



GAI-TRONICS®  
A HUBBELL COMPANY

# VoIP Electronic Paging Modules Wired and WiFi

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# VoIP Electronic Paging Modules

## Wired and WiFi

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### Confidentiality Notice

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### Computer Software Copyrights

This product contains copyrighted computer programs stored in semiconductor memory. These programs are copyrighted by GAI-Tronics and may not be reproduced in any form without expressed written permission from GAI-Tronics.

### General Information

GAI-Tronics' electronic paging modules are mechanically designed for mounting an access panel in a Model 234 Series Communication Station. Each paging module can be used with the Model 234SBM Tower Broadcast Module or Model 234SBA Tower Broadcast Assembly to supply an amplified broadcast to the tower (communication tower) speakers.

The Model 10458-701 VoIP electronic paging module enables audio broadcasts over an existing VoIP network via the GAI-Tronics 234 Series Tower's integral speakers. The Model 10458-801 VoIP WiFi electronic paging module provides the same capability over an existing wireless network. The paging modules are easily added to existing (10/100 BaseT Ethernet) wired or (IEEE 802.11 a/b/g/n) wireless networks with minimal cost and effort.

The -701 and -801 paging modules include an integrated speaker amplifier circuit that can supply up to 30 watts of output power to an 8-ohm speaker or combination of speakers equaling 8 ohms. Each VoIP or VoIP WiFi electronic paging module includes two dry contact Type A (normally open) outputs. Each output is programmable for a variety of uses such as activation of a strobe or initiating a door latch remotely.

The GAI-Tronics VoIP and VoIP WiFi electronic paging modules provide the flexibility to address a diverse range of applications. A wide variety of functions are achievable by altering the configuration data stored in the non-volatile memory. The configuration options include:

- webpage configuration
- configuration file

## Features and Functions

The GAI-Tronics Models 10458-701 VoIP and 10458-801 VoIP WiFi electronic paging modules are equipped with the following features:

- wired or WiFi
- one-way broadcasting from an IP network
- 30 watts speaker amplifier output (into an 8-ohm speaker load) with 120/240 V ac power input
- 8-watts speaker amplifier output (into an 8-ohm speaker load) with PoE input
- two dry contact closure outputs
- SIP compatible (RFC3261)
- real-time alarm reporting via SNMP, Syslog, or TMA software
- configurable via web page or download
- multicast capability, up to eight addresses

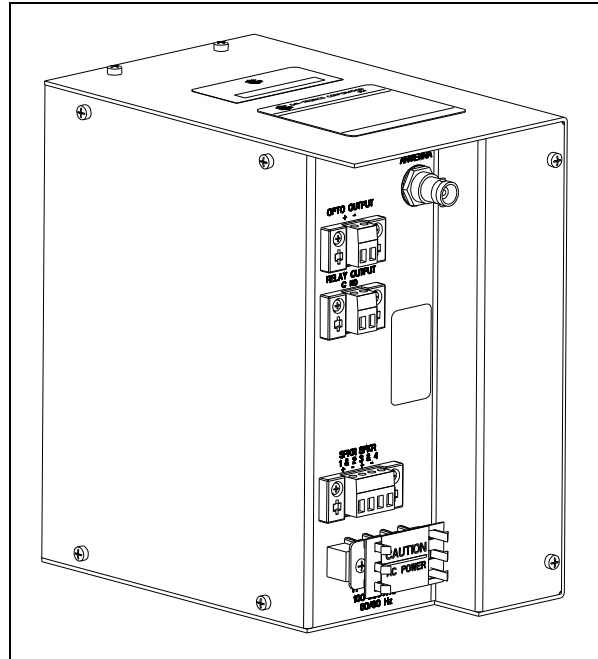


Figure 1. Model 10458-801 Outline Diagram

## Available Models

Table 1. VoIP & VoIP WiFi Electronic Paging Module Model Chart

| Part No.  | Description   |
|-----------|---|
| 10458-701 | VoIP Electronic Paging Module, 30 W (8-ohm load)      |
| 10458-801 | VoIP WiFi Electronic Paging Module, 30 W (8-ohm load) |

## System Requirements and Limitations

Systems containing VoIP paging module assemblies require A 100 BaseT Ethernet network with SIP (Session Initiation Protocol) server. The operation of this equipment is limited by the customer's LAN media capabilities and the services available at each end point. The performance of each VoIP paging module is dependent on the provision of sufficient bandwidth and network protocol prioritization to give the quality of service required. The setup, installation, and software version of key components, such as switches and routers, can significantly affect this equipment's operation. Improper connections or loose cables can also affect their operation.

VoIP paging modules require a local 120/240 V ac power source for operation.

The following network services provide required and optional functionality (This may vary widely depending on how the network is deployed):

- SIP proxy server (to route calls)
- SIP registrar server (frequently combined with proxy servers)
- TFTP server (for downloading configuration files).
- TCP Syslog server (for reporting alarms and external inputs)

- SNMP server (for reporting via simple network management protocol)
- SNTP server (to synchronize the internal clock)
- STUN server (for NAT firewall traversal)

Dedicated systems, such as Gatekeepers, VoIP-enabled PABXs or soft PABXs may also provide these functions. GAI-Tronics' VoIP paging modules only support SIP (Session Initiation Protocol) to RFC3261 call control signaling.

## Multicast Broadcasts

Each paging module can receive multicast broadcasts. Multicast allows a single audio stream to be sent to multiple end points simultaneously, achieving multi-point paging or *public address* functionality over IP. Multicast requires the use of a SIP server that specifically supports multicast functionality and each interface must be configured (enabled) to receive multicast packets.

## Safety and General Information



Installation must be performed by qualified service personnel in accordance with the National Electrical Code or applicable local codes.



**Power Sources**—Operate this unit only from the type of power source indicated on the label. If unsure of the type of power supply to use, contact qualified service personnel.

- Refer to operating instructions for units intended to operate from battery power.
- Use only the recommended approved power supplies with units intended to operate with external power supplies.
- The power source must comply with EN60950 for units intended to operate with a limited power source. Substitutions may damage the unit or cause fire or shock.

## Outdoor Product

**Power Lines**—Do not locate this product in the vicinity of overhead power lines, electric lights, power circuits, or where it may contact such power lines or circuits, as this contact might be fatal. Refer to the National Electrical Code Article 800 regarding installation.

## Antenna Care

Unauthorized antennas, modifications, or attachments can damage the radio and may violate FCC regulations.

**Do NOT hold the antenna when the radio is IN USE.** Holding the antenna affects the effective range.

## Approved Accessories

Use ONLY GAI-Tronics approved accessories. Please visit [www.gai-tronics.com](http://www.gai-tronics.com).

## Electromagnetic Interference/Compatibility

Electronic equipment may be susceptible to electromagnetic interference. If you experience interference, visit the FCC website at <http://www.fcc.gov> for possible solutions.

## Operational Cautions

### Hospitals or Health Care Facilities

To avoid electromagnetic interference and/or compatibility conflicts, turn off the radio in any facility where posted notices instruct you to do so. Hospital or health care facilities may be using equipment that is sensitive to external RF energy.

### Aircraft/Airports

Airports may be using equipment that is sensitive to external RF energy. Any use of a radio must be in accordance with applicable regulations.

### Medical Devices—Pacemakers

These recommendations are consistent with the independent research by, and recommendations of the U.S. Food and Drug Administration. Persons with pacemakers should:

- ALWAYS keep the radio more than six inches (15 cm) from a pacemaker when the radio is turned ON.
- Do **NOT** carry the radio in the breast pocket.
- Turn the radio **OFF** immediately if there is any reason to suspect that interference is taking place.

### Blasting Caps and Areas

To avoid possible interference with blasting operations, turn off the radio near electrical blasting caps, in a blasting area, or in areas posted: **Turn off two-way radios**. Obey all signs and instructions.

## Safe Handling of CMOS Integrated Circuit Devices

Many of the integrated circuit devices used in communications equipment are of the Complementary Metal Oxide Semiconductor (CMOS) type. Because of their high open circuit impedance, CMOS integrated circuits are vulnerable to damage from static charges. Care must be taken handling, shipping, and servicing them and the assemblies in which they are used.

Even though protection devices are provided in CMOS integrated circuit inputs, the protection is effective only against overvoltage in the hundreds of volts range such as is encountered in an operating system. In a system, circuit elements distribute static charges and load the CMOS circuits, decreasing the chance of damage. However, CMOS circuits can be damaged by improper handling of the modules, even in a system.

To avoid damage to circuits, observe the following handling, shipping, and servicing precautions:

- Prior to and while servicing a circuit module, particularly after moving within the service area, momentarily touch both hands to a bare metal, earth-grounded surface. This will discharge any static charge that may have accumulated on the person doing the servicing.

**NOTE:** Wearing a conductive wrist strap will minimize static build-up during servicing.



- Whenever possible, avoid touching any electrically conductive parts of the circuit module with your hands.
- Power down the unit before installing or removing the circuit module.
- When servicing a circuit module, avoid carpeted areas, dry environments, and certain types of clothing (silk, nylon, etc.) because they contribute to static build-up. Similarly, disconnect the test probe prior to removing the ground lead.



- All electrically powered test equipment should be grounded. Apply the ground lead from the test equipment to the circuit module before connecting the test probe.
- If a circuit module is removed from the system, it is desirable to lay it on a conductive surface (such as a sheet of aluminum foil) which is connected to ground through 100-kilohms of resistance.
- When soldering, be sure the soldering iron is grounded and has a grounded tip.
- Prior to connecting jumpers, replacing circuit components, or touching CMOS pins (if this becomes necessary in the replacement of an integrated circuit device), be sure to discharge any static build-up as described in procedure 1. Since voltage differences can exist across the human body, it is recommended that only one hand be used if it is necessary to touch pins on the CMOS device and associated board wiring.
- When replacing a CMOS integrated circuit device, leave the device in its conductive rail container or conductive foam until it is to be inserted into the printed circuit module.
- All low impedance test equipment (such as pulse generators, etc.) should be connected to CMOS device inputs after power is applied to the CMOS circuitry. Similarly, such low impedance equipment should be disconnected before power is turned off.
- Replacement modules shipped separately from the factory will be packaged in a conductive material. Any modules being transported from one area to another should be wrapped in a similar material (aluminum foil may be used). **Never use non-conductive material** for packaging these modules.

## Installation

### Important Safety Information

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.

 **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.

- **Read, follow, and retain instructions**—All safety and operating instructions should be read and followed before operating the unit. Retain instructions for future reference.
- **Heed warnings**—Adhere to all warnings on the unit and in the operating instructions.
- **Attachments**—Attachments not recommended by the product manufacturer should not be used, as they may cause hazards.
- **Servicing**—Do not attempt to service this unit by yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

## Outdoor Product

**Power Lines**—Do not locate this product in the vicinity of overhead power lines, electric lights, power circuits, or where it may contact such power lines or circuits, as this contact might be fatal. Refer to the National Electrical Code Article 800 regarding installation.

## Antenna Care

Unauthorized antennas, modifications, or attachments can damage the radio and may violate FCC regulations.

**Do NOT hold the antenna when the radio is IN USE.** Holding the antenna affects the effective range.

## Approved Accessories

Use ONLY GAI-Tronics approved accessories. Please visit [www.gai-tronics.com](http://www.gai-tronics.com).

This permanently connected apparatus must have an ALL-POLE MAINS switch with a contact separation of at least 3 mm in each pole incorporated in the electrical installation of the building.

## Cable Installation Safety Considerations

Interconnecting communication and Class 2 dc power cables should be separated from electrical light or other Class 1 circuits by at least 2 inches. The exception is where Class 1 wiring or power circuits are run in a raceway, or are metal-sheathed or metal-clad, or are permanently separated from the conductors of the other circuitry by a continuous and firmly fixed nonconductor such as porcelain tubes or flexible tubing in addition to the insulation on the wire. Communications cables and in-building wiring should be listed and marked for the purpose according to NEC Article 800.

## Mechanical Receipt Inspection

The paging module is shipped in a cardboard container, protected from movement and distress by a self-forming packaging material. Thoroughly inspect it as soon as possible after delivery. Immediately report in-transit damage to the transportation company.

## Mount the Paging Module

1. Remove the access panel from the Model 234 Tower (if applicable).
2. Remove the back plate from the paging module by removing the four #6-32 screws.  
The Model 12510-002 or Model 12510-003 Access Panel Kit (sold separately) contains four #6-32 studs to attach the paging module.
3. Attach the mounting plate to the #6-32 studs with the provided #6 keps nuts.  
Be sure to note the orientation of the access panel when attaching the plate (see [Figure 2](#) and [Figure 3](#)).
4. Attach the remainder of the paging module to the mounting plate/access panel assembly with the four #6-32 screws.  
Note the orientation of the module.
5. Attach the access panel/paging module to the Model 234 Stanchion.



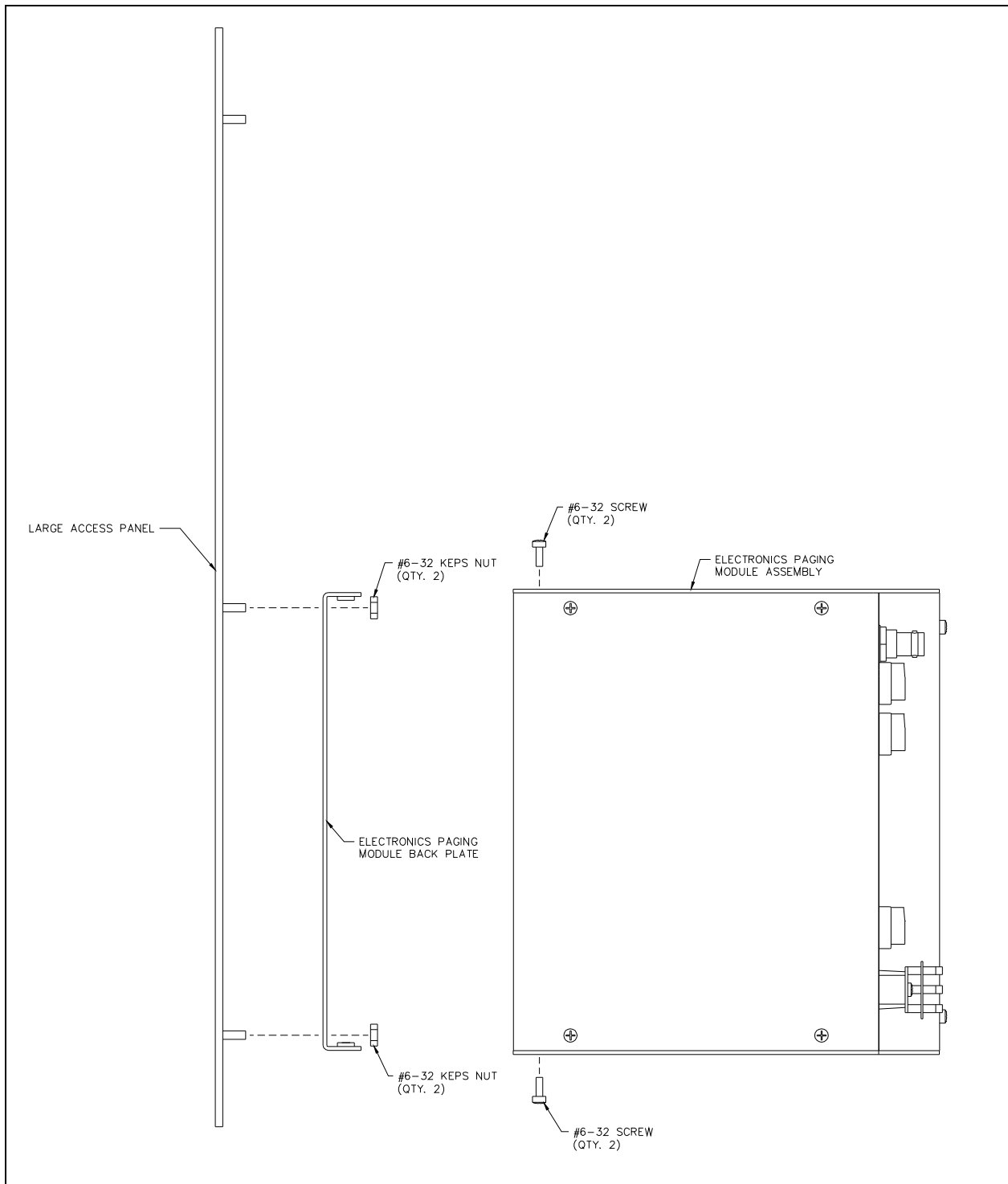


Figure 2. Mounting Plate

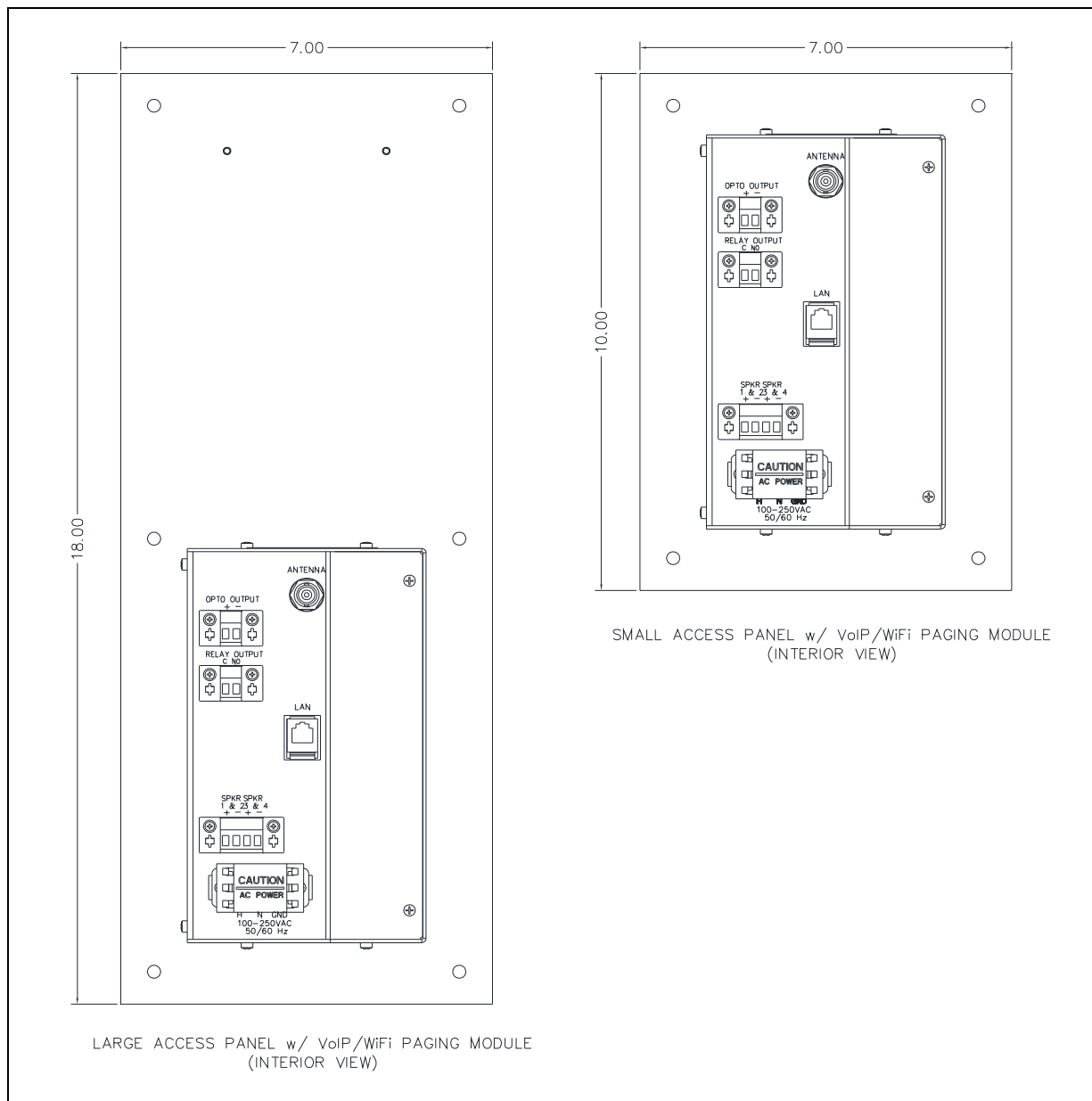


Figure 3. Component Identification

## Open the Module

The VoIP paging module must be opened for programming and installation:

**Bench programming and testing is recommended.**

1. Remove the assembly from the carton and position on a flat surface.
2. Remove the four screws (two on top and two on bottom) holding the mounting plate to the chassis.  
The mounting plate has two finger holes to remove it from the chassis.
3. Remove the six screws holding the chassis together (two on the rear and four on the sides) (see [Figure 4](#)).
4. Carefully open the chassis, keeping the U-bracket to the right.

Make all adjustments at the VoIP broadcast carrier PCBA, mounted on the U-bracket (see [Figure 5](#)).

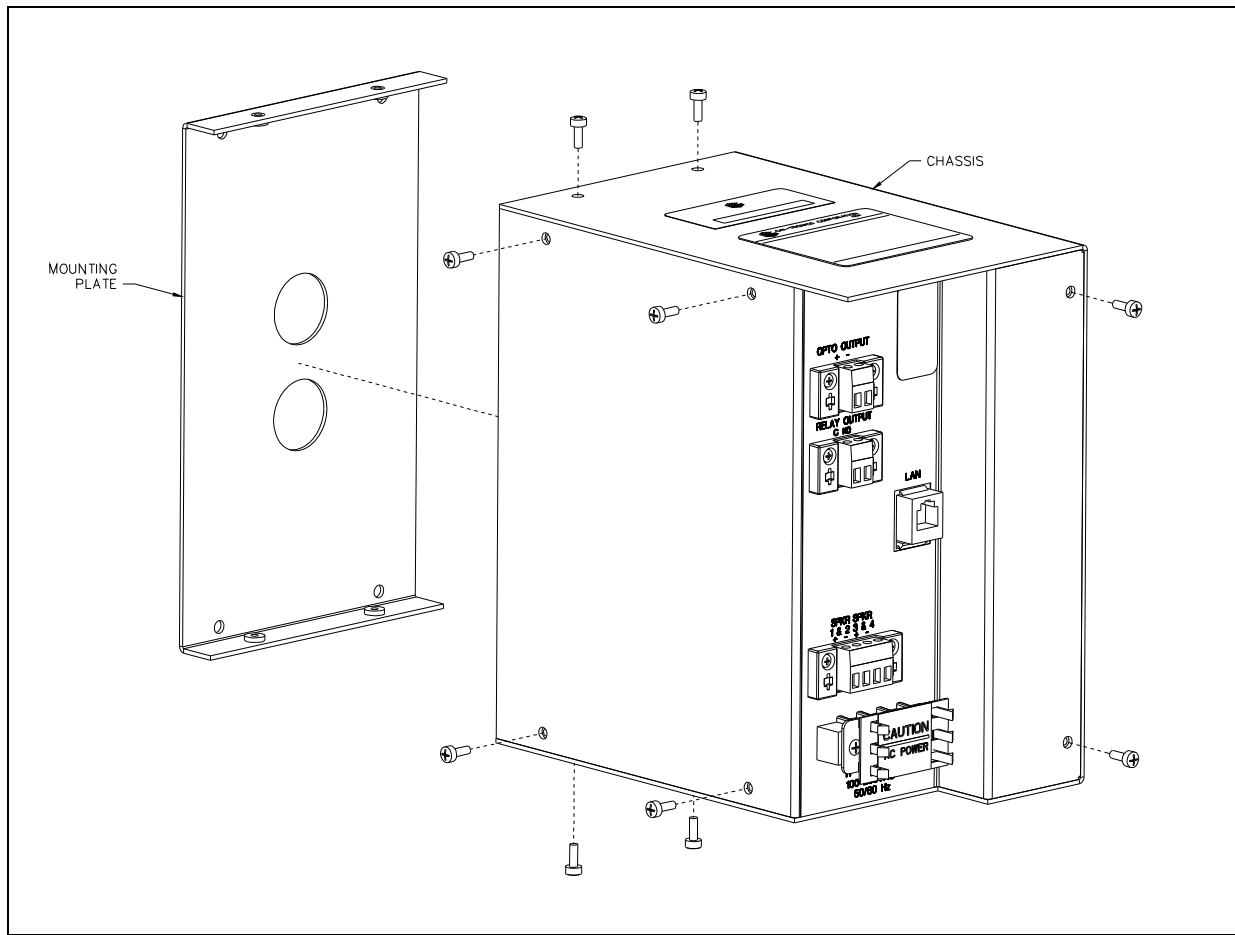


Figure 4: Electronic Paging Module Assembly (Model 10458-701 shown)

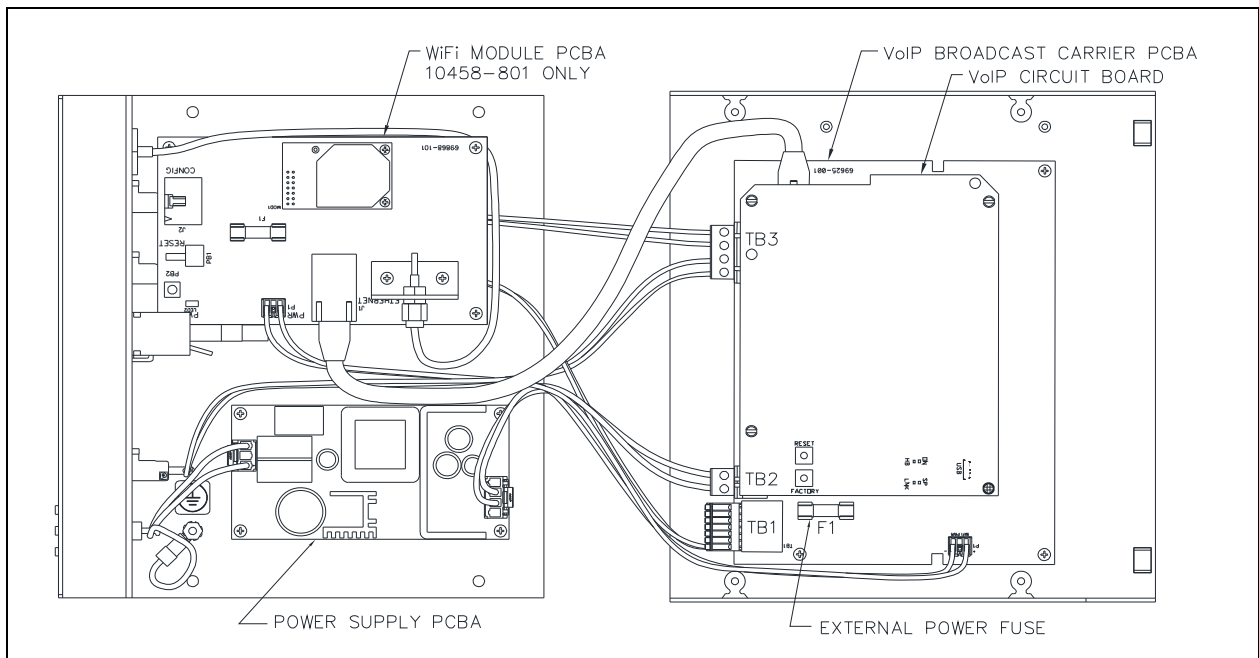


Figure 5: Electronic Paging Module (opened)

## Field Wiring

The paging modules have terminal blocks on the front of the assembly for all field wiring. The terminal block labels indicate their functionality (see [Figure 6](#)).

 **WARNING**  —**Do not apply power until all the connections are wired.**



Warning: Observe precautions for handling electrostatic sensitive devices.

1. Pull all field wires into the communication station.
2. Install all connections as indicated in the following subsections (see [Table 2](#) and [Figure 6](#) for wiring details).

**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 the NEC.

Table 2. Recommended Cable

| Cable Use       | Recommended Size   | Conductor Range |
|-----------------|--|-----------------|
| LAN             | Category 5 or better UTP Ethernet cable with an RJ45 connector |                 |
| Power           | Two-conductor, No. 18 AWG is typical                           | No.28–12 AWG    |
| Speaker         | Two-conductor twisted pair, No. 18 AWG is typical              | No. 30–12 AWG   |
| Output contacts | Two or three-conductor, No. 18 AWG is typical                  | No. 28–20 AWG   |

## Power Connection

### Power over Ethernet (PoE)

The device can be powered from the network cable if the speaker output requirement is less than 8 watts. PoE works across standard network cabling (i.e. Cat5) to supply power directly from the data ports where the device is connected.

Connect the LAN cable (Cat5 or better UTP cable) into the RJ45 jack on the VoIP PCBA.

**NOTE:** PoE is not applicable to Model 10458-80x series.

### Local Power

The device requires a 120 or 240 V ac power source if the speaker output requirement is greater than 8 watts.

1. Remove the cover from the power terminal block.
2. Connect 120 or 240 V ac power wires observing the H, N, and GND labels.
3. Replace the cover.

**NOTE:** The external power supply is required for Model 10458-801 (see [Figure 6](#)).

### Speaker Connection

1. Install all speaker kits and the antenna kit (for WiFi installations).

Make sure all wires and cables from the components are at the bottom of the 234 series communication tower.

2. Connect the black/white and white/black speaker wires to the 4-point speaker connector.

Speakers 1 and 2 are series-wired onto terminals labeled 1 and 2. Speakers 3 and 4 are series-wired onto terminals labeled 3 and 4 (see Figure 6).

### Output Contact Connections

Two relay contact sets are available on the chassis. Each contact is a form A type NO (normally open) contact.

### Opto Output Connection

Connect the violet and orange wires from the GAI-Tronics Model 540-001 strobe to the terminals labeled + and -.

Polarity is important: Violet wire (+) and orange wire (-).

### Antenna Connection

Plug the BNC connector on the antenna cable into the paging module.

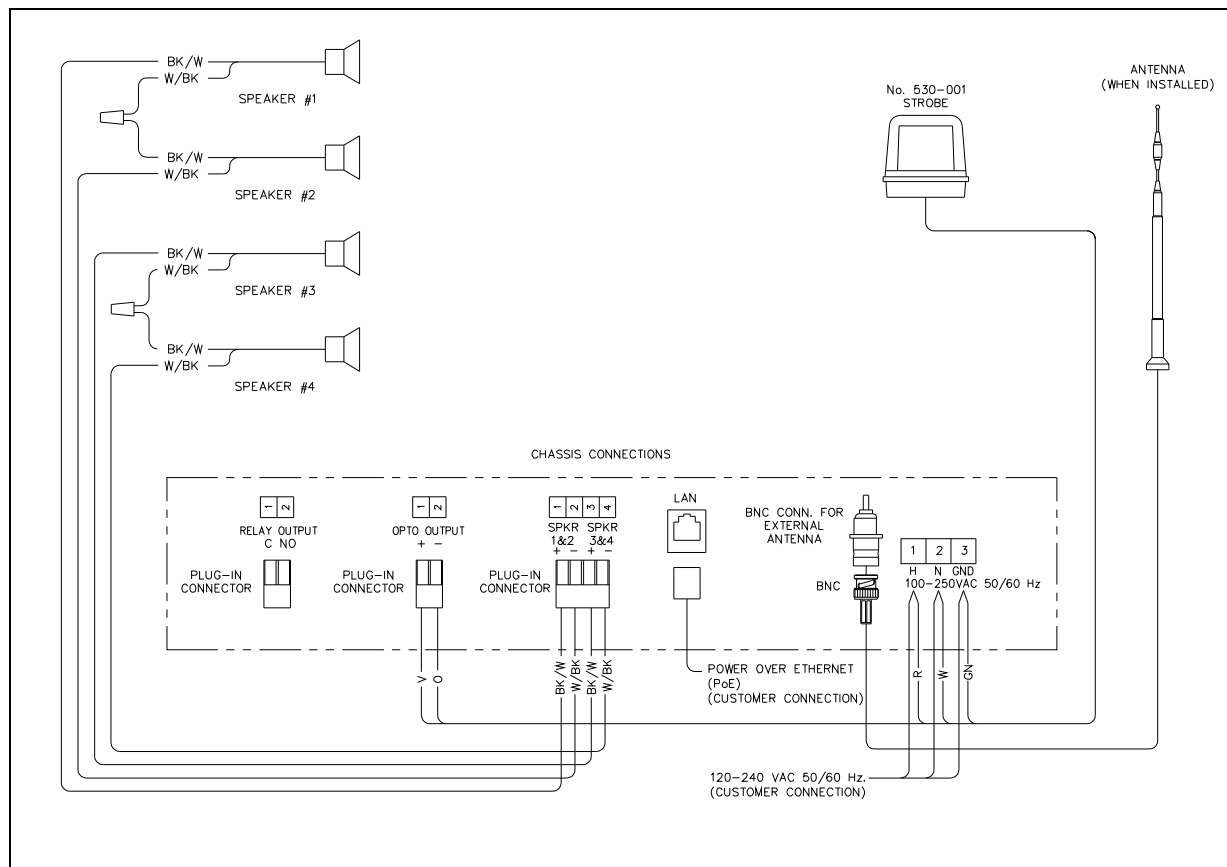


Figure 6. Field Wiring Connections

## Programming

**NOTE:** The 10458-701 and -801 VoIP and VoIP WiFi electronic paging modules include the same embedded website as GAI-Tronics' VoIP and VoIP WiFi telephones. There are many programmable parameters utilized by the VoIP telephones that are not utilized by the VoIP paging modules. All paging modules are factory programmed for optimum operation. **Do not make programming changes other than those directed in this manual.**

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 (Model 10458-801 only)

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

1. Power on the paging module 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-A11\_AP**.

2. Connect to the HF-A11\_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**.

**NOTE:** Verify that the PC's wireless network adapter is set to DHCP (Obtain an IP address automatically) to connect to the HF-A11\_AP access point.

The HF-A11\_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:

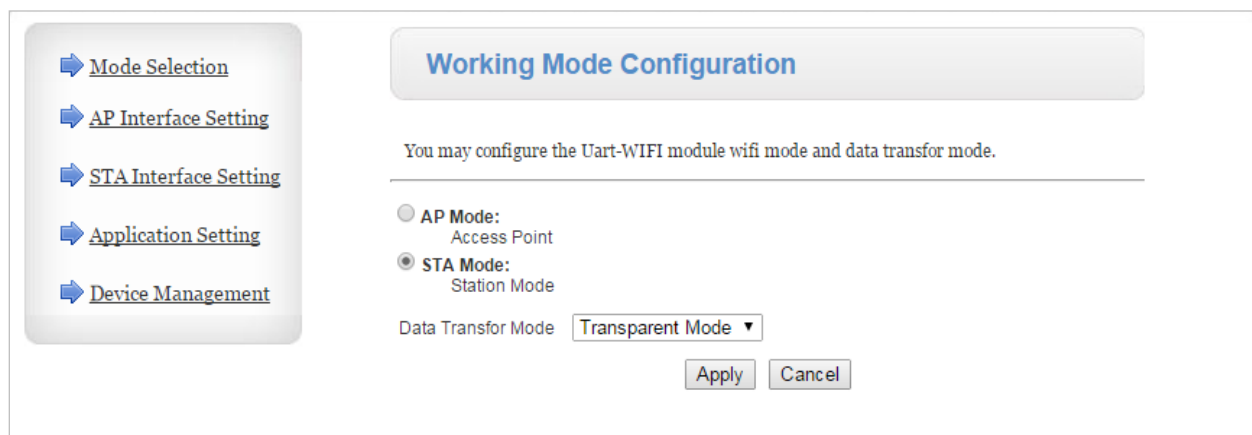


Figure 7. WiFi Interface Working Mode Configuration Web page

5. Select **STA MODE** then click the **APPLY** button.

The web page shows **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:

**STA Interface Setting**

You could configure STA interface parameters here.

| STA Interface Parameters |  |
|--------------------------|--|
| AP's SSID                | BIGMAN2 <input type="button" value="Search..."/> |
| MAC Address (Optional)   | <input type="text"/>                             |
| Security Mode            | WPA2PSK ▼  |
| Encryption Type          | AES ▼  |
| Pass Phrase              | <input type="text"/>                             |

Figure 8. WiFi Interface STA Interface Setting Web page

- Click the **SEARCH** button, to the right of in the AP's SSID field, to find the WiFi network that the VoIP paging module will operate in.

The **SITE SURVEY** webpage opens, showing all available networks.

| 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 |

Figure 9. WiFi Interface Site Survey Web page

- Select the desired network and click the **APPLY** button.

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

- Click the **OK** button.

- 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.

- Click on the **DEVICE MANAGEMENT** selection.

The **DEVICE MANAGEMENT** webpage opens.

Figure 10. WiFi Interface Device Management Web page

- 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.

- Continue with the configuration of the VoIP paging module PCBA (see the VoIP Paging Module Setup section).

- 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-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.



## Reset WiFi Interface Configuration (Model 10458-801 only)

Use this procedure to erase the current WiFi configuration in the telephone and configure the WiFi adapter with the factory default settings:

1. Press the RLOAD button for 10 seconds to reset the WiFi interface back to factory default settings.
  - The RLOAD button is on the WiFi interface PCBA.
  - 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-A11\_AP network.
2. Follow the instructions in the First Time WiFi Interface Setup section to connect to the HF-A11x\_AP network and change the configuration 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 Paging Module 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 Paging Module Initial Network Configuration

Configure each VoIP PCBA 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 configuration instructions for these VoIP devices.

## Close the VoIP Electronic Paging Module

Assemble the two chassis sections and tighten the screws.

# Maintenance

## VoIP Circuit PCBA Pushbuttons

### Reset

Press the **RESET** button momentarily to warm reboot the telephone (see [Figure 11](#)). The telephone maintains the current configuration.

### Factory

Use the **FACTORY** button (see [Figure 11](#)) to erase the current configuration and restore the factory default settings:

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.

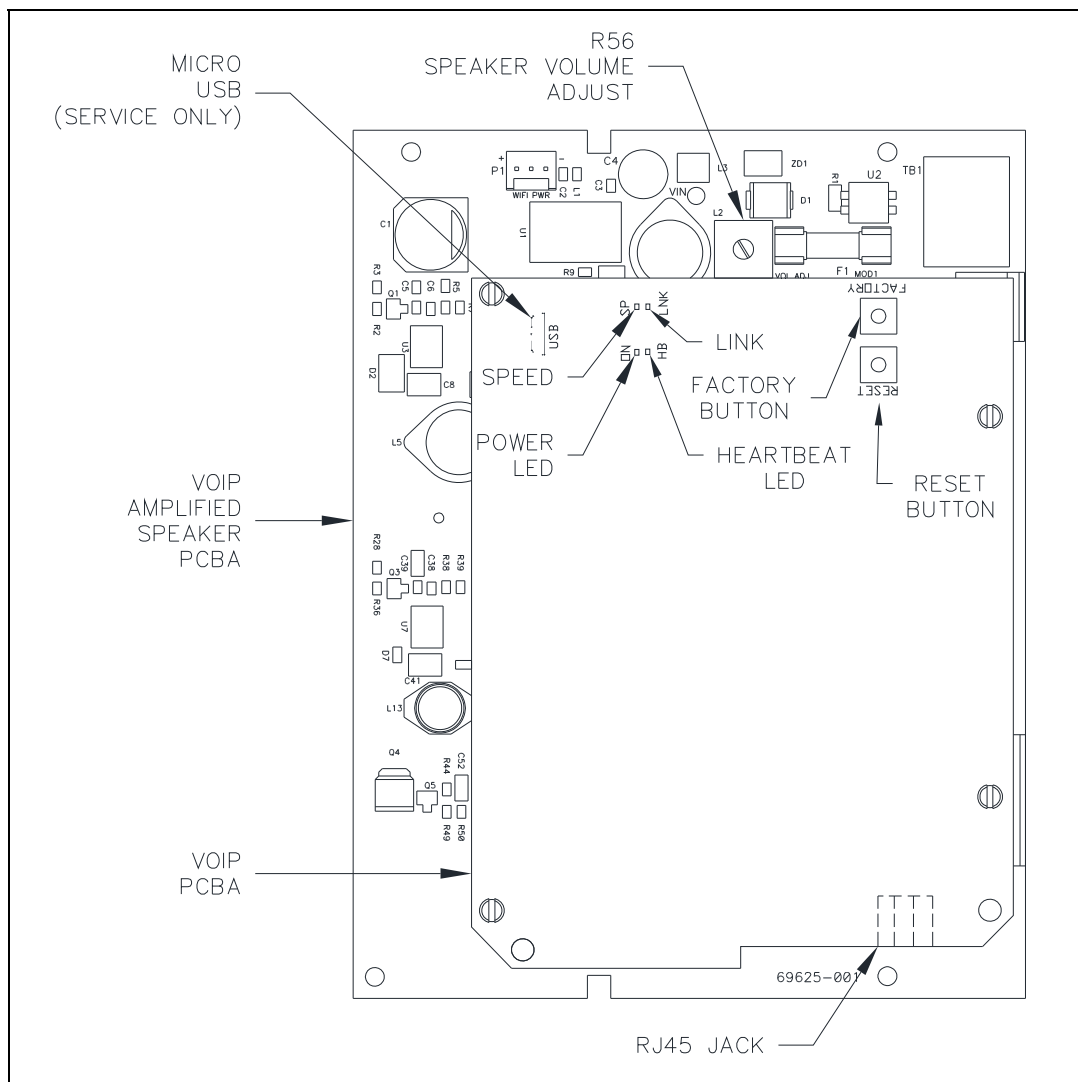


Figure 11. VoIP PCBA Indicators and Reset Buttons

## Status Indication

### Power

The ON LED, located on the VoIP PCBA (see [Figure 11](#)), illuminates when power is applied to the telephone.

### Heartbeat

The HB LED, located on the VoIP PCBA (see [Figure 11](#)), flashes when communication over the LAN is established.

### Link

The LNK LED, located on the VoIP PCBA (see [Figure 11](#)), indicates an active network connection when illuminated.

### Speed

The SP LED, located on the VoIP PCBA (see [Figure 11](#)), indicates a 100 Mbps network connection when illuminated or a 10 Mbps connection when off.

## USB port

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

## Service and Spare Parts

Contact a regional service center for an RA# (return authorization number) if the equipment 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 identifying the Regional Service Center closest to you.

## Replacement Parts and Kits

Table 3. Spare Parts List

| Part No.        | Description  | 10458-701 | 10458-801 |
|-----------------|--|-----------|-----------|
| 100-02-7014-000 | VoIP PCBA  | ■         | ■         |
| 69625-001       | VoIP Broadcast Carrier PCBA                                  | ■         | ■         |
| 69868-101       | Ethernet Wireless Interface PCBA                             |           | ■         |
| 40404-081       | Power Supply PCBA  | ■         | ■         |
| 12234-102       | WiFi Antenna/Lens Kit<br>(for use with 234 series Stanchion) |           | ■         |

## Reference Documentation

|  |                 |
|--|-----------------|
| VoIP Telephone Basic Configuration Guide ..... | 42004-548       |
| VoIP Telephone Programming Guide.....          | 502-20-0171-001 |

## Specifications

### Power Options

#### AC Power

|                     |                                     |
|---------------------|-------------------------------------|
| Input voltage ..... | 120/240 V ac, 50/60 Hz              |
| Input current.....  | 0.35 A @ 120 V ac, 0.2 A @ 240 V ac |

#### PoE (Power over Ethernet) (Model 10458-701 only)

|             |                              |
|-------------|------------------------------|
| Power ..... | 802.3af compliant (via RJ45) |
|-------------|------------------------------|

### Audio Output

#### Speaker output power

|                               |                            |
|-------------------------------|----------------------------|
| With PoE .....                | 8 W into 8- $\Omega$ load  |
| With 120/240 V ac input ..... | 30 W into 8- $\Omega$ load |
| Frequency response.....       | 300–3000 Hz                |

### Network (Ethernet)

|                     |   |
|---------------------|---|
| Signaling .....     | SIP (RFC3261 compliant) loose routing   |
| Configuration ..... | embedded web server<br>configuration file download<br>SNTP with time zone and daylight saving<br>automatic updating via TFTP<br>password protection |

### Control Outputs

|   |                                     |
|---|-------------------------------------|
| Output 1 (isolated solid-state switch)..... | 50 mA @ 30 V ac/dc (resistive load) |
| Output 2 (isolated SPST relay) .....        | 10 A @ 30 V ac/dc (resistive load)  |

### WiFi Module (Model 10458-801 only)

|  |   |
|--|---|
| Antenna (part of Model 12234-102 Antenna Lens Kit, purchased separately) ..... | 2.4 GHz, 2.0 dBi,<br>50- $\Omega$ , omni-directional,<br>$\frac{1}{4}$ wavelength dipole configuration, VSWR $\leq$ 2.0 |
| Standards.....   | IEEE 802.11a/b/g/n<br>static IP provisioning or DHCP STUN client (NAT traversal)  |
| Frequency.....   | 2.412–2.484 GHz   |
| Antenna connector .....  | BNC   |

### Mechanical

|                          |   |
|--------------------------|---|
| Physical dimensions..... | 4.50 W $\times$ 7.00 D $\times$ 7.63 H in; (114.3 $\times$ 177.8 $\times$ 193.8 mm) |
| Enclosure material ..... | 0.062-in thick aluminum   |
| Connections.....         | screw type terminal blocks  |
| Shipping weights         |   |

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|                       |                  |
|-----------------------|------------------|
| Model 10458-701 ..... | 4.5 lb (2.04 kg) |
| Model 10458-801 ..... | 5.0 lb (2.27 kg) |

**Environmental**

Temperature range ..... -4 °F to +140 °F (-20 °C to +60 °C)

Humidity ..... up to 95%, non-condensing

**Approvals**

USA ..... FCC Modular Approval, FCC ID: FCC ID: XM5-SM2144N1  
CFR Title 47 FCC Part 15, Subpart B and C

Canada ..... Industry Canada Module Approval IC: 8516A-SM2144N2  
Industry Canada ICES-003, RSS-Gen, RSS-210

EU ..... EN 300 328 (R&TTE Directive 1999/5/EC)  
EN 301 489 (EMC Directive 2004/108/EC)

## FCC Licensing Information

Your radio operates on General Mobile Radio Service (GMRS), Private Land Mobile Radio Service, Amateur Radio Service, Aeronautical Mobile, or Maritime Mobile Service frequencies and is subject to the Rules and Regulations of the Federal Communications Commission (FCC). The FCC requires that all operators using such frequencies obtain a radio license before operating their equipment. To obtain the FCC forms, go to <http://wireless.fcc.gov/services/personal/generalmobile/index.html> to obtain Forms **605** and **159**, which include all forms and instructions.

Changes or modifications not approved by GAI-Tronics Corporation may void the user's authority granted by the FCC to operate this radio and should not be made. To comply with FCC requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services. Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the FCC equipment authorization for this radio could violate FCC rules.

**NOTE:** Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

Federal Communications Commission (FCC)

1-202-418-0177 1-800-418-FORM

1-800-418-3676

1-888-CALL-FCC

1-888-225-5322

Or: <http://www.fcc.gov>

### User Instructions

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.

### Exposure to Radio Frequency Energy

Your radio is designed to comply with the following standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy:

- FCC, Code of Federal Regulations; 47 CFR part 2 sub-part J
- American National Standards Institute (ANSI)/Institute of Electrical and Electronic Engineers (IEEE) C95.1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999

# 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.

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