



GAI-TRONICS®
A HUBBELL COMPANY

Model 352-7xx and 352-8xx Division 1 VoIP Page Phones - Wired & WiFi

Confidentiality Notice

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General Information

GAI-Tronics' Class I, Division 1 VoIP Page Phones are constructed of cast aluminum and are weatherproof and corrosion resistant. The built-in high-efficiency Class D paging amplifier provides up to 30 watts of speaker output, allowing Multicast broadcast page announcements over speakers.

The GAI-Tronics VoIP Page Phones consist of both wired and wireless versions with three model types: handset, headset, and amplifier-only. Each of these model groups has input power options. Refer to the Model Chart in Table 1.

The Div. 1 VoIP Page Phones are designed for connection to a 10/100 BaseT Ethernet. An external ac or dc power source is required for full power operation. Power-over-Ethernet (PoE) models do not require additional power, but have limited speaker output.

The WiFi models are designed for connection to a wireless local area network (WLAN) that meets the IEEE 802.11 b/g/n standard. An external ac or dc power source is required for operation.

In addition to providing SIP telephone operation and speaker amplifier paging, the Div. 1 VoIP Page Phones provide real-time alarm reporting. This enables system supervisors to monitor the telephones' activity and to address caller needs or maintenance issues immediately. There are also configurable inputs and outputs available in all models.

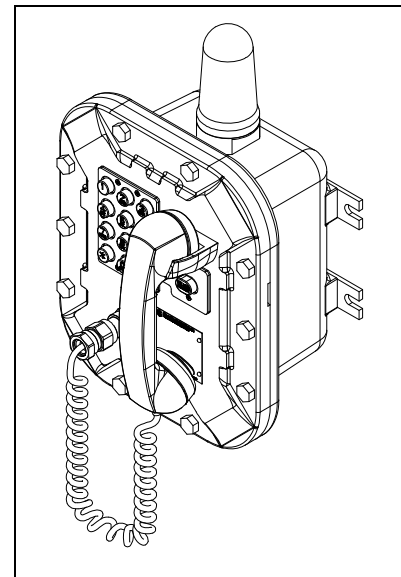


Figure 1. Mode 352-8xx Div. 1
VoIP WiFi Page Phone

Table 1. Model Chart

Model	Description
Handset Models	
352-712	Div. 1 VoIP AC Page Phone
352-722	Div. 1 VoIP DC Page Phone
352-732	Div. 1 VoIP PoE Page Phone
352-812	Div. 1 VoIP WiFi AC Page Phone
352-822	Div. 1 VoIP WiFi DC Page Phone
Headset Models	
352-713	Div. 1 VoIP AC Page Phone
352-723	Div. 1 VoIP DC Page Phone
352-733	Div. 1 VoIP PoE Page Phone
352-813	Div. 1 VoIP WiFi AC Page Phone
352-823	Div. 1 VoIP WiFi DC Page Phone
Amplifier-Only Models	
352-711	Div. 1 VoIP AC Page Phone
352-721	Div. 1 VoIP DC Page Phone
352-811	Div. 1 VoIP WiFi AC Page Phone
352-821	Div. 1 VoIP WiFi DC Page Phone

System Requirements and Limitations

VoIP

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.

VoIP WiFi

Two telephones can communicate wirelessly in a peer-to-peer configuration without the need for a LAN connection. However, a wireless pick-up point connected to a 10/100 BaseT Ethernet with SIP server is required for systems containing three or more WiFi telephones (or a combination of WiFi and hardwired-connected VoIP telephones). Conferences are limited by the customer's LAN media capabilities and the services available at each end point.

Multicast Paging

In addition to direct point-to-point dialing (peer-to-peer), directly or via a SIP server, each telephone is capable of receiving a Multicast broadcast. Multicast allows a single audio stream to be 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 or IP device that specifically supports Multicast functionality and each telephone must be configured (enabled) to receive Multicast packets.

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.
- 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 telephone line, or having a wireless telephone as a backup.
- If you have questions about VoIP in general, see <http://www.fcc.gov/cgb/consumerfacts/voip.html>.

Features and Functions



GAI-Tronics VoIP telephones include the following features:

- SIP compatible (RFC3261)
- Real-time alarm reporting via email or syslog
- Power-over-Ethernet compatible (Power Mode A, Class 0)
- Configurable via web page, serial link or download
- Four configurable auxiliary inputs and two configurable voltage-free contact outputs



Installation

Installation Guidelines

These enclosures must be installed by trained, qualified and competent personnel. Installation must comply with state and national regulations, as well as safety practices for this type of equipment.



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



The mounting location must be flat and provide proper clearance, rigidity and strength to support the enclosure and all contained devices.

 **WARNING**  Securely fasten the enclosure to the mounting location, using 3/8-inch diameter steel mounting bolts and washers, or washer head bolts.

 **WARNING**  **Do not disconnect equipment while energized.**

Insure proper grounding to protective earthing.

 **WARNING**  **The front cover is not hinged to the rear enclosure. When the cover bolts are removed, the cover must be adequately supported.**

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

Inspect and clean the machined flange flame joint surfaces of both the cover and box. Surfaces must be smooth, free of nicks, scratches, dirt or any foreign particle build-up that would prevent a proper seal. Surfaces must seat fully against each other to provide a proper explosion-proof joint. Clean surfaces by wiping with a clean lint-free cloth.

Apply a light coat of Killark “LUBG” lubricant to flange surfaces and close the cover. Install and tighten all cover bolts to 30 ft-lbs. Make certain no cover bolts are omitted. Use only those bolts supplied with the enclosure.

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

- **Electrostatic Discharge (ESD) Protection:** Your telephone has an earth ground terminal provision. Ensure that it is connected to ground in accordance with all local safety regulations and the National Electrical Code (NEC). Grounding must be ensured for safe and stable communications. Do not use long and coiled ground wires. Trim ground wires to the required length. Please note proper grounding does not eliminate the need for lightning protection for the telephone or the telephone system.
- NEVER install the telephone during a lightning storm.
- **Install a Cat5 data line lightning surge protector** on any phone installed where the phone or phone cable is at risk of being exposed to lightning strikes. The lightning arrestor must be installed as close to the phone as possible in a non-hazardous environment. The lightning arrestor must not be installed within the telephone enclosure.
- USE CAUTION when installing or modifying Cat5 data lines.

Mounting

NOTE: The mounting surface must be able to support the weight of the telephone, which is 31 lbs.

The enclosure must be securely fastened with 3/8-inch diameter steel mounting bolts located on all four mounting feet. Stainless steel hardware is recommended in outdoor applications. Refer to Figure 2. The suggested mounting height is 48 inches to the bottom of the enclosure.

NOTE: Refer to the Killark Installation, Operation, and Maintenance Data Sheet for the Killark Part. No. EXB-684 N34 Base Enclosure (enclosed with the unit) for additional information.

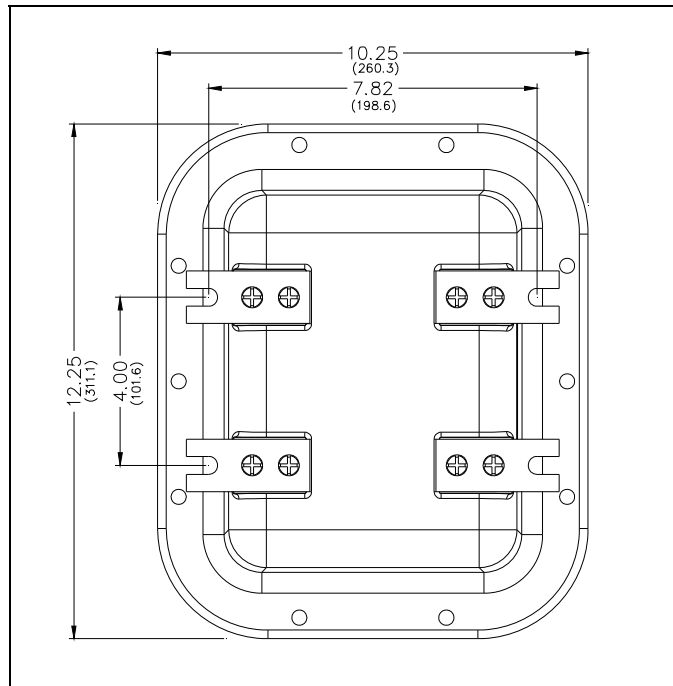


Figure 2. Model 352 Series Division 1 VoIP Page Phone Enclosure Mounting Details

Cable Entries

Refer to Figure 3 for the NPT conduit entries. Ensure any unused openings are sealed with proper fittings per local standards. Use field wiring suitable for the ambient temperature. Any conduit NPT plugs (blanking elements) must be explosion-proof with a Type 4X rating.

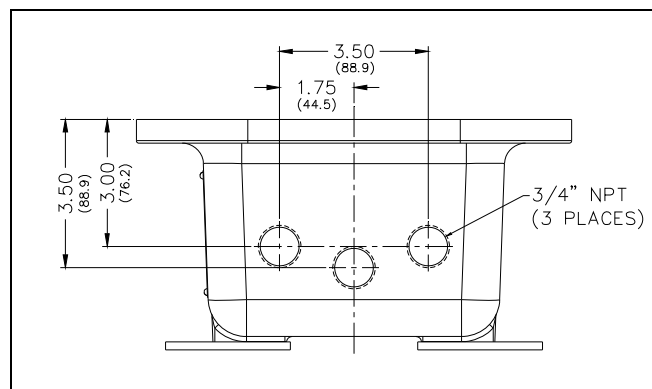


Figure 3. Model 352-7xx and 352-8xx Series VoIP/WiFi Conduit Entries

Hardware Description

External

Model 352-7x2 and 352-8x2 contain a handset with an approved cable gland, standard keypad, volume control button, and applicable approval labeling. The handset rests on a cradle, which has a magnetic reed switch to signal an off-hook condition. The enclosure is sealed with ten cover mounting bolts located around the perimeter of the enclosure’s flange. The VoIP WiFi version includes a weatherproof WiFi antenna mounted to the top of the enclosure. See Figure 4.

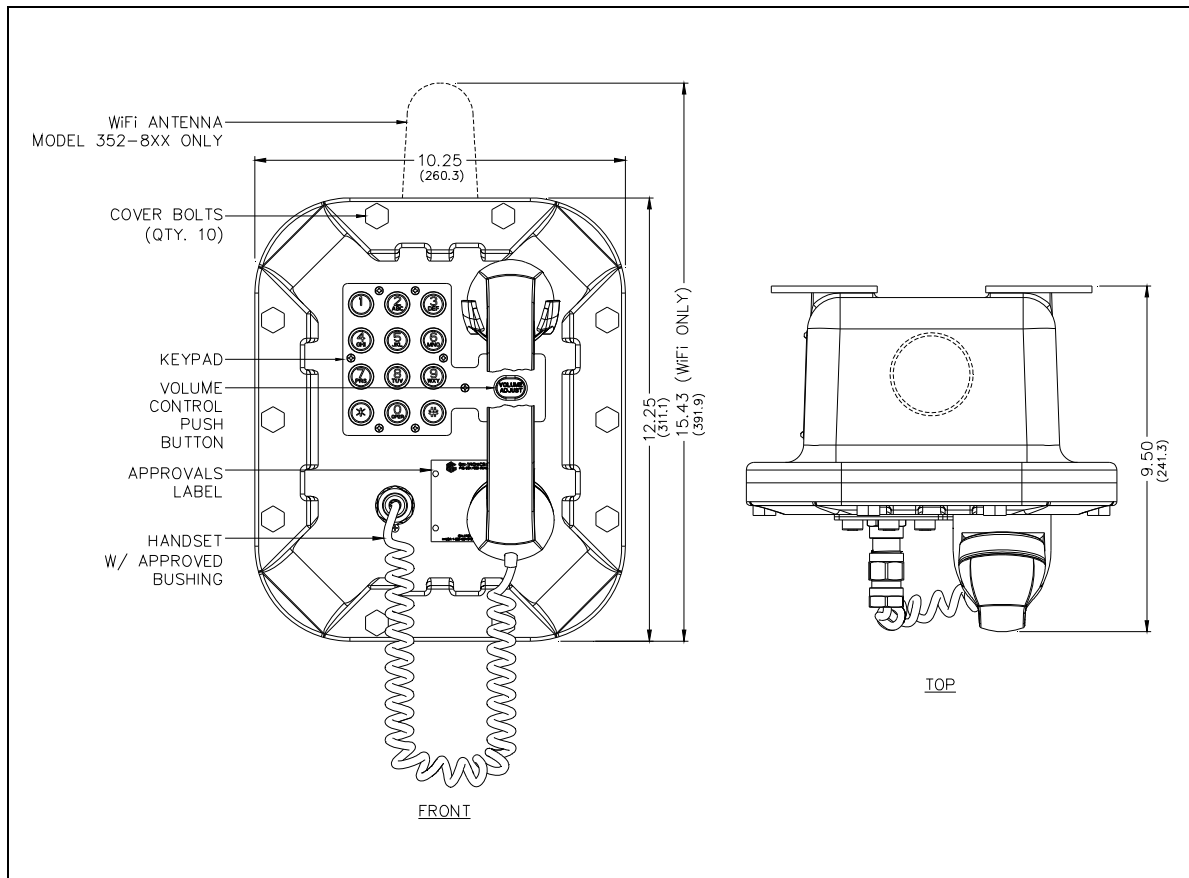


Figure 4. Model 352-7x2 and 352-8x2 Division 1 VoIP Page Phone with Handset

Models 352-7x3 and 352-8x3 are fitted with a removable headset and hook bracket. The headset is activated by flipping its mounting hook forward. The enclosure is sealed with ten cover mounting bolts located around the perimeter of the enclosure’s flange. The VoIP WiFi version includes a weatherproof WiFi antenna mounted to the top of the enclosure. See Figure 5.

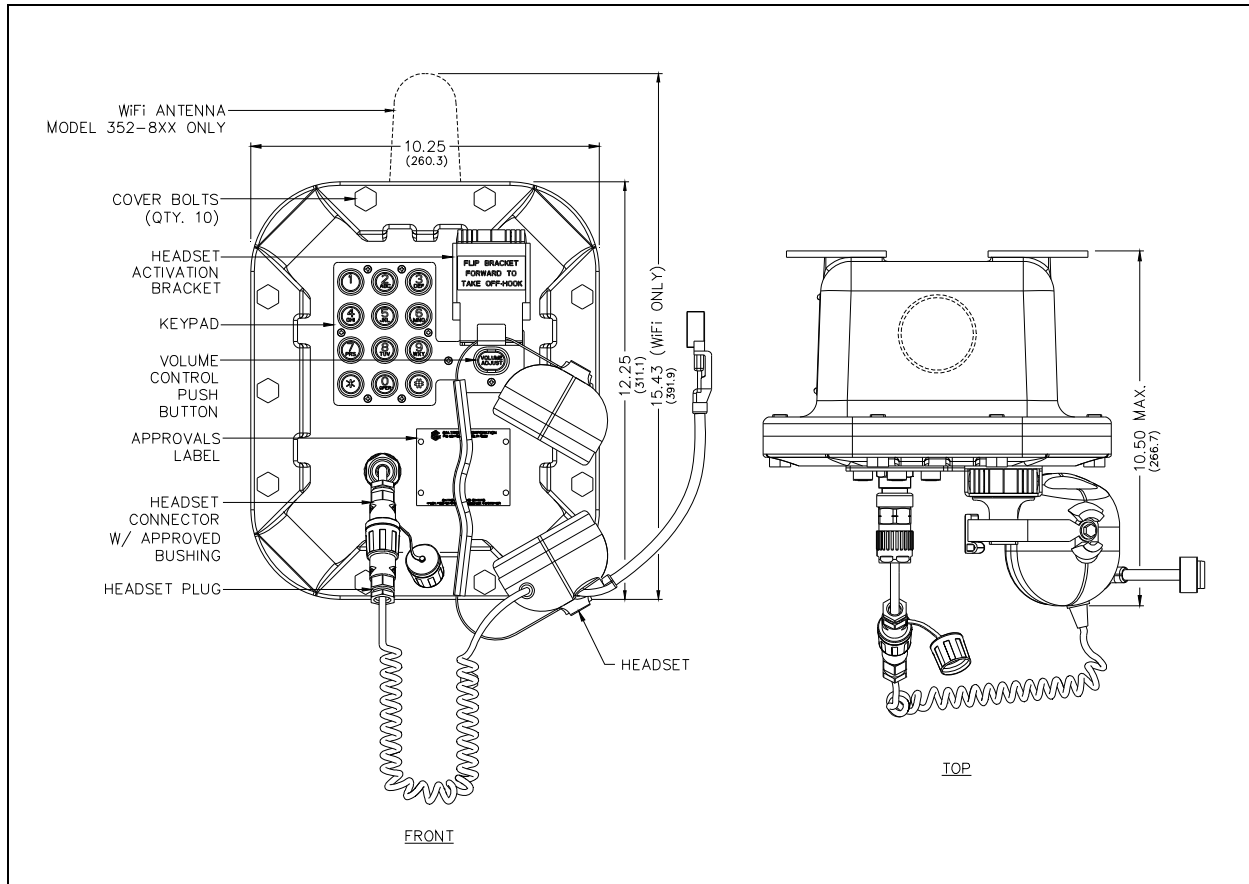


Figure 5. Model 352-7x3 and 352-8x3 Division 1 VoIP Page Phone with Headset

Models 352-7x1 and 352-8x1 do not have any external components for two-way communication. These versions are designed for use as amplifiers only. The enclosure is sealed with ten cover mounting bolts located around the perimeter of the enclosure’s flange. The VoIP WiFi version includes a weatherproof WiFi antenna mounted on the top of the enclosure. See Figure 6.

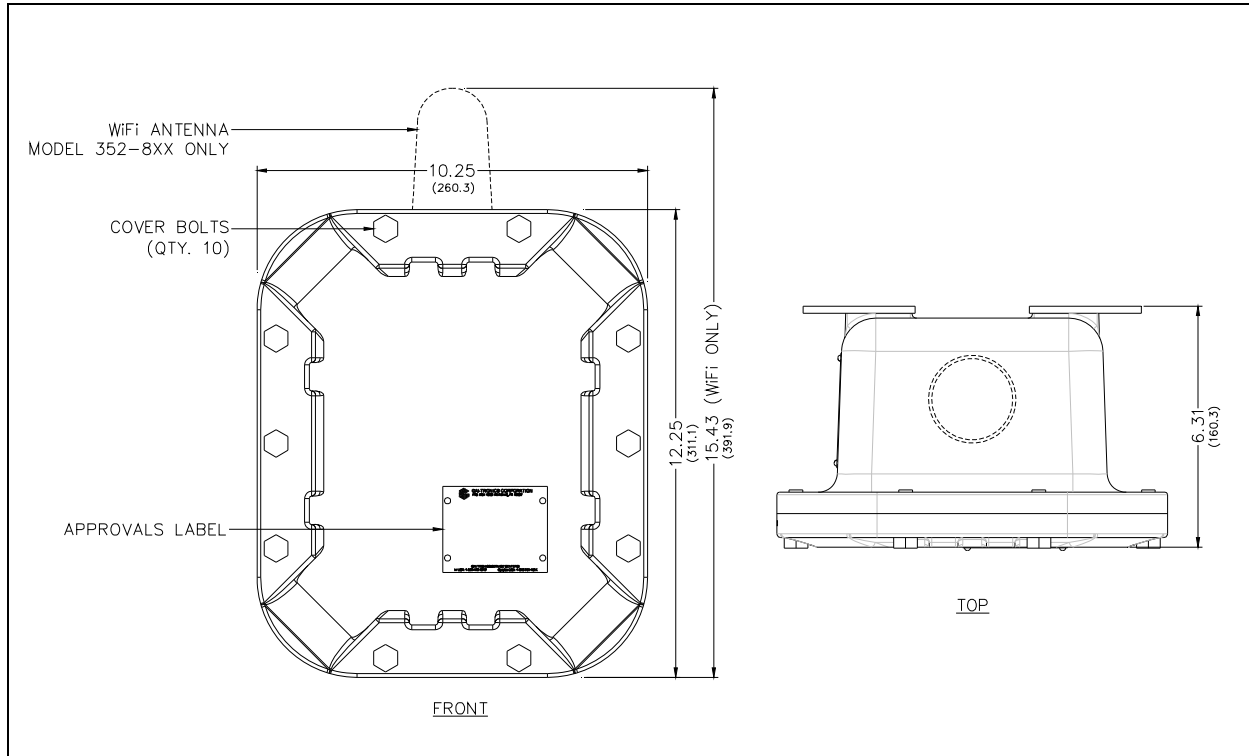


Figure 6. Model 352-7x1 and 352-8x1 WiFi Page Phone

Internal

The Model 352-7xx VoIP Page Phone include a power supply, input power terminal block and shield in the rear enclosure. The front cover has the main VoIP Carrier PCBA and VoIP Circuit PCBA, Amplifier PCBA, Keypad PCBA, and handset barrier. Amplifier-only versions do not include a Keypad PCBA and barrier. See Figure 7 for parts layout.

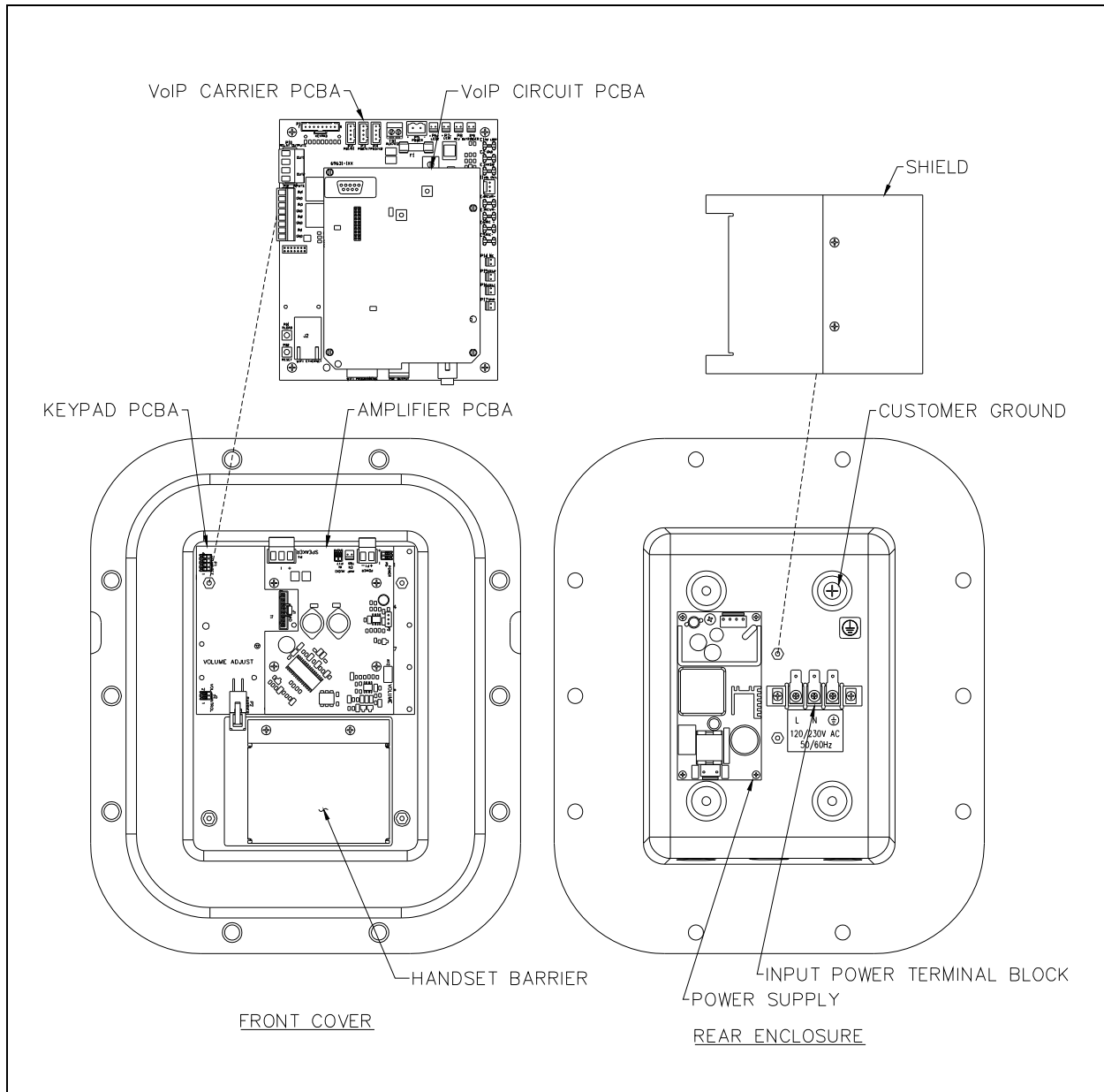


Figure 7. Model 352-7xx Div. 1 VoIP Page Phone - Internal View

The Model 352-8xx VoIP WiFi Page Phones include a power supply, input power terminal block, shield, and Div. 1 external antenna. The front cover has the main VoIP/WiFi Carrier PCBA and VoIP Circuit PCBA, WiFi module, Amplifier PCBA, Keypad PCBA and handset barrier. Amplifier-only versions do not include a keypad and barrier. See Figure 8 for parts layout.

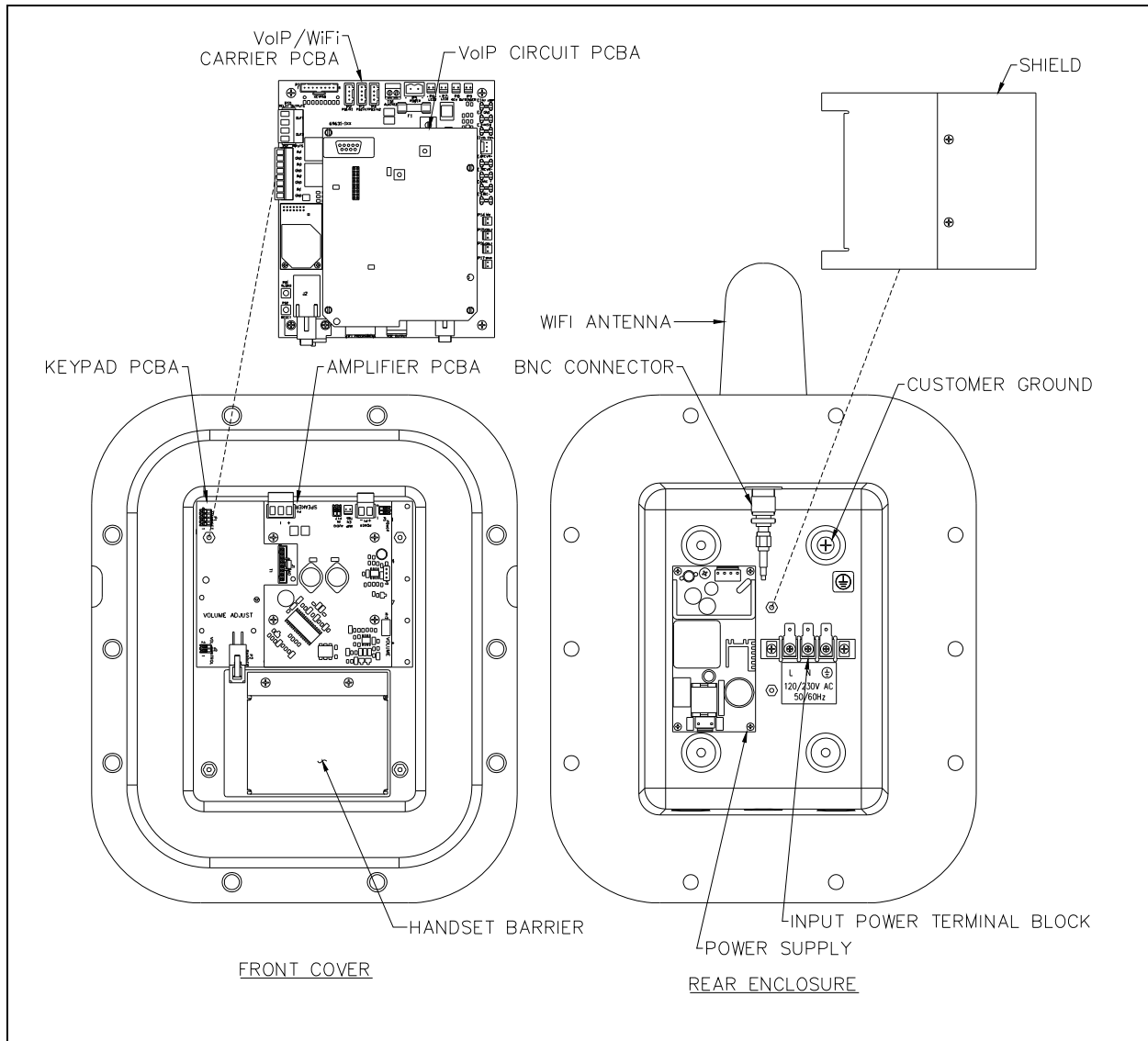


Figure 8. Model 352-8xx Div. 1 WiFi Page Phone

Wiring

⚠ WARNING ⚠ **The front cover is not hinged to the rear enclosure. When the cover bolts are removed, the cover must be adequately supported.**

1. While supporting the front cover, remove the ten cover bolts on the enclosure flange. Pull the front cover far enough away to expose the internal connections. Flip the front cover 180° to the left, and attach the front cover to the rear enclosure using the top left bolt hole. Rotate the cover approximately 10° from vertical and place a second bolt in the bottom left rear enclosure hole. Allow the cover to rotate against the bottom bolt. Hand-tighten both bolts to secure. Do not over tighten.

⚠ CAUTION ⚠ **Do not scratch or nick the flanges of the front cover or rear enclosure.**

2. For wired versions, plug the incoming Cat5 data line to the network Cat5 cable receptacle on the underside of the VoIP PCBA. See Figure 10. Remove the power supply cover in the rear enclosure for access to the terminal block.
3. Remove the power supply cover in the rear enclosure for access to the input power terminal block. Connect incoming power to the 3-point terminal in the rear enclosure.
4. Route the speaker connection wire on the left side of the power supply to the P4 speaker plug on the front cover. Terminate the wires per the PCBA silk screen text.
5. Reattach the power supply cover using the two screws previously removed from the cover.

Install any additional connections as indicated below. Refer to Figure 10 for wiring details. Refer to Table 4 on page 14 for the recommended conductor sizes.

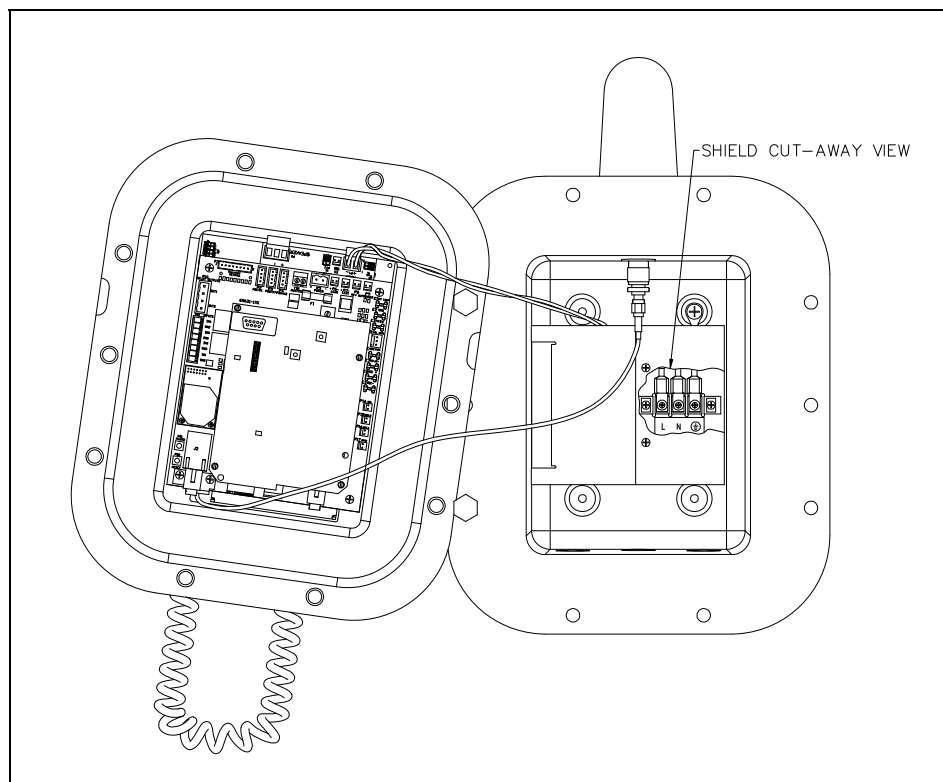


Figure 9. Installation and Maintenance Configuration

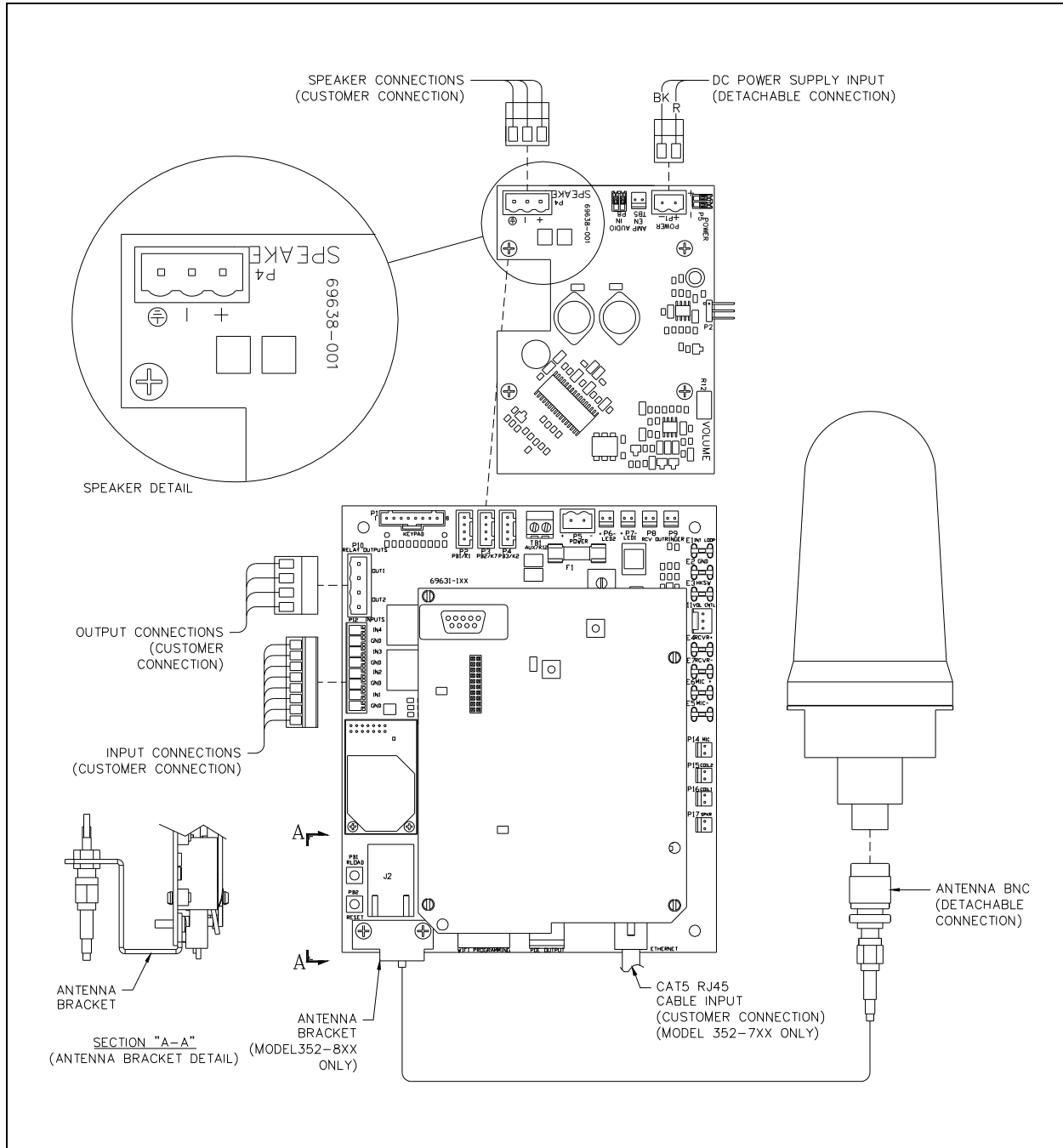


Figure 10. Internal PCBA Connections

Network Cable

Connect a Cat5 or Cat5e UTP cable with an RJ45 connector between the Local Area Network (LAN) and the VoIP PCBA. See Figure 10.

Power-Over-Ethernet (POE)

Connect power to the system as indicated in your POE equipment manual. (Power Mode A, Class 0)

I/O

Inputs

Four auxiliary inputs have been provided for customer use. Terminations for these inputs are provided on terminal block P12. Connect each input between the desired input (INPUT 1–4) and common (GND) on terminal block P12. Refer to the “Inputs” section of Pub. 42004-396 for programming instructions for these inputs.

Table 2. Auxiliary Inputs – P12

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

Inputs have an internal pull-up resistor and need to be 3.3 V dc tolerant.

Outputs

Two outputs have been provided for customer use. Terminations for these outputs are provided on connector P10.

The function of each output is configurable. Outputs can be configured for one of the following modes: On, Off, Pulse, Mute, Ring, Call, Connect, Hook, In Use, Ring Cadence, Ring Out, Page, Registered, or Emergency. In some modes, the duration of the activation or on/off times can also be set. Refer to the “Logic Settings” section of GAI-Tronics Pub. 42004-396, “VoIP Telephone Configuration Guide” for more details.

Table 3. Output Contacts – P10

Pin	Label	Description
1	C1	Common Output 1
2	NO1	Normally Open Output 1
3	C2	Common Output 2
4	NO2	Normally Open Output 2

Relay capacity is 5 amps, 30 V ac/V dc.

Table 4. Recommended Cabling

Cable Use	Size
LAN	Cat5 or Cat5e UTP cable with an RJ45 connector
Power	Two-conductor, No. 18 AWG is typical
Inputs	Two-conductor, No. 22 AWG is typical
Output contacts	Two-conductor, No. 18 AWG is typical
Speaker	Two or three-conductor, No. 18 AWG is typical

Status Indication

Power

The Power LED located on the VoIP PCBA illuminates when power is applied to the telephone. Refer to Figure 11 for location.

Heartbeat

The Heartbeat LED located on the VoIP PCBA will flash when the telephone is operational over the WLAN. Refer to Figure 11 for location.

EACT

The EACT LED located on the VoIP PCBA will turn ON when VoIP PCBA is connected to an Ethernet device and flash when data is being transmitted. Refer to Figure 11 for location.

WiFi Activity (WiFi Units Only)

The WiFi Activity LED located on the WiFi module will turn ON when the VoIP Telephone is powered and flash when data is being transmitted. Refer to Figure 11 for location.

WiFi Ready (WiFi Units Only)

The WiFi Ready LED a green LED on the RJ-45 connector J2 located on the VoIP carrier PCBA illuminates when the WiFi Interface is ready to connect to a wireless Network. Refer to Figure 11 for location.

WiFi Connected (WiFi Units Only)

The WiFi Connected LED a yellow LED on the RJ-45 connector J2 located on the VoIP carrier PCBA illuminates when the WiFi Interface is connected to a wireless network or device. Refer to Figure 11 for location.

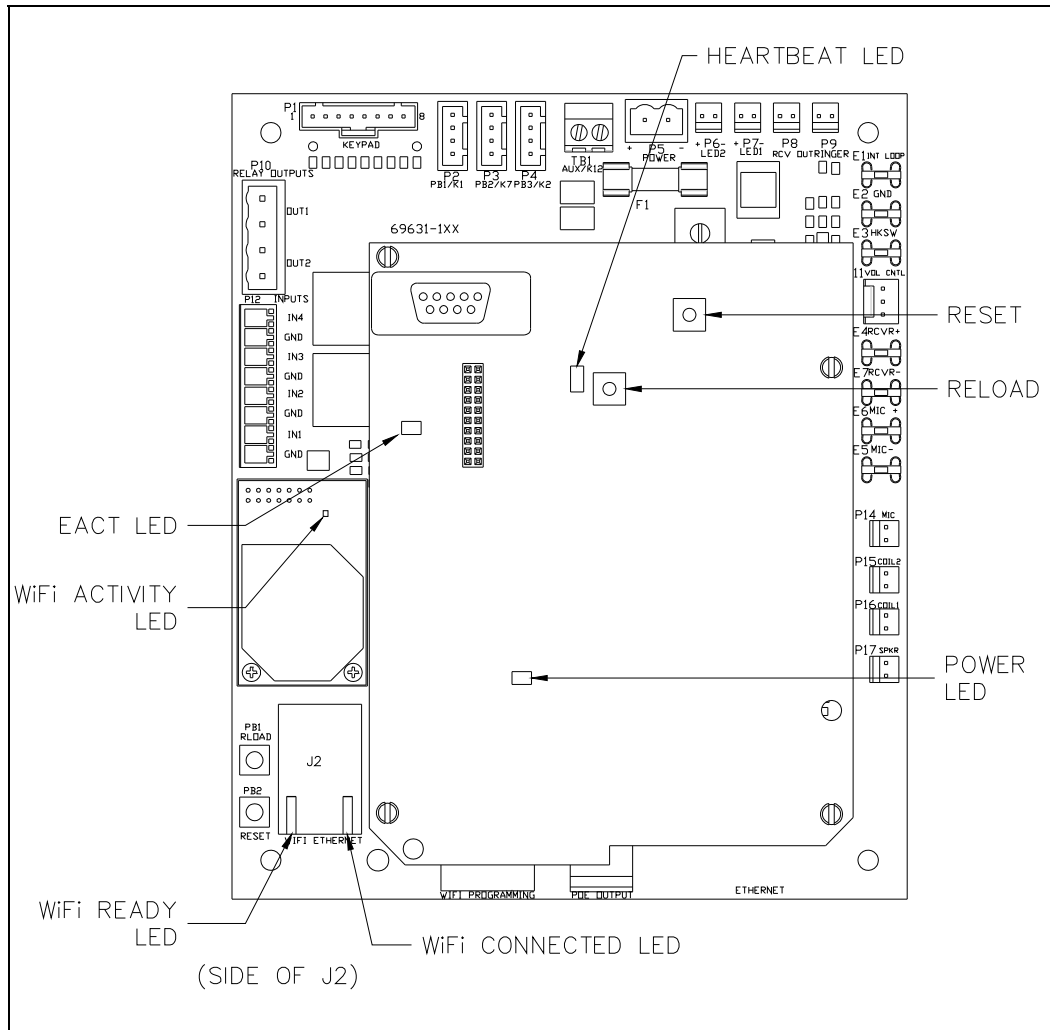


Figure 11. VoIP Carrier PCBA Component Locations

Attach the Front Cover

After all adjustments have been completed, inspect and clean the machined flange joint surfaces of both the cover and box. Surfaces must be smooth, free of nicks, scratches dirt or any foreign particle build-up that would prevent a proper seal. Surfaces must seat fully against each other to provide a proper explosion-proof joint. Clean surfaces by wiping with a clean lint-free cloth.

Apply a light coat of Killark “LUBG” lubricant to flange surfaces and close the cover. Install and tighten all cover bolts to 30 ft-lbs. Make certain no cover bolts are omitted. Use only those bolts supplied with the enclosure.

NOTE: Refer to the Killark Installation, Operation, and Maintenance Data Sheet for the Killark Part. No. EXB-684 N34 Base Enclosure (enclosed with the unit) for additional information.

External Controls

Handset Receiver Volume Control

A push-button switch is provided on the face plate for adjustment of the handset receiver volume. When pressed, it incrementally decreases the volume from 20 dB to 12 dB, to 0 dB, and back up to 20 dB of the original signal. After the end of each call the signal level is automatically set to 20 dB.

Maximum (Handset Receiver) Level Remote Control

The receiver volume level can be controlled remotely by changing the setting in the configuration file. Refer to the “Handset Volume Setting in the Audio Setting” section in Pub. 42004-396 for programming instructions.

Programming

The installer should ensure that the network is configured to allow VoIP communications (using the SIP protocol) between the desired locations before attempting to configure the GAI-Tronics VoIP Telephones.

First Time WiFi Interface Setup

Configuration of the WiFi interface is required to set up security of the WLAN unit’s connection.

Power the telephone by connecting 24–48 V dc to P5.

While the VoIP telephone’s WiFi interface is still using the factory default configuration it will be an Access Point to a network called **HF-A11_AP**. Using a PC/laptop with wireless capability, connect to the HF-A11_AP network. When the PC shows that it is connected to the HF-A11_AP network the yellow LED on the WiFi interface should be ON.

When you are connected to the HF-A11_AP network open a web browser on the PC and type **10.10.100.254** into the address field and press Enter. The HF-A11_AP WiFi Log In Window will open. Enter **admin** for both the user and for the password, then Log In. The Working Mode Configuration Web page will open. Select **STA Mode** then click the **Apply** button.

If you are having a problem connecting to the **HF-A11_AP** network verify that the PC’s wireless network adapter is set to DHCP (Obtain an IP address automatically).

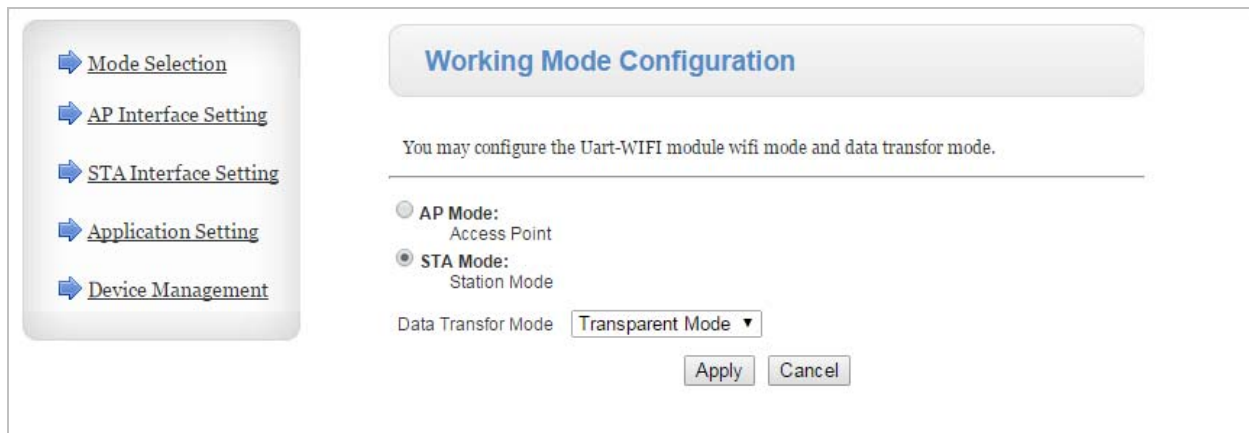


Figure 12. WiFi Interface Working Mode Configuration Web page

After the configuration has updated the Web page will show Set Successfully, Restart to use new setting. Then click on the STA Interface Setting selection. The STA Interface Setting Web Page will open.

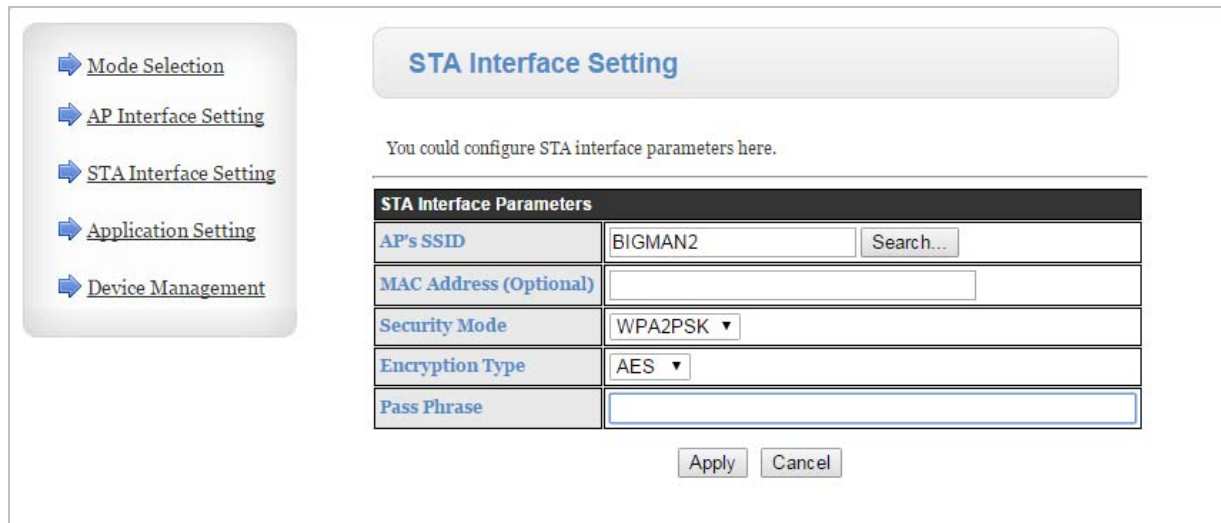


Figure 13. WiFi Interface STA Interface Setting Web page

Click the **Search** button in the AP'S SSID section to find the WiFi network that the VoIP Telephone will operate in. The Site Survey Web page will open showing all available networks. Select the desired network and click the **Apply** button.

Site Survey							
	SSID	BSSID	RSSI	Channel	Encryption	Authentication	Network Type
<input type="radio"/>	TP-LINK_LAB	a0:f3:c1:a8:db:fc	60%	1	NONE	OPEN	Infrastructure
<input type="radio"/>	BIGMAN2	40:16:7e:5b:6e:78	100%	6	AES	WPA2PSK	Infrastructure
<input type="radio"/>	HP-Print-18-LaserJet 400 color	bc:85:56:ed:fd:18	39%	6	NONE	OPEN	Infrastructure
<input type="radio"/>	BIGMAN3	c8:d7:19:f4:99:99	5%	6	TKIP	WPAPSK	Infrastructure
<input type="radio"/>	Test	00:0f:66:75:88:96	5%	7	NONE	OPEN	Infrastructure
<input type="radio"/>	BigmanAP	00:0d:3a:28:c5:1b	29%	9	WEP	OPEN	Infrastructure
<input type="radio"/>	Hubbell-Guest	6c:f3:7f:dc:c8:81	0%	11	NONE	OPEN	Infrastructure

Apply Refresh

Figure 14. WiFi Interface Site Survey Web page

A reminder window for entering the WEP Key will pop up. Click the **OK** button.

When the STA Interface Setting Web page opens again, the AP's SSID, Security Mode and Encryption Type fields will automatically be filled in. Now enter the **WEP Key** or **Pass Phrase** for the selected network and click the **Apply** button.

If the VoIP telephone is not within the range of the wireless network that it is being configured to operate in, the AP's SSID, Security Mode, Encryption Type and WEP Key or Pass Phrase fields will need to be manually filled in before you click the **Apply** button.

After the configuration has updated the Web page will show **Set Successfully, Restart to use new setting**. Then click on the **Device Management** selection. The Device Management Web Page will open. In the Restart Module section click the **Restart** button.

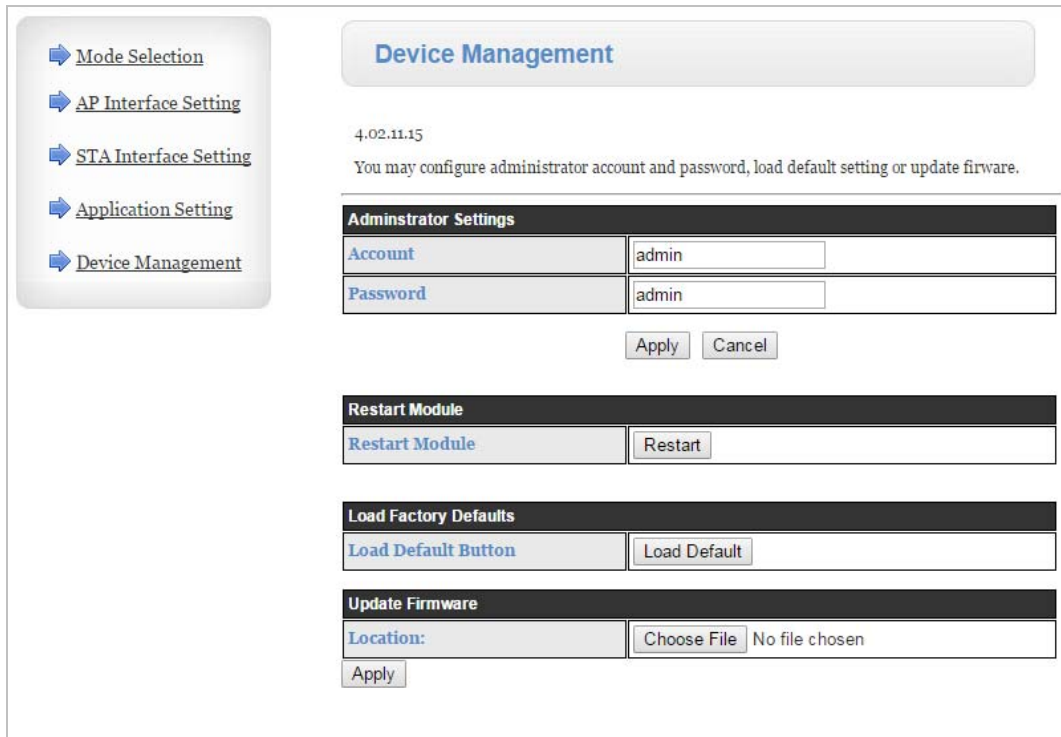


Figure 15. WiFi Interface Device Management Web page

When the WiFi module is restarting the web page will show Rebooting.... Both LEDs on the RJ-45 jack J2 will turn OFF for several seconds while the WiFi interface is restarting. The green LED will turn ON first when the WiFi interface is done restarting. The yellow LED will turn ON if the WiFi interface can connect to the newly configured network.



If the VoIP Telephone does not connect to the wireless network due to an incorrect WEP Key or Pass Phrase, follow the instructions in the next section, “Change WiFi Interface Configuration.”

NOTE: The WiFi module is no longer an Access point to its own network (HF-A11_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-A11_AP network.

Change WiFi Interface Configuration

To change the configuration of the WiFi interface first press the RLOAD button (PB1) for 10 seconds to return the WiFi interface to its default settings. The RLOAD button is located on the VoIP telephone PCBA near the WiFi module and J2. Both LEDs on the RJ-45 jack (J2) will turn OFF for several seconds while the WiFi interface is resetting. Wait for the green LED to turn ON before trying to connect to the HF-A11_AP network.

With the default settings loaded and the green LED on the RJ-45 jack (J2) ON follow the instructions in the “First Time WiFi Interface Setup” section on page 16 to connect the HF-A11_AP network and change the configuration settings.

 **WARNING**  After changing the WiFi Interface configuration if the VoIP telephone has been configured for DHCP, the telephone’s power must be cycled before the telephone will connect to the wireless network. After power is reapplied, and the green and yellow LEDs on the RJ-45 Jack (J2) are ON, and the HEART BEAT LED on the VoIP Telephone PCBA is flashing, you can go to the next section, “VoIP PCBA Setup” and start setting up the VoIP telephone configuration.

VoIP PCBA Setup

Verify the PC is connected to the same network as the VoIP telephone.

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**

Changing the user name and password is recommended. This security measure helps to prevent unauthorized changes to the VoIP Telephone Interface's configuration.

VoIP PCBA Initial Network Configuration

Each VoIP PCBA must be set up for the network prior to installation. Assign a local ID, domain, proxy, and registrar.

Assign a host name The host name provides identification of the different VoIP PCBAs on the network.

Test Verify that calls can be made successfully.

Maintain Monitor alarms. Set up auto-updates.

Refer to Pub. 42004-396 for detailed programming instructions for this VoIP device.

Alternative Configuration Methods

There are three methods for configuring GAI-Tronics Handset 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.

Operation

Model 352-7x2 and 352-8x2 Handset Operation

1. Lift the handset to place a call.
2. The handset receiver volume control, located on the front cover keypad, can be adjusted to the desired level by pressing the volume control push button.
3. Dial the desired number.
4. After completion of the call, place the handset on hook.

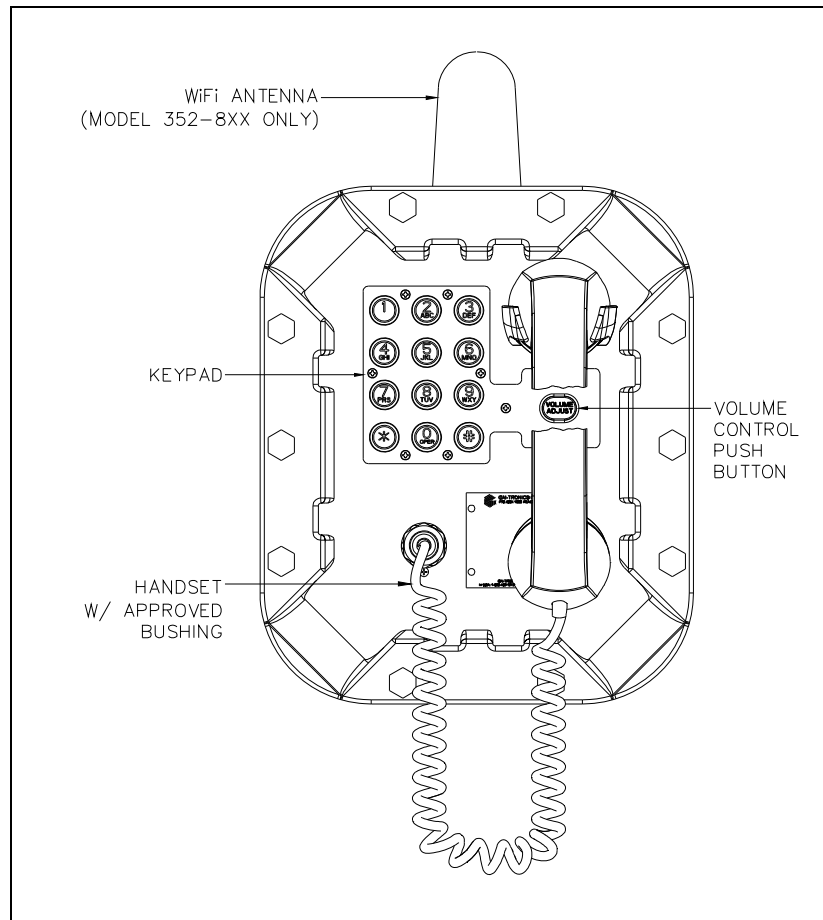


Figure 16. WiFi Page Phone – Handset Version

Model 352-7x3 and 352-8x3 Headset Operation

1. To connect the headset, plug it into the flexible plug on the front of the telephone by removing the sealing cap from the receptacle, aligning the connector pins, and screwing the two ends together. See Figure 17. **NOTE:** The headset can be connected while the unit is powered.

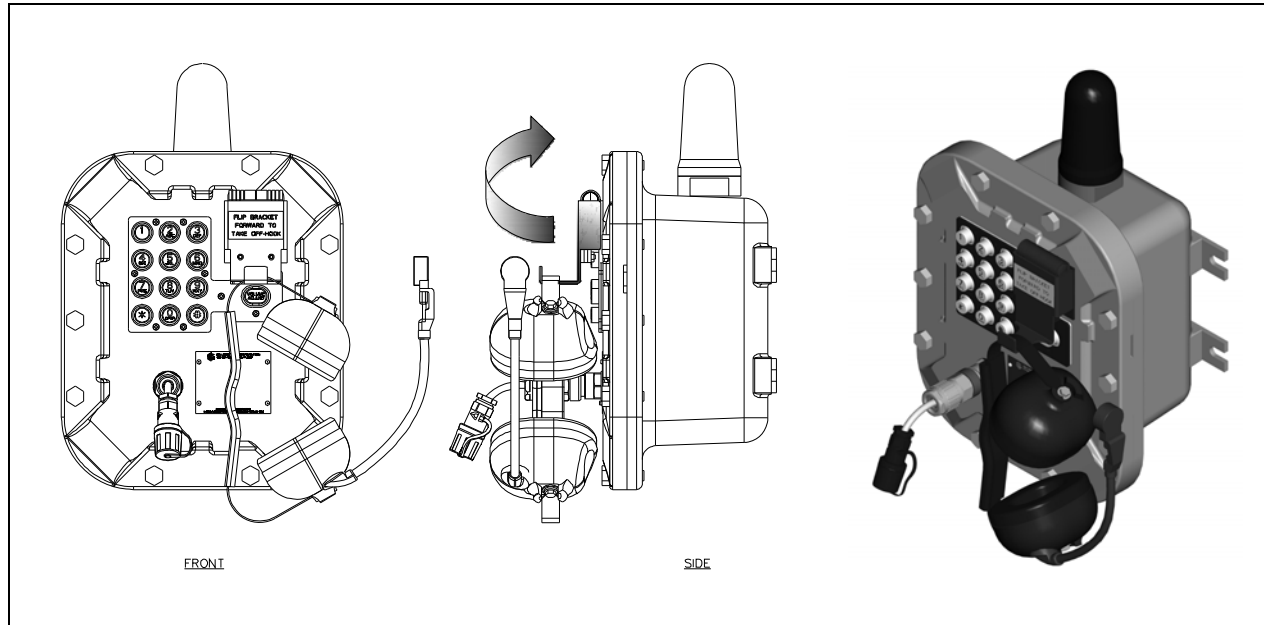


Figure 17. On-hook Configuration – Div. 1 WiFi Page Phone – Headset Version

2. To place a call, remove the headset from the headset activation bracket and flip the headset bracket forward from its pre-set position.
3. The handset receiver volume control, which is located on the front cover keypad, can be adjusted to the desired level by pressing the volume control push button.
4. Dial the desired number.

5. Flip the headset activation bracket to its vertical pre-set position to hang up. If applicable, place the headset on the bracket after the completion of the call. Otherwise, disconnect the flexible receptacle and plug by unscrewing the two ends, and pulling them apart. When disconnected, reattach the sealing cap to the end of the receptacle.

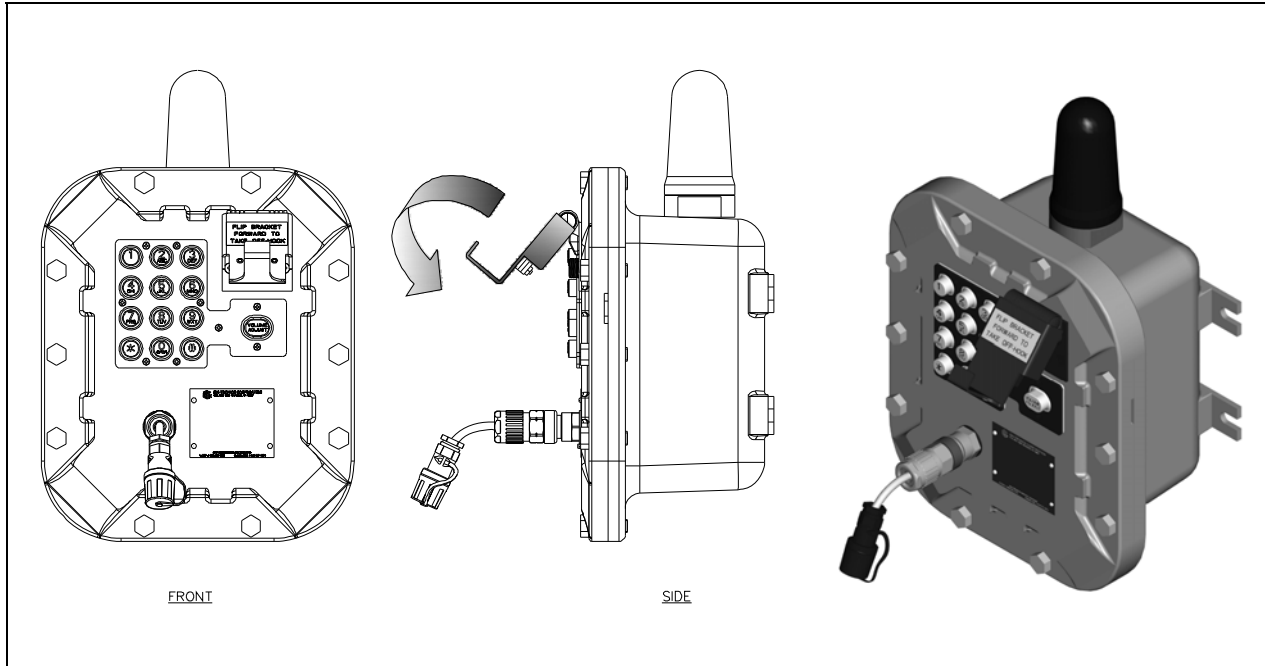


Figure 18. Off-hook Configuration – Div. 1 WiFi Page Phone – Headset Version

Amplifier Paging (Multicast Broadcast)

When making a Multicast call, the SIP server or IP device will send a paging request to a specific IP address and expect multiple telephones to accept and play the subsequent audio. GAI-Tronics VoIP telephones can be programmed 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 which can override which. A telephone with Multicast enabled can still make and receive normal calls. Normal calls can be assigned a priority level, defining whether calls can override Multicasts or vice versa.

Monitoring and Reporting

Each telephone can recognize and generate several hardware and configuration fault condition alarms. These alarms can be signaled to a remote site using three methods:

- Syslog output over TCP
- SMTP mail message
- Telephone Management Application (TMA) software (purchased separately)

Available alarms are:

- Handset integrity loop (if applicable)
- Configuration error
- Cold reset (power cycle)
- Warm reset (internal command)
- Keypad error, such as a stuck button (if applicable)
- Key hook (off-hook status, if applicable)
- Register fail
- Audio Path Test (speaker/microphone test)

Maintenance

Service

If your telephone requires depot 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

Table 5. Troubleshooting Chart

Problem	Possible Solution
Low volume in handset or headset	Increase the volume setting using the Volume Adjust button on the front panel.
High volume in handset or headset	Decrease the volume setting using the Volume Adjust button on the front panel.
Front panel push buttons are not operational	Verify the push buttons 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 telephone has been set up on the network.
No power indication	Check the power connections. Check fuses. Replace fuses with identical type/ratings. If using POE, check the operation of the POE equipment.

Specifications

Power Requirements

AC/DC Input

AC Power Supply

Input voltage 120 V ac or 230 V ac, 50/60 Hz, +/-10%

DC Power Supply

Input voltage 24–48 V dc

Power-over-Ethernet 12.95 W
802.11af compliant (via RJ45) Power Mode A, Class 0

Station Speaker Load (8-ohm load)	24 V DC	48 V DC	120 V AC	230 V AC
Idle	325 mA/8W	180 mA/8.5 W	120 mA/15 VA	100 mA/23VA
4-watt output (default setting)	620 mA/15W	350 mA/17 W	275 mA/33 VA	130 mA/30 VA
30-watt output	2200mA/53W	1100 mA/53 W	800 mA/96 VA	400 mA/92 VA

VoIP Network

Network 10/100 BaseT Ethernet RJ45, Cat5/6 UTP
Static IP or DHCP STUN client (NAT traversal) address provisioning

Call control signaling SIP (RFC3261 compliant) Loose routing call control signaling

WiFi Network

Standards IEEE 802.11b/g/n

Frequency 2.412–2.484 GHz

Configuration Embedded web server
Configuration file download
Direct serial connection
Password protection

Handset Audio

Analog microphone gain 30 dB

Analog earpiece gain Default: +20 dB
Setting 2: +12 dB
Setting 3: 0 dB

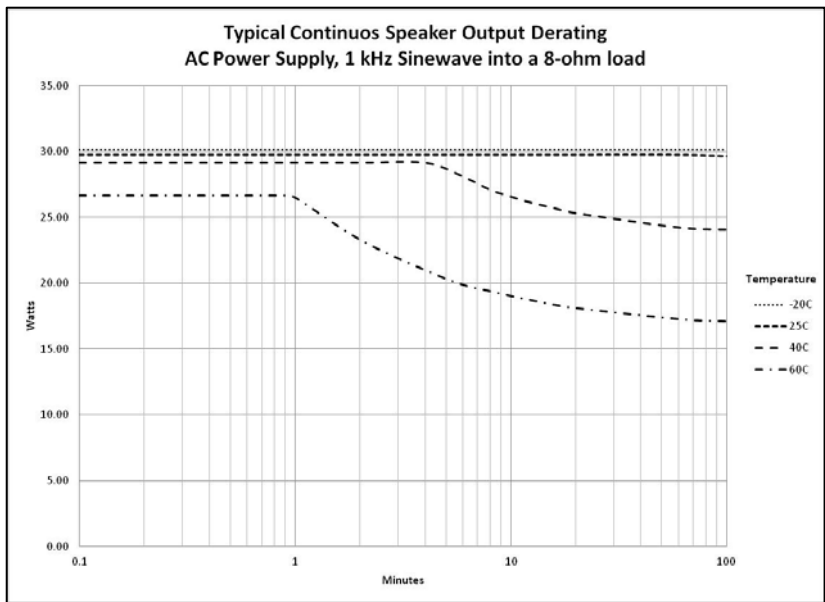
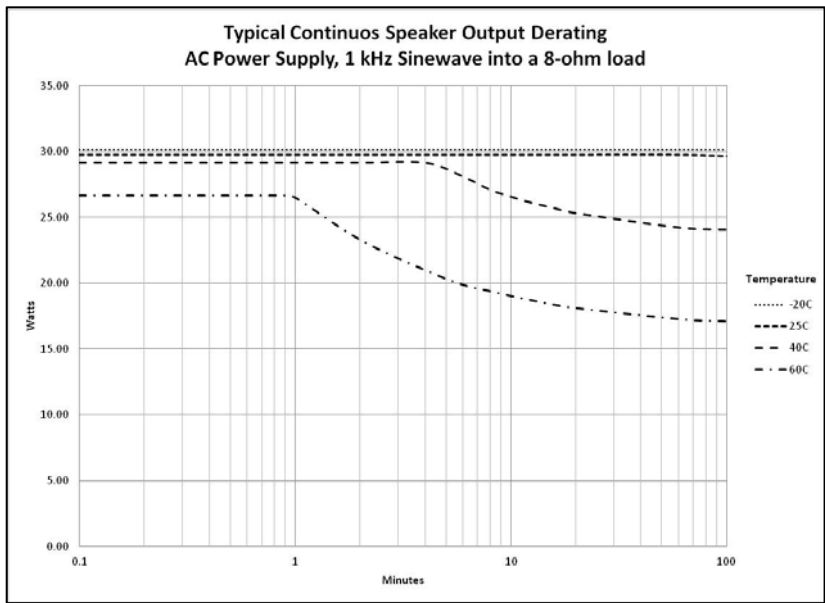
Frequency response 250–6500 Hz

Frequency response flatness 3 dB minimum

THD @ 1 kHz 1% minimum

Speaker Audio

Output level to 8-ohm speaker (ac/dc version).....	30 W maximum
Gain below limiter (ac/dc version).....	27 dB
Output level to 8-ohm speaker (PoE version).....	3 W maximum
Gain below limiter (PoE version).....	10 dB
VOX activation time.....	20 msec
VOX hold time.....	2 sec
Frequency response.....	250–6500 Hz
Frequency response flatness.....	3 dB minimum
THD @ 1 kHz, 24 W.....	1% minimum
THD @ 1 kHz, 30 W.....	3% minimum



Inputs

Keypad* 3 × 4 matrix
Configurable inputs (quantity = 4)..... Internal pull-up 3.3 V dc tolerant

*Not available on all models.

Outputs

Output 1 5 amps @ 30 V ac/dc maximum (resistive load)
Output 2 5 amps @ 30 V ac/dc maximum (resistive load)

Indicators

Internal on VoIP Circuit Board..... Power, Heartbeat, & EACT LEDs
Internal on VoIP Carrier Board (WiFi Unit only).... WiFi Activity, WiFi Ready, & WiFi Connected LEDs
Monitoring and reporting Real-time over TCP/IP proprietary Syslog application or email
Embedded SMTP client
Automatic fault reporting

Environmental

Operating temperature -4° F to +140° F (-20° C to +60° C)
Weather resistance IP66, NEMA Type 4X
Humidity 95% non-condensing

Mechanical

Enclosure Cast aluminum with aluminized lacquer paint
Handset Cord “G” style handset/PVC 6-foot extended length (standard)
Connection RJ45 receptacle
Dimensions, outside (VoIP)..... 10.25 W × 12.25 H × 9.50 D inches (260.3 × 311.1 × 241.3 mm)
Dimensions, outside (WiFi)..... 10.25 W × 15.43 H × 9.50 D inches (260.3 × 391.9 × 241.3 mm)
Mounting..... Wall or column, four 3/8-inch (10 mm) mounting feet with slots
Shipping weight 33.0 lbs. (15.0 kg)
Net weight..... 31.0 lbs. (14.1 kg)

Approvals

With antenna

NRTL listed Hazardous locations Class I, Division 1, Groups C & D
(USA and Canada) Class II, Groups F & G
Class III
Part 15 compliant
Temperature code T6 – gas
T4a – dust

Without antenna

NRTL listed Hazardous locations Class I, Division 1, Groups B, C & D
(USA and Canada) Class II, Groups F & G
Class III
Part 15 compliant
Temperature code T6 – gas
T4a – dust

User Instructions (USA)

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. 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.