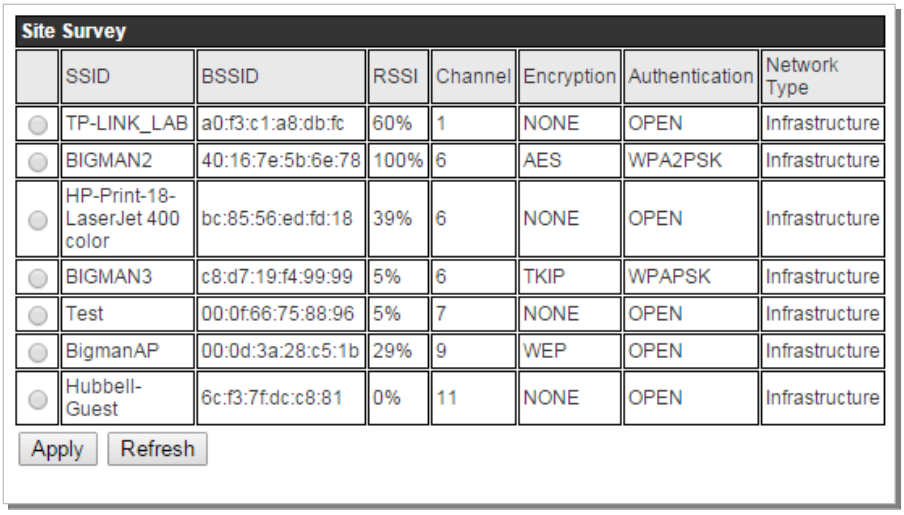

Figure 20. WiFi Interface Site Survey Web page

8. Select the desired network and click the APPLY button.

   A reminder window to enter the WEP key or pass phrase pops up.

9. Click the OK button.

10. Enter the **WEP Key** or **Pass Phrase** for the selected network and click the APPLY button.

    The AP's SSID, security mode, and encryption type fields will be filled in when the STA interface setting webpage opens again.

    NOTE: Manually enter the AP's SSID, security mode, encryption type, and WEP key or pass phrase if the VoIP telephone is not within the range of the wireless network that it is being configured to operate in.

    The web page will show **Set Successfully, Restart to use new setting** after the configuration has updated.

11. Click on the DEVICE MANAGEMENT selection.

    The **Device Management** webpage opens.

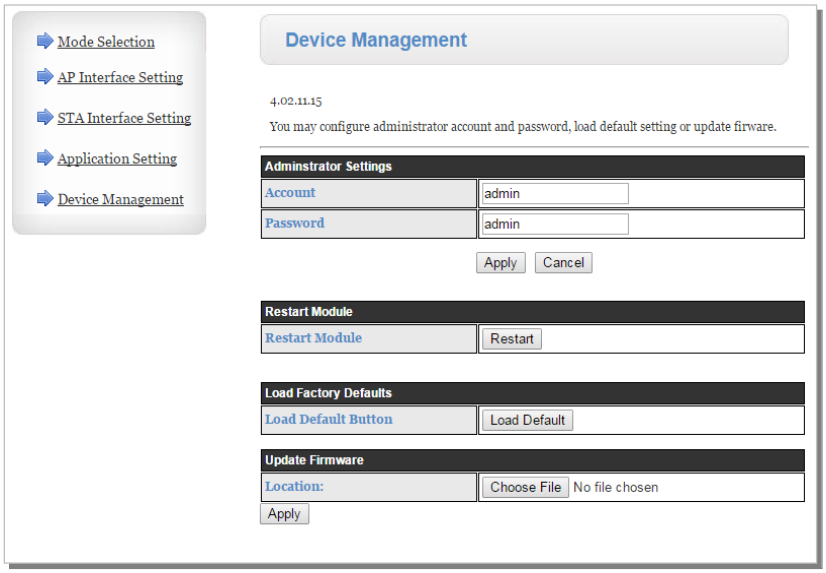

Figure 21. WiFi Interface Device Management Web page

12. Click the RESTART button, located in the RESTART MODULE section.
    - The web page will show REBOOTING… while the WiFi module is restarting.
    - Both LEDs on the RJ-45 Jack J2 will turn OFF for several seconds while the WiFi interface restarts.
    - The green LED turns ON first; after the WiFi interface restarts.
    - The yellow LED turns ON when the WiFi interface connects to the newly configured network.
13. Continue with the configuration of the VoIP telephone PCBA (see the VoIP Telephone Setup section).
14. *If an incorrect WEP Key or Pass Phrase is entered:* Follow the instructions in the next section (see the Reset WiFi Interface Configuration section).

NOTE: The WiFi module is no longer an access point on its own network (HF-A11x_AP). The WiFi module should now be connected to or trying to connect to the newly configured wireless network. The browser web page will not change from showing REBOOTING… because the PC is no longer connected to the HF-A11x_AP network.

Reset WiFi Interface Configuration

Use this procedure to erase the current wireless network configuration in the telephone and configure the telephone's wireless adapter with the factory default settings:

1. Press and hold the RLOAD button for 10 seconds.
    - The RLOAD pushbutton is located on the WiFi adapter near the Ethernet jack J2.
    - Both LEDs on the RJ-45 jack (J2) turn OFF for several seconds while the WiFi interface resets.
    - Wait for the green LED to turn ON before trying to connect to the HF-A11x_AP network.
2. Follow the instructions in the First Time WiFi Interface Setup section to connect to the HF-A11x_AP network and configure the wireless network settings.

NOTE: The telephone's power must be cycled before it will connect to the wireless network after changing the WiFi interface configuration if the VoIP telephone was configured for DHCP.

VoIP Telephone Setup

1. Connect a PC to the same network as the VoIP telephone.
2. Log into the unit's web interface.

   The unit is factory configured with a static IP address: ***192.168.1.2.***
3. Enter the username and password when prompted.

   The initial factory settings are:
    - USER NAME: ***user***
    - PASSWORD: ***password***
4. Change the username and password upon first login.

   This security measure helps prevent unauthorized changes to the VoIP telephone's interface configuration.

VoIP Telephone Initial Network Configuration

Configure each VoIP telephone for operation on the network prior to installation. Assign a local ID, domain, proxy, and registrar.

1. Assign a host name.

   Host names provide identification of different VoIP PCBAs on the network.

2. Test that calls can be made successfully.
3. Maintain the telephone by monitoring alarms.
4. Set up auto-updates.

Refer to Pub. 42004-548 for basic programming instructions for these VoIP telephones.

Input Contacts

Each RED ALERT VoIP telephone includes four dry-contact inputs (see the Specifications section for the ratings). Each input's mode is configurable. Inputs can be configured for one of the following modes:

- None
- Digit
- Memory Dial
- PTT/Mute
- Redial
- Volume
- Hook
- Hook HF
- Memory Hook

The inputs will generate a SYSLOG or an SNMP trap when active. Refer to Pub. 42004-548 for programming instructions for the inputs (see the Reference Documentation section).

Output Contacts

Each RED ALERT WiFi VoIP telephone contains two dry-contact outputs (see the Specifications section for the output ratings). Both outputs are SPST (single-pole, single-throw) contacts. The mode of each output is configurable. Configure outputs for one of the following modes:

- On
- Off
- Ring
- Connect
- Hook
- In Use
- Ring Out
- Registered
- Emergency

The duration of activation, or on/off times, can also be set in some modes. Refer to Pub. 42004-548, for programming instructions for the outputs (see the Reference Documentation section).

Strobe Connection

Each RED ALERT VoIP telephone includes two relays. Contact one typically activates peripheral equipment such as beacons, video cameras, and alarm generators when the HELP push button is pressed. The relay can remain energized for the duration of the emergency call.

An output is often used to operate a GAI-Tronics Model 540-001 or 541-001 Strobe (sold separately) (see Figure 22). Refer to the appropriate installation instructions included with the strobe for additional information.

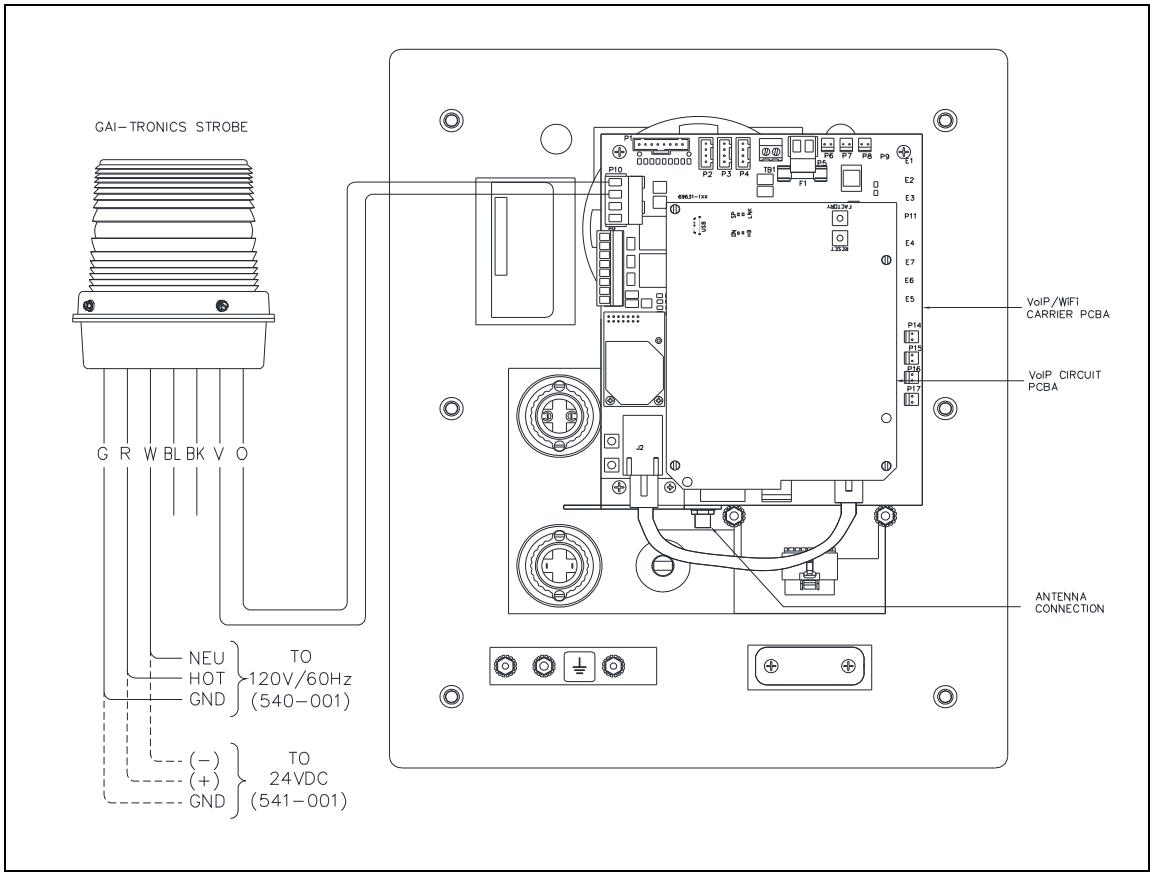

Figure 22. GAI-Tronics Models 540-001/541-001 Strobe Connection Detail

Monitoring and Reporting

Each telephone recognizes and generates several hardware and configuration fault condition alarms. There are three methods to transmit this information to a remote site:

- syslog output over TCP
- SNMP (Simple Network Management Protocol)
- TMA (Telephone Management Application) software (purchased separately)

Available alarms are:

- handset integrity loop (if applicable)
- cold reset (power cycle)
- key (stuck button)
- register fail (unsuccessful SIP registration)
- configuration error
- warm reset (internal command)
- hook (off hook timeout)
- audio path test (speaker/microphone test)

Monitoring and reporting must be configured for the telephone. Refer to Pub. 42004-548 for instructions (see the Reference Documentation section)

Maintenance

⚠WARNING ⚠ —This product can contain hazardous voltages. Always remove power to this station prior to servicing.

Corrective Actions

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 WiFi VoIP Carrier PCBA.

USB port

The USB port is for GAI-Tronics service personnel only. Make no connection to this port.

Troubleshooting

Table 6. Troubleshooting Chart

Problem	Possible Solution
Low volume	Increase the telephone's volume level in the programming configuration.
High volume	Decrease the telephone's volume level in the programming configuration.
Front panel push buttons not operational	• Verify the push buttons are properly configured. • Verify power is applied to the unit.
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	• Verify that power is applied to the unit. • Verify the WLAN parameters have been configured properly. • Verify the telephone has been set up on the network.
No power indication	Check the power connections.

Status Indication

Power

The ON LED, located on the VoIP PCBA (see Figure 23), illuminates when power is applied to the telephone.

Heartbeat

The HB LED, located on the VoIP PCBA (see Figure 23), flashes when communication over the LAN is established.

Link

The LNK LED, located on the VoIP PCBA (see Figure 23), indicates an active network connection when illuminated.

Speed

The SP LED, located on the VoIP PCBA, (see Figure 23) indicates a 100 Mbps network connection when illuminated or a10 Mbps connection when off.

WiFi Activity (WiFi Units Only)

The WiFi Activity LED ,located on the WiFi module, turns ON when the VoIP telephone is powered, and flashes when data is being transmitted (see Figure 23).

WiFi Ready (WiFi Units Only)

The WiFi READY LED is a green LED, located on the RJ-45 connecter, J2, on the VoIP carrier PCBA. It illuminates when the WiFi Interface is ready to connect to a wireless network (see Figure 23).

WiFi Connected (WiFi Units Only)

The WiFi CONNECTED LED is a yellow LED, located on the RJ-45 connecter, J2, on the VoIP carrier PCBA. It illuminates when the WiFi Interface is connected to a wireless network or device (see Figure 23 for its location.

VoIP Circuit PCBA Pushbuttons

Reset

Press the RESET button (see Figure 23) momentarily to warm reboot the telephone. The telephone maintains the current configuration.

Factory

Use the FACTORY button (see Figure 23) to erase the current configuration and restore the factory default settings as follows:

1. Press and release the RESET button.
2. Press and hold the FACTORY button for 10 seconds while the telephone is rebooting.

The telephone will reboot again with the factory default settings configured.

WiFi Interface Pushbuttons

Reset Button

Press the RESET button to restart the WiFi interface module (see Figure 23).

RLoad Button

Press and hold the RLOAD button for 10 seconds to reset the WiFi interface module to the factory default settings. The RLOAD button is located on the WiFi interface module next to the RJ45 jack J2 (see Figure 23).

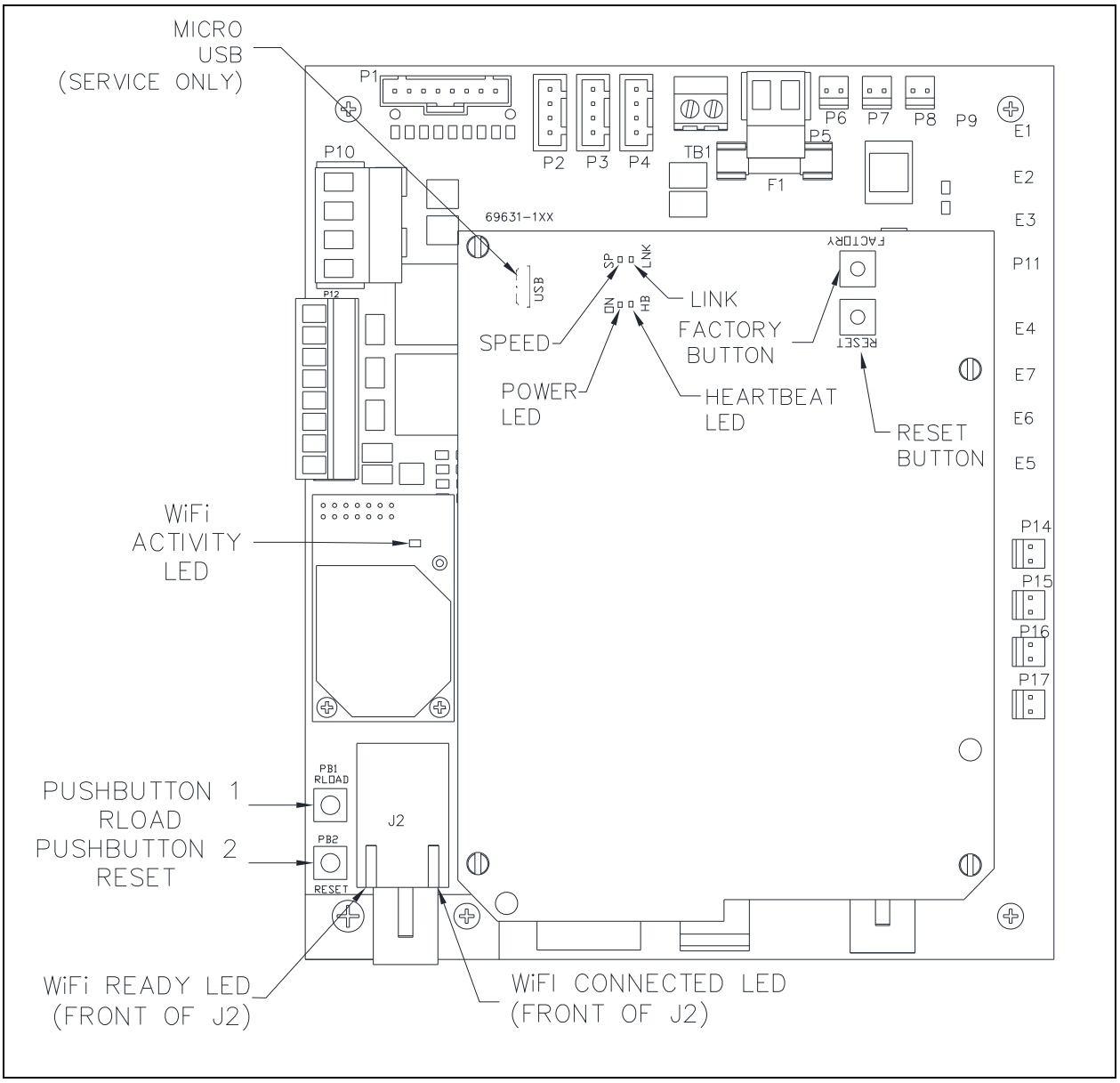

Figure 23. VoIP Carrier PCBA Component Locations

Preventive Maintenance for Models 397-81*x*A and 398-81*x*A

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 397-81*x*A and 398-81*x*A Telephones.

Cleaning

For general cleaning, wipe the 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, rinse with water, 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 re-formation of the chromium oxide layer.

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

Service

Contact a regional service center for an RA# (return authorization number) if the telephone requires service. Equipment must be shipped prepaid to GAI-Tronics with an RA# and a purchase order number. Repairs or a replacement will be made in accordance with GAI-Tronics' warranty policy 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 with locating the nearest regional service center.

Replacement Parts

Table 7. Replacement Parts

Part No.	Description	393 -810A	393AL -810A	394AL -812A	397 -810A	397 -811A	398 -811A	398 -812A
233-001	Model 233-001 Security Screwdriver	■	■	■	■	■	■	■
12565-802	Carrier/WiFi VoIP PCBA Replacement Kit	■	■	■	■	■	■	■
51035-005A	PCBA, Keypad, metallic (Flush-Mount Telephones)						■	■
12542-002	Security Screws (Torx T-25), ½-inch, Pack of 15				■	■	■	■
12516-003	Security Screws, (Torx T-25), 1-1/8 inches, Pack of 10	■	■	■				
12520-009	Push Button Replacement Kit (Help)	■	■	■	■	■		■
12520-010	Push Button Replacement Kit (Call or Assistance)			■		■	■	■
12521-004	Microphone Replacement Kit	■	■	■	■	■	■	■
12522-007	Piezo Speaker Replacement Kit	■	■	■	■	■	■	■
21245-003	Terminal Block Connector, 2-Position (External power)	■	■	■	■	■	■	■
21245-002	Terminal Block Connector, 4-Position (Outputs)	■	■	■	■	■	■	■
62317-208	8-Point Connector (Inputs)	■	■	■	■	■	■	■
51035-019	Keypad with Connector (Surface-Mount Telephones)			■				
40419-011	Plug-in Power Supply, 120/240 V ac input, 24 V dc output	■	■	■	■	■	■	■

Reference Documentation

VoIP Basic Configuration Guide 42004-548

VoIP Programming Manual 502-20-0171-001

Specifications

Electrical

Power requirements ..... 24 to 48 V dc, 6 W

Minimum current requirement:

24 V dc ..... 250 mA

48 V dc ..... 125 mA

Antenna connector (supplied) ..... RP-SMA female connector

WiFi Network

Standards ..... IEEE 802.11a/b/g/n

Frequency ..... 2.412 to 2.484 GHz

Call control signaling ..... SIP (RFC3261 compliant) loose routing

Configuration ..... embedded web server, configuration file download password protection

Inputs

Keypad* ..... 3 × 4 matrix

Push buttons* ..... Call, Assistance, Emergency/Help

Configurable inputs (quantity = 4) ..... internal pull-up 3.3 V dc tolerant

*Not available on all models.

Outputs

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

Output 2 ..... 8 A @ 30 V ac/dc (resistive load)

Indicators

External ..... off-hook indicator light

Internal on VoIP PCBA ..... heartbeat, link, power, and speed LEDs

Internal on VoIP Carrier PCBA ..... RF activity, speed, and LAN activity

Audio output ..... 85 dB SPL or greater @ 1.0 m (@ 1 kHz)

Mechanical

Temperature range:

Operating ..... −4 ºF to +131 ºF (−20 ºC to +55 ºC)

Storage ..... −40 ºF to 158 ºF (−40 ºC to +70 ºC)

Relative humidity ..... up to 95%, non-condensing

PCBA (printed circuit board assembly) ..... conformal coated

Model 393-810A

Enclosure construction ..... engineered plastic, safety yellow

Dimensions ..... 9.50 H × 8.00 W × 4.00 D in (241.3 × 203.2 × 101.6 mm)

Weight ..... 4.0 lb (1.8 kg)

Models 393AL-810A and 394AL-812A

Enclosure construction ..... cast aluminum painted safety yellow

Braille keypad (Model 394AL-812A only) .....chrome-plated zinc
Dimensions .....9.50 H × 8.00 W × 4.00 D in (241.3 × 203.2 × 101.6 mm)
Weight:
Model 393AL-810A ..... 7.8 lb (3.5 kg)
Model 394AL-812A ..... 8.5 lb (3.8 kg)

Models 397-810A, 397-811A, 398-811A and 398-812A

Construction:
Front panel..... 14-gauge, type 304 brushed stainless steel
Back box.....16-gauge cold-rolled steel with black polyurethane finish
Braille keypad (Model 398-81*x*A only) .....chrome-plated zinc
Dimensions:
Front panel..... 12.00 H × 10.00 W in (304.8 × 254.0 mm)
Back box (overall).....10.06 H × 8.43 W × 2.50 D in (255.5 × 214.1 × 63.5 mm)
Cutout for mounting back box..... 10.13 H × 7.63 W in (257.3 × 193.8 mm)
Weight:
Model 397-810A ..... 6.5 lb (2.9 kg)
Model 397-811A ..... 6.5 lb (2.9 kg)
Model 398-811A ..... 7.2 lb (3.3 kg)
Model 398-812A ..... 7.2 lb (3.3 kg)

Approvals

Compliance to Standard.....FCC CFR 47 Part 15
Safety of Information Technology Equipment .....UL/CSA 60950
Enclosures for Electrical Equipment..... Type 3R

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Depending upon the wiring and features used on this device, additional precautions may be necessary not to cause harmful interference. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.