Pub. 42004-415B

GAI-TRONICS®
A HUBBELL COMPANY

Model 10458-10x
600-Ohm/RF Electronics Paging Module

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GAI-TRONICS 3030 KUTZTOWN RD. READING, PA 19605 USA
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600-Ohm/RF Electronic Paging Module

Confidentiality Notice

General Information

Product Overview

GAI-Tronics' Electronics Paging Modules are mechanically designed for mounting to the access panel in Model 234 Series Stanchions. Each paging module can be used with the Model 234SBM Stanchion Broadcast Module or Model 234SBA Stanchion Broadcast Assembly to supply an amplified broadcast to stanchion speakers.

Features

- Hardwired (600-ohm) and RF audio delivery to amplifier.
- One-way page broadcasts over system speakers.
- A high-efficiency (>80%) Class D amplifier to provide up to 10 watts into a 4-ohm load (>110 dB SPL from each speaker, measured at 1 meter on axis).
- Generic Operation - (common broadcast) using input contact closure.
- Selective Operation - addressability for individual unit, group/zone, or system-wide broadcasts using DTMF or 2-Tone signaling access.
- Remote volume control using DTMF signaling.
- Universal ac input power supply provided.
- Battery trickle charge during normal operation.
- Programmable output control for strobe activation.
- PC programmable using the CARD Suite Programming Software Application.

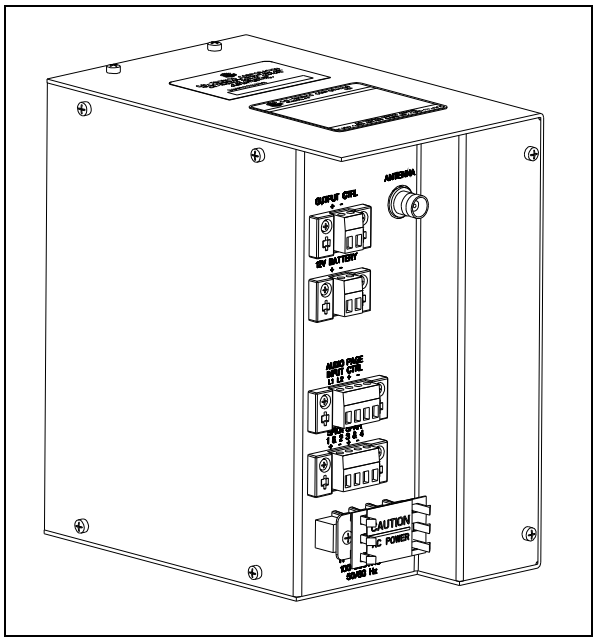

Figure 1.

GAI-TRONICS 3030 KUTZTOWN RD. READING, PA 19605 USA
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Available Models

Part No.	Description
10458-101	Hardwired 600-ohm audio input
10458-102	Hardwired 600-ohm input and/or VHF radio receiver input (154–174 MHz)
10458-103	Hardwired 600-ohm input and/or UHF radio receiver input (450–470 MHz)

System Layout Considerations

The installer must consider the system layout to assure proper audio delivery to the Electronics Paging Module.

- For hardwired installations, each paging module requires a balanced 600-ohm, 0 dBm input audio signal. A contact closure may be required depending on the selected operating mode. Cabling (telephone cable, cat-5/6, etc.) must be distributed appropriately to attain the necessary audio level and balance. Audio distribution apparatus may be necessary to accomplish this task.
- For RF installations, each paging module must be located within range of the RF transmitting device.

Operating Modes

The Electronics Paging Modules can operate in two different modes, referred to as Generic and Selective. The mode of operation determines if the paging module's speakers will broadcast all audio transmissions or only "selective" audio transmissions. Each operating mode is described below.

Generic Operation

Generic Mode requires an external control input to activate (wake up) the paging module. Once active, the unit will broadcast any audio received from the transmitting device. Removal of the activation input returns the paging module to the inactive (sleep) mode.

- For hardwired installations, the control input activation must be in the form of a voltage–free (dry) contact closure.
- For RF installations, the control input activation is provided from the "RF carrier detect" control circuit of the integral radio receiver.

All paging modules are factory programmed for Generic Operation.

Selective Operation

Selective operation allows "addressable" access to each paging module using DTMF signaling (DTMF Selective) or Two-Tone signaling (Two-Tone Selective). Each paging module can be programmed with up to eight different addresses. Upon receiving a valid DTMF or Two-Tone code, the paging module becomes active and will broadcast any audio received from the transmitting device. The paging module returns to the inactive (sleep) mode when the transmission is complete and a pre-programmed hold time expires.

By assigning a combination of addresses to each device, the overall system can be segregated into multiple broadcast zones. In a typical multi-zone system, three access codes are assigned to each module.

- Address 1 – is always a unique address assigned to only that paging module. By using this access code, an individual paging module is activated.
- Address 2 – could be an address assigned to a group of paging modules located in the same speaker broadcast zone. When received, the group of paging modules is activated simultaneously. This access method is used when an audio broadcast is required to a particular broadcast zone.
- Address 3 – could be an address assigned to all paging modules in the system. By using this access code, all paging modules are activated simultaneously when a system-wide audio broadcast is required.

DTMF Selective with Manual Switch

Requires an external control input to activate (wake up) the paging module. Once active, the unit must receive a valid DTMF address. Upon receiving a valid address, the paging module will broadcast any audio received from the transmitting device. Removal of the activation input returns the paging module to the inactive (sleep) mode.

- For hardwired installations, the control input activation must be in the form of a voltage–free (dry) contact closure.
- For RF installations, the control input activation is provided from the "RF carrier detect" control circuit of the integral radio receiver.

GAI-Tronics CARD Suite Programming Software is used to assign the operating mode and DTMF addresses. Valid DTMF addresses can contain up to eight digits (0–9) followed by the "#" symbol. The "#" symbol is automatically inserted by the programming software. Each paging module can be programmed with up to eight different addresses.

DTMF Selective with Audio Switch

This mode is used for hardwired installation where a contact closure is not available from the transmitting device. In this case, the paging module ignores the input contact and constantly monitors the audio line for a valid DTMF address. Upon receiving a valid address, the paging module will broadcast any subsequent audio received from the transmitting device. The paging module returns to the inactive (sleep) mode after audio from the transmitting device stops for a pre-programmed time.

Two-Tone Selective

GAI-Tronics CARD Suite Programming Software is used to assign Two-Tone access codes. Valid access codes contain two frequencies in the 400–2700 Hz range. Each paging module can be programmed with up to eight different codes. By assigning a combination of access codes to each device, the overall system can be segregated into different speaker broadcast zones as described above for DTMF signaling. Two-Tone signaling is only applicable for RF installations. Contact the Service Center for instructions in using CARD Suite to set up Two-Tone Selective.

Volume Adjustment

The paging module's speaker volume can be adjusted remotely using DTMF signaling. To change the speaker volume, the paging module must first be accessed using either Generic or Selective operating modes as described above.

Once active, the operator must enter the "*" symbol from the DTMF keypad on the transmitting device (telephone, radio, etc.). Upon receiving the "*", the paging module activates a test tone that is broadcast from speakers at the current volume setting.

- To increase the volume, the operator enters another "*" symbol while the test tone is broadcasting. Each time the "*" symbol is pressed, the test tone volume will increase slightly.
- To decrease the volume, the operator enters the "#" symbol while the test tone is broadcasting. Each time the "#" symbol is pressed, the test tone volume will decrease slightly.

When the desired volume has been reached, disconnect from the system and allow the paging module to time out and return to inactive (sleep) mode. The speaker volume level will remain at the new setting for all subsequent broadcasts until changed again.

Output Relay

The Electronics Paging Module is capable of providing a low current relay output designed for activating a GAI-Tronics Model 530-001 Strobe Light. This output is programmable for activation via all or selected DTMF addresses and can be programmed for maintained or time-out operation. Contacts can be normally-open or normally-closed. The output's maximum current capability is 100 mA if used for activation of an external device other than the Model 530-001 Strobe Light. Items requiring higher current will require an interposing relay between the paging module output and the actual device.

Programming

The Electronics Paging Module requires software configuration to set the operating parameters. It is highly recommended to program and bench-test the unit prior to field installation into the GAI-Tronics 234 Series Stanchion.

A computer with a COM port (RS-232) and Windows95 or newer operating system is required to program the paging module. Windows NT operating system is not supported. If the PC contains only USB ports, a USB to RS-232 converter is also required. Programming accessories are sold separately. They are as described below:

The CARD Suite Programming Software (Version 4.3.2 or newer) and programming cable are used to program the operating parameters of the Model 10458-101, 10458-102 and 10458-103 Electronics Paging Modules.

The Model 10458-102 and -103 RF Electronics Paging Modules also require the radio receiver to be programmed. The RF programming kit includes the software and cable for programming the desired frequency and optional PL code into the radio receiver.

Programming Accessories

Part No.	Description
XAC4000B	CARD Suite Programming Software Flash - Version 4.3.2 or newer (needed for all models)
XAC0004A	Programming Cable (needed for all models)
19101-024	RF Module Programming Kit (needed for Models 10458-102 and -103 only) consists of: • Ritron DTX L-Series Programming CD • 9/RTC-PAS Cable • DTXP-PAC Cable Adaptor • 2147C001 9-pin to 25-pin Sub D Adaptor

Opening the Paging Module

The paging module must be opened for programming, setting an internal jumper, and mounting the paging module to the Model 234 Stanchion. Each is described in more detail later in this manual. The following steps describe how to open the paging module:

1. 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 that can be used to remove the mounting plate from the chassis.

2. Remove the six screws that are holding the chassis together (two on the rear and four on the side). Refer to Figure 2 below.

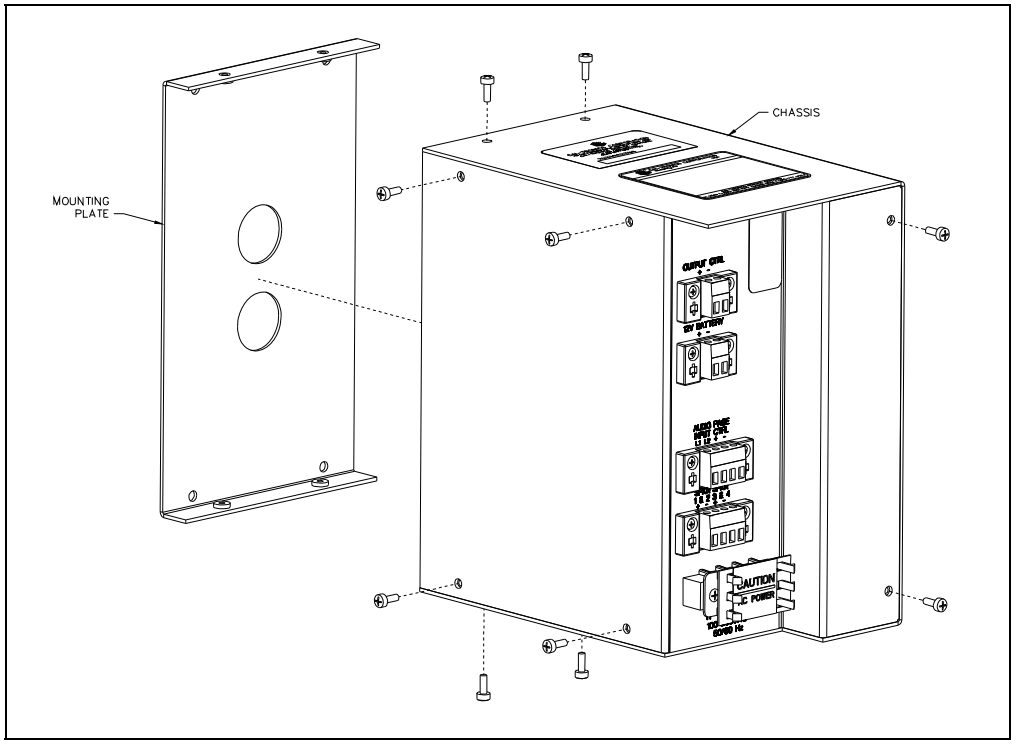


Figure 2. Electronic Paging Module Assembly.

3. Carefully open the chassis, keeping the U-bracket to the right. The Speaker Amplifier PCBA is mounted on the U-bracket and is where the settings and adjustments exist. Refer to Figure 3.

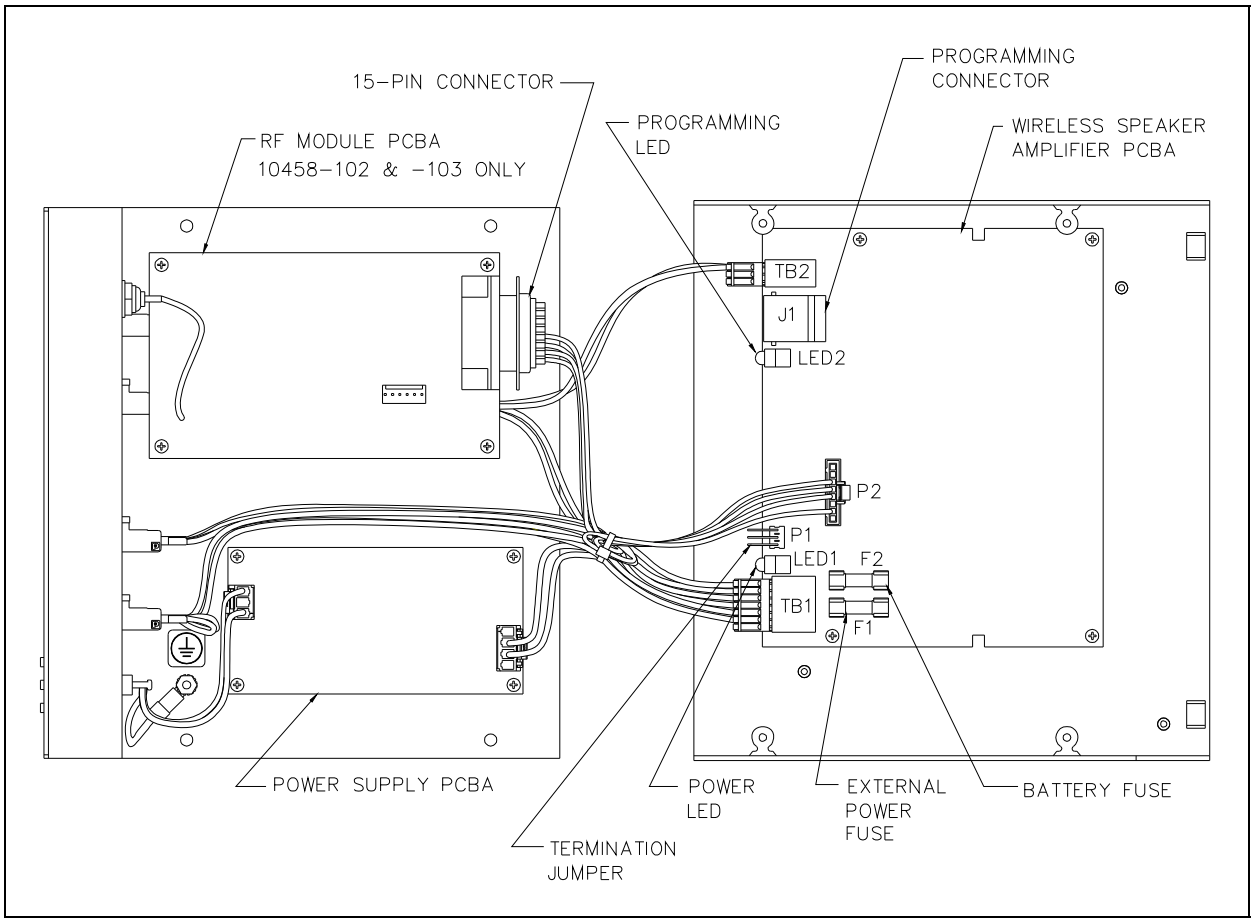


Figure 3. Electronics Paging Module (opened)

Audio Line Termination Jumper

For hardwired installations the paging module contains a jumper to terminate the audio line cable. Jumper P1 on the speaker amplifier PCBA configures the unit for 600-ohm or 15k-ohm line termination. Shorting pins 1 and 2 set the line termination to 15k ohms (default setting). Shorting pins 2 and 3 set the line termination to 600 ohms. The settings options are labeled next to the jumper on the PCBA. See Figure 3 for location of P1.

For RF installations, this jumper has no function.

LED Indicators

Two LED indicators are located on the speaker amplifier PCBA, but are visible only when the module is opened. The Power LED is activated when the unit is powered. The Programming LED indicates when the unit is properly connected to a programming computer using CARD Suite Programming Software. Refer to Figure 3 for LED locations.

Fuses

There are two fuses (F1 and F2) located on the speaker amplifier PCBA

Fuse F1 is a 3-amp fuse that limits the current draw from the 12 V dc power supply. Replace F1 with Littelfuse (3 amp) 5 × 20 mm or Cooper Bussman (3 amp) 5 × 20 mm fuses only.

Fuse F2 is a 5-amp fuse that limits the current draw from the 12 V dc battery. Replace F2 with Littelfuse (5 amp) 5 × 20 mm or CooperBussman (5 amp) 5 × 20 mm fuses only.

Card Suite Software

Installation

Exit all other programs that are running until the installation is complete.

Place the flash drive in the computer USB port.

If the installation does not start up automatically, it can be run from the **Start** menu. Select the **Start** button; then select **Run**. At the prompt, type ***x*:\Software Select Menu.exe** where *x* represents the drive letter that is associated with your flash drive. A CARD Suite icon should appear on the desktop display after successful installation.

Connecting the Programming Cable

1. Attach the programming cable to the COM1 or COM2 serial port connector on the computer using the 9-pin adaptor supplied with the cable.

   NOTE: If using a USB-to-RS-232 converter, connect the converter to the computer's USB port and then connect the programming cable to the 9-pin mating receptacle on the converter.

2. After opening the paging module (as previously described), plug the programming cable into the programming connector J1 on the speaker amplifier PCBA. Refer to Figure 3.

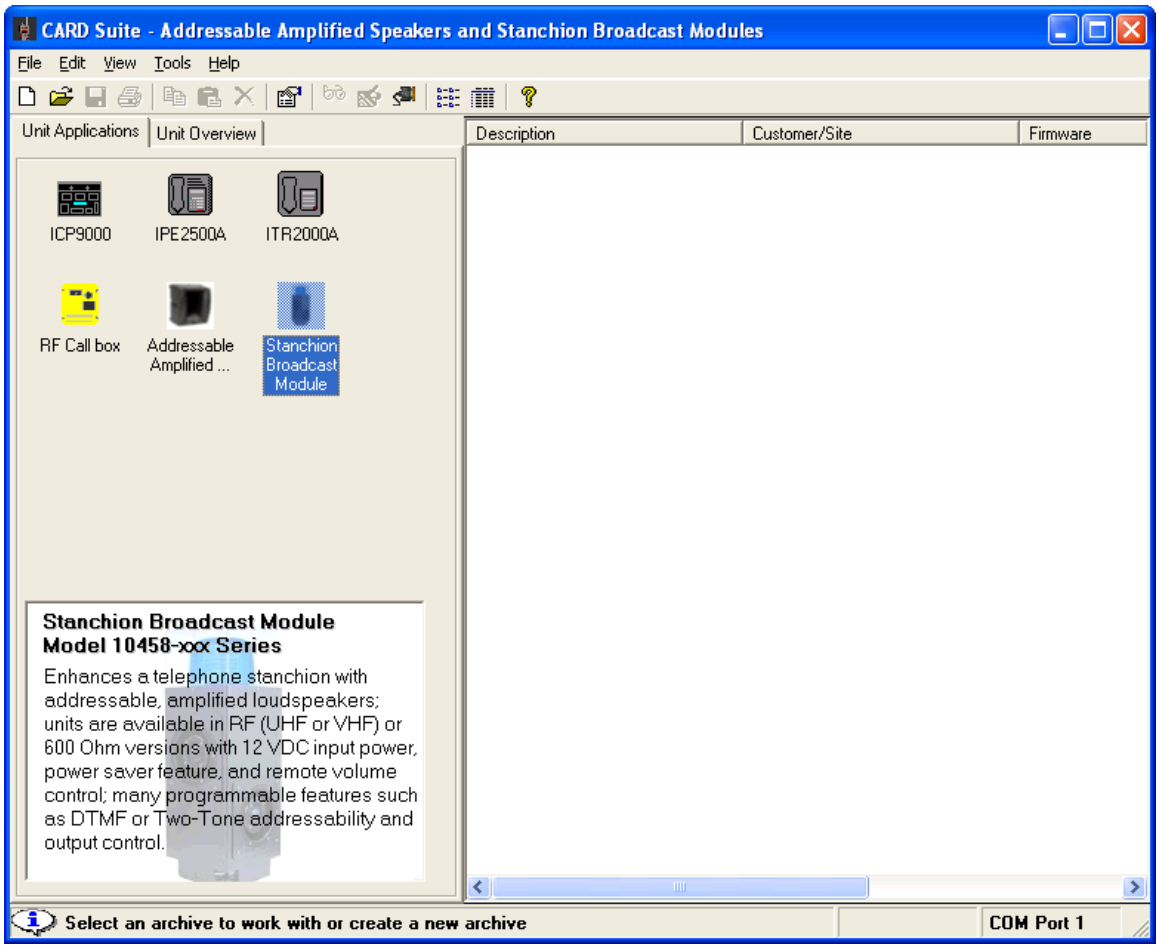
3. Connect a 12 V dc power source to the terminal block labeled BATTERY, located on the front section of the paging module assembly. Be sure to observe the voltage polarity.

4. Verify the Power LED and the Programming LED illuminate on the speaker amplifier PCBA. The Power LED indicates the 12 V dc is properly connected and the Programming LED verifies the computer and programming cable are connected properly.

Programming the Paging Module

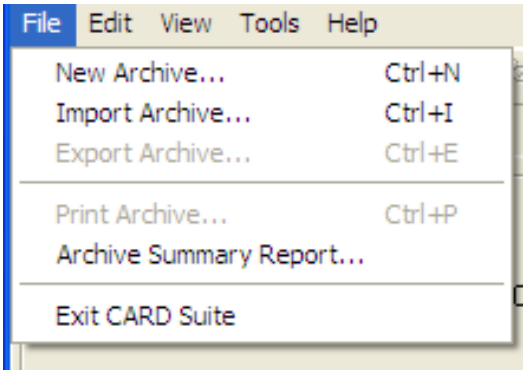
Run the CARD Suite Programming Software on the PC. The following screen will appear:

Select the **Stanchion Broadcast Module** icon on the left pane of the screen.

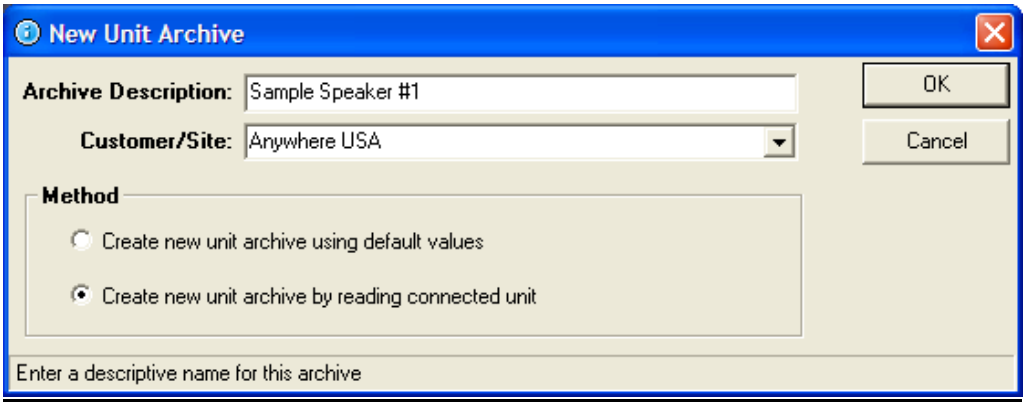


Any existing stanchion module archives or speaker archives that are stored in CARD Suite on this PC are shown in the pane on the right side of the screen. These archives can be modified by double-clicking the archive entry in the right pane.

To add a new speaker archive, select **File → New Archive** from the tool bar as shown below. One archive is required for each paging module in the system.



The following screen will be displayed when adding a new archive:



1. Enter an **Archive Description** for the paging module archive as shown above. The description is generally the device's location within the end-user's facility or a tag number identification assigned by the system installer.

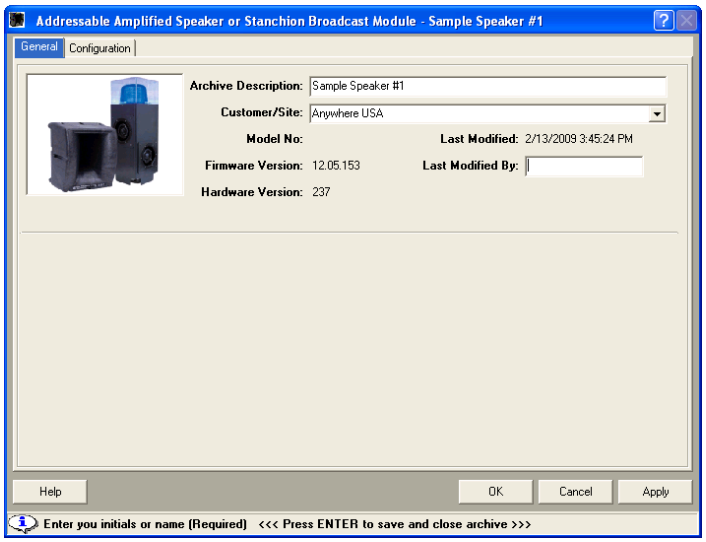
2. Enter the **Customer/Site** description. This is generally the facility name. This entry is useful when managing speakers at multiple facilities. It will allow the system administrator to easily sort the speaker entries when making changes or updates to the speaker programming.

3. Select the archive creation **Method** using the radio buttons. To upload an existing configuration from the connected paging module, select **Create new unit archive by reading connected unit**.

   If a paging module is not connected or the programmer wants to create a new archive starting with default values, select: **Create new unit archive using defalt values**.

4. Select **OK**. The archive will be created and then opened for editing. (The "reading connected unit" creation requires about 15 seconds.)

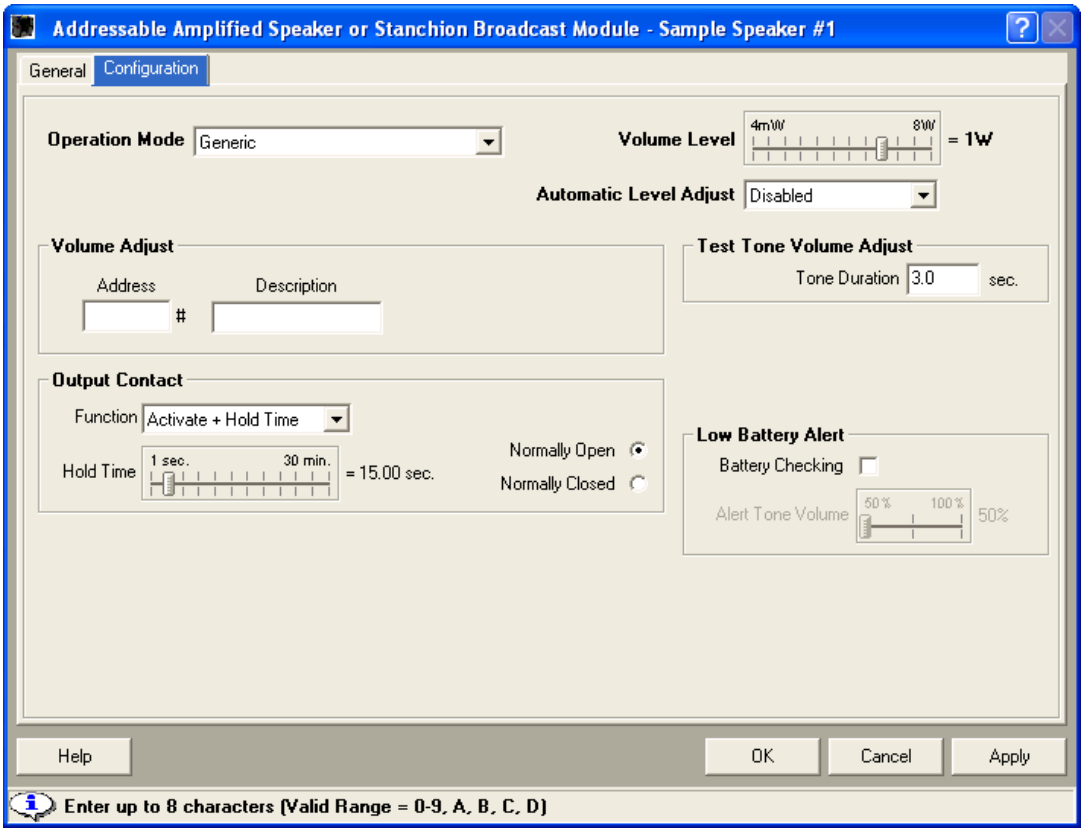
5. Enter a name or initials in **Last Modified By** field (optional). This is a method to track programming changes by date and user.



6. Select the Configuration tab to display the Configuration screen where all the paging module's operation parameters are set.

7. Select the **Operation Mode** from the pull-down menu. The screen will change appearance based on the selection made. Each selection is shown below.

Generic Mode



Volume Level - Select the speaker output level using the slide bar. The valid range is 4 mW to 8 W in doubling increments (4 mW, 8 mW, 16 mW, etc.).

Automatic Level Adjust – This feature is not compatible with the 10458-10x series Paging Modules. Always use the setting **Disabled**.

Volume Adjust Address – enter the DTMF Address code to be used for making volume changes from a remote touch-tone device. The address should be a code unique to this unit. This address code may include digits 0–9 as well as the extended DTMF digits A, B, C, and D. It can contain up to eight digits. By using one or more of the DTMF digits A, B, C, or D, broadcast access will be restricted to equipment capable of generating these DTMF digits.

Test Tone Volume Adjust – The unit will generate a tone at the current volume setting when it enters the test tone mode. This entry sets the duration of the test tone. When the unit volume is adjusted (in test tone mode), the unit will generate a tone at the newly selected level. The valid range is 0.5–6.0 seconds in 0.5-second increments.

Output Contact

These settings control the activation of the paging module's contact closure output. The settings are in effect only when the paging module is activated. Use the pull-down menu to make one of the following selections:

- **No Change –** Disables the output contact.
- **Activate –** The output contact will change state when the input control contact is received and the module becomes active. The output contact returns to the normal state when the input contact opens.
- **Activate + Hold –** The output contact will change state when the input control contact is received. The output contact returns to the normal state after the input contact opens and the Hold Time duration expires.

  Use the slide bar to set the **Hold Time**. Valid range is 1 second to 30 minutes.

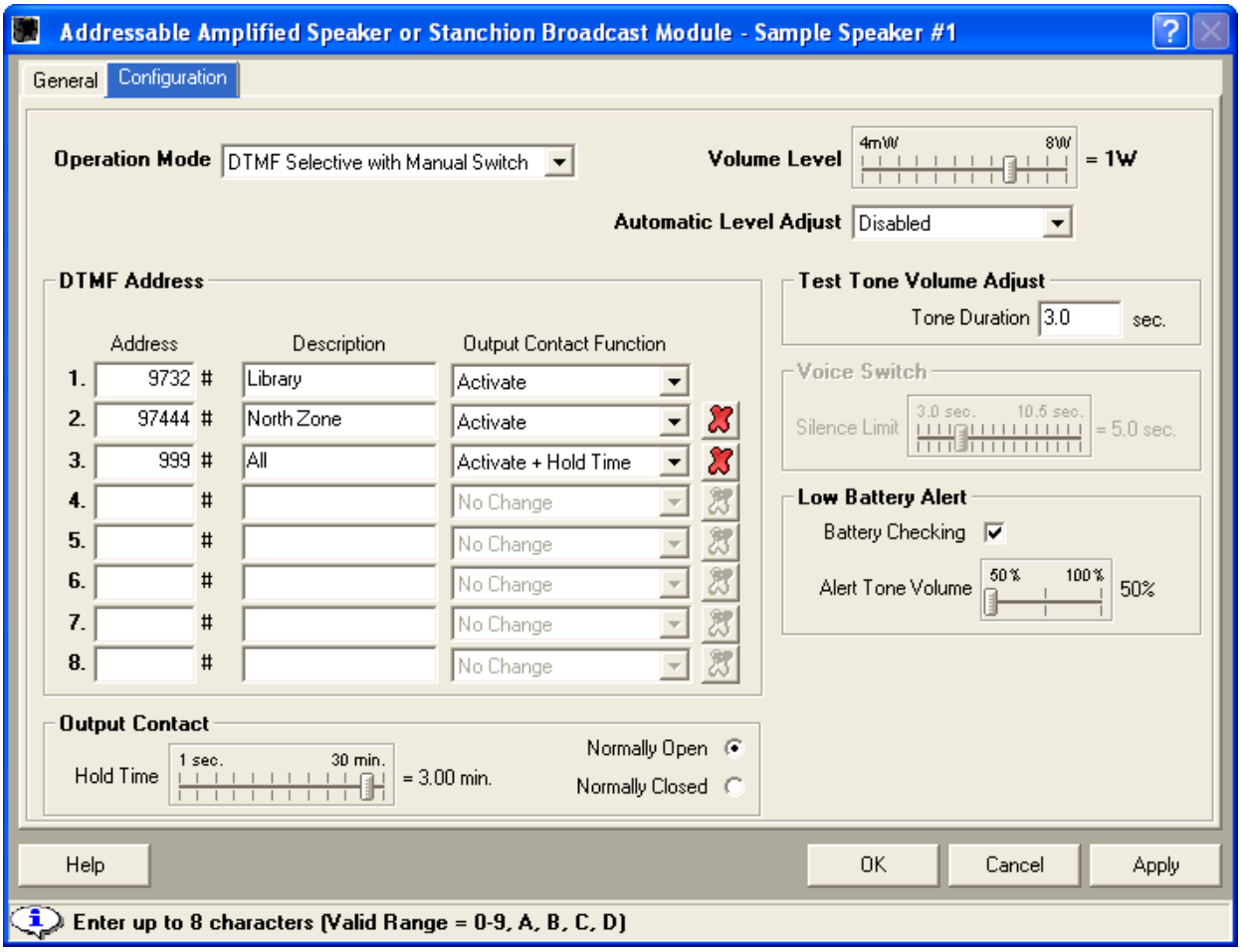
Using the radio button, select the normal state of the relay contact with power applied to the paging module. When power is removed, the contact will always be in the OPEN state.

- **Normally Open –** relay contact is OPEN when the unit is inactive and CLOSED when active.
- **Normally Closed** - relay contact is CLOSED when the unit is inactive and OPEN when active.

Low Battery Alert

- **Battery Checking –** Select this checkbox to set the unit to test the battery voltage every 4 minutes. If the battery voltage is low when the battery test occurs, the unit will broadcast a short alert tone. The factory default "low battery" threshold is 11.5 V. If a backup battery is not connected to the Paging Module, do not enable the **Battery Checking**.
- **Alert Tone Volume –** Selects the volume of the "low" alert tone as a fraction of the unit's speaker output level. The factory default setting is 50%.

DTMF with Manual Switch



Volume Level - Select the speaker output level using the slide bar. The valid range is 4 mW to 8 W in doubling increments (4 mW, 8 mW, 16 mW, etc.).

Automatic Level Adjust – This feature is not compatible with the 10458-10x series Paging Modules. Always use the setting **Disabled**.

Test Tone Volume Adjust – The unit will generate a tone at the current volume setting when it enters the test tone mode. This entry sets the duration of the test tone. When the unit volume is adjusted (in test tone mode), the unit will generate a tone at the newly selected level. The valid range is 0.5–6.0 seconds in 0.5-second increments.

DTMF Address & Description 1–8

Enter the DTMF addresses to activate the paging module. A description of up to 12 characters can be entered for each address. Each address can contain up to eight digits. Up to eight different addressed can be programmed.

Address 1 is always a unique address assigned only to this paging module. It is used for individual paging module access, and speaker volume control using additional DTMF commands. Refer to Volume Adjustment section.

Addresses 2 through 8 are typically assigned to groups of paging modules to create speaker broadcast zones thought out the system. Paging modules assigned to the same group or zone address will activate simultaneously when the address is received.

A typical programming scenario is to use one address for individual access, two to six addresses for zone access, and one address for system-wide (all-call) access. The all-call address would be programmed into every paging module.

Each address code may include digits 0–9, *, as well as the extended DTMF digits A, B, C, D. It can contain up to eight digits. By using one or more of the DTMF digits A, B, C, or D, broadcast access will be restricted to equipment capable of generating these extended DTMF digits.

Output Contact Function

These settings control the activation of the paging module's contact closure output for each DTMF address. The settings are in effect only then the paging module is activated. Use the pull-down menu to make one of the following selections:

- **No Change** – The output contact will be unaffected when the corresponding DTMF address is received.
- **Activate** – The output contact will change state when the corresponding DTMF address is received. The output contact returns to the normal state when the Standby Time duration (3 seconds) expires.
- **Activate+Hold** – The output contact will change state when the corresponding DTMF address is received. The output contact returns to the normal state when the Standby Time and the Hold Time durations expire.
- **De-Activate –** If active, the relay will reset to its normal state immediately after receiving the corresponding DTMF address. This is a function used to override the Standby Time and Hold Time assigned to other DTMF addresses.

  Use the slide bar to set the **Hold Time**. Valid range is 1 second to 30 minutes.

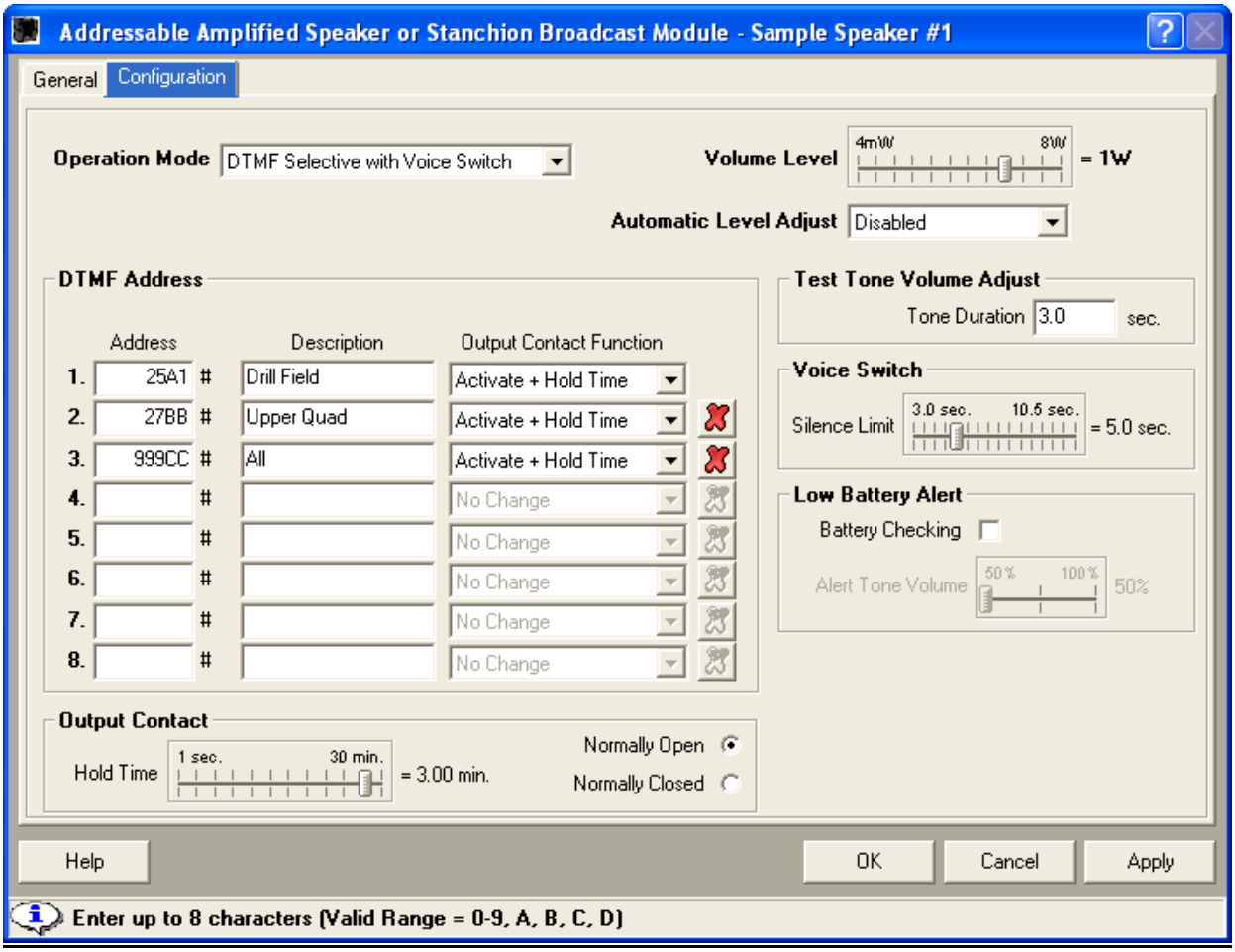
Using the radio button, select the normal state of the relay contact. This will be the relay state when power is applied to the paging module. When power is removed, the contact will always be in the OPEN state.

- **Normally Open** – Relay contact is OPEN when the unit is inactive and CLOSED when active.
- **Normally Closed** - Relay contact is CLOSED when the unit is inactive and OPEN when active.

Low Battery Alert

- **Battery Checking –** Select this checkbox to set the unit to test the battery voltage every 4 minutes. If the battery voltage is low when the battery test occurs, the unit will broadcast a short alert tone. The factory default "low battery" threshold is 11.5 V. If a backup battery is not connected to the Paging Module, do not enable the **Battery Checking**.
- **Alert Tone Volume –** Selects the volume of the "low" alert tone as a fraction of the unit's speaker output level. The factory default setting is 50%.

DTMF with Voice Switch



Volume Level - Select the speaker output level using the slide bar. The valid range is 4 mW to 8 W in doubling increments (4 mW, 8 mW, 16 mW, etc.).

Automatic Level Adjust – This feature is not compatible with the 10458-10x series Paging Modules. Always use the setting **Disabled**.

Test Tone Volume Adjust – The unit will generate a tone at the current volume setting when it enters the test tone mode. This entry sets the duration of the test tone. When the unit volume is adjusted (in test tone mode), the unit will generate a tone at the newly selected level. The valid range is 0.5–6.0 seconds in 0.5-second increments.

Voice Switch - Select the silence limit using the slide bar. The unit will return to inactive (sleep) mode if audio is not received in this amount of time. The valid range is 3–10 seconds in 0.5 second increments.

DTMF Address & Description 1–8

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- **Activate+Hold** – The output contact will change state when the corresponding DTMF address is received. The output contact returns to the normal state when the Standby Time and the Hold Time durations expire.
- **De-Activate –** If active, the relay will reset to its normal state immediately after receiving the corresponding DTMF address. This is a function used to override the Standby Time and Hold Time assigned to other DTMF addresses.

  Use the slide bar to set the **Hold Time**. Valid range is 1 second to 30 minutes.

Using the radio button, select the normal state of the relay contact. This will be the relay state when power is applied to the paging module. When power is removed, the contact will always be in the OPEN state.

- **Normally Open** –relay contact is OPEN when the unit is inactive and CLOSED when active.
- **Normally Closed** - relay contact is CLOSED when the unit is inactive and OPEN when active.

Low Battery Alert

- **Battery Checking –** Select this checkbox to set the unit to test the battery voltage every 4 minutes. If the battery voltage is low when the battery test occurs, the unit will broadcast a short alert tone. The factory default "low battery" threshold is 11.5 V. If a backup battery is not connected to the Paging Module, do not enable the **Battery Checking**.
- **Alert Tone Volume –** Selects the volume of the "low" alert tone as a fraction of the unit's speaker output level. The factory default setting is 50%.

RF Programming Software

Installation

Exit all other programs that are running until the installation is complete.

Place the CD in the computer CD-ROM drive. If the "auto-run" feature on your CD-ROM drive is enabled, the CARD Suite menu screen should appear within a few seconds.

If the installation does not start up automatically, it can be run from the **Start** menu. Select the **Start** button; then select **Run**. At the prompt, type ***x*:\fscommand\setup.exe** where *x* represents the drive letter that is associated with your CD-ROM drive. A CARD Suite icon should appear on the desktop display after successful installation.

Connecting the Programming Cable

1. Unplug the paging module's 15-pin D-connector from the radio.

2. Connect the DTXP-PAC cable assembly's 15-pin D-connector into the radio.

3. Connect the RJ11-style plug of the 9/RTC-PAS cable into the mating receptacle on DTXP-PAC cable.

4. Connect the DB-9 to DB-25 adaptor to the other end of the 9/RTC-PAS cable.

5. Connect the DB-9 connector of the of the cable assembly to the computer serial port.

   NOTE: If using a USB-to-RS-232 converter, connect the converter to the computer's USB port and then connect the cable to the 9-pin mating receptacle on the converter.

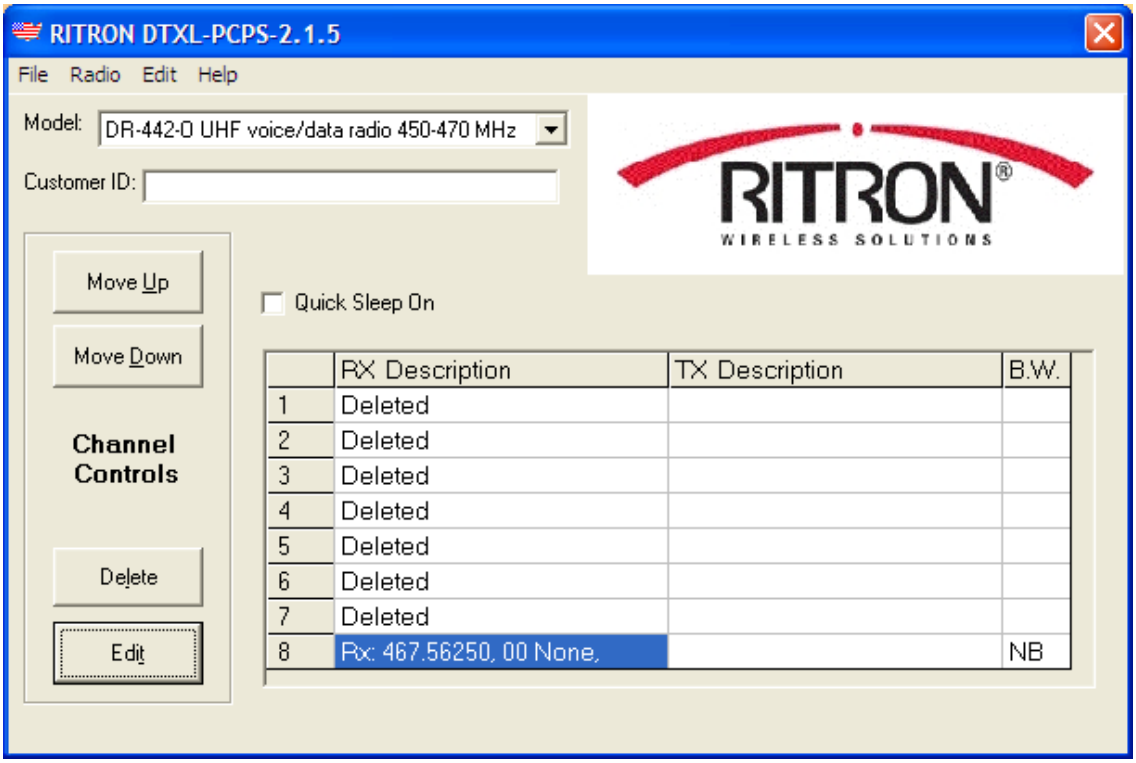
6. Connect the red and black leads of the 9/RTC-PAS cable to a 12 V dc source (battery or power supply), observing the polarity (red +, black-).

Programming the Radio

1. Make sure the radio to be programmed is powered and connected to the PC (as described above) before starting the programming software on the PC.

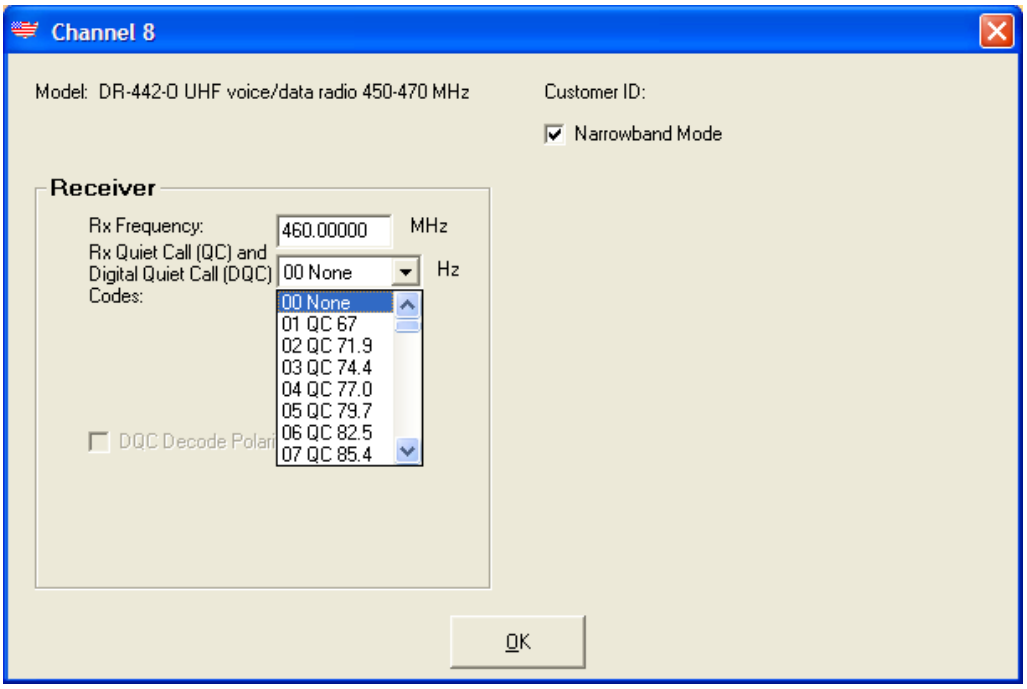
   NOTE: If the Ritron software does not read the type of the connected radio, unplug the programming cable and re-insert.

2. The radio's current programming will be displayed. Below is an example:

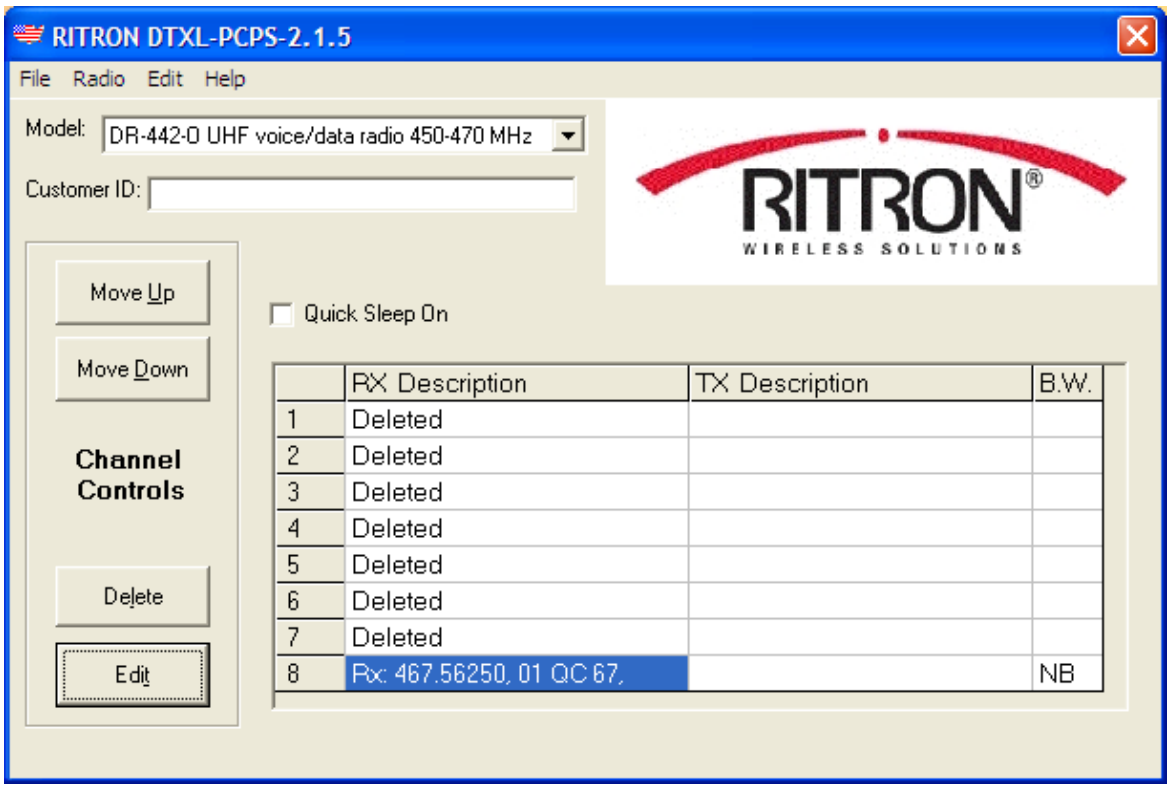


NOTE: The Electronic Paging Module uses only the frequency programmed for channel 8. Be sure to program channel 8 with the licensed frequency. The RF Module is capable of being programmed for channels 1–8.

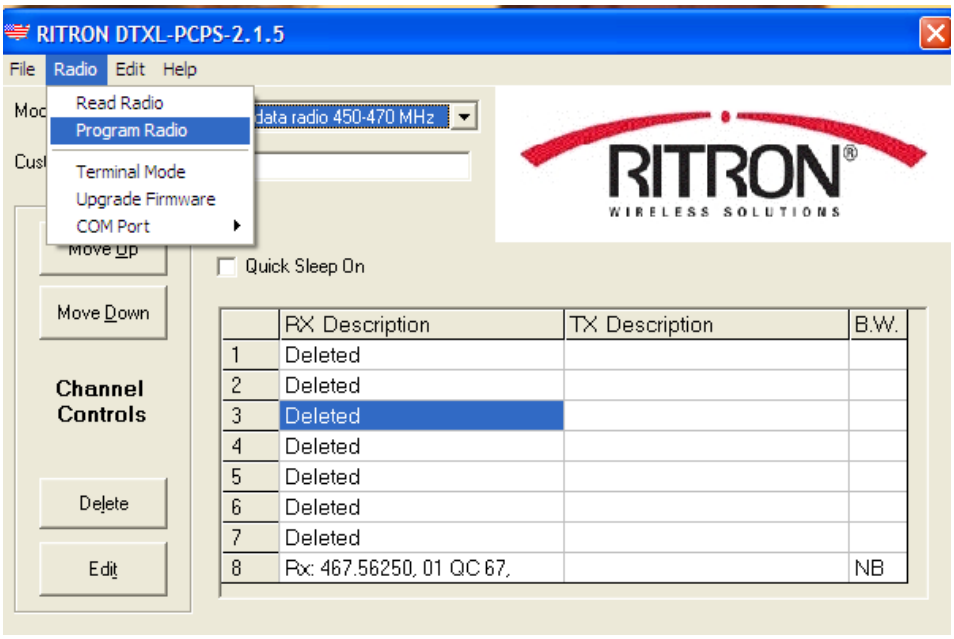
3. Enter the Receive (Rx) frequency into channel 8. This is the only frequency that must be programmed. To enter the frequency, select channel 8 then the **Edit** button on the left to display the following screen:



4. Enter the **Rx Frequency**, and select a **Quiet Call (QC)** frequency or **Digital Quiet Call (DQC)** code, if desired.



5. After entering the frequency and optional QC or DQC, program the radio by selecting **File > Program Radio** from the tool bar.



6. After the radio is programmed (time bar will disappear), disconnect the programming cable and reconnect the DB-15 cable to the speaker amplifier PCBA.

Installation

Safety and General Information

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

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.

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

Outdoor Installation Product

Power lines - An outdoor system should not be located in the vicinity of overhead power lines, electric lights, or power circuits, 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 could damage the radio and may violate FCC regulations.

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.

Mounting

1. Remove access panel from the Model 234 Stanchion (if applicable).

2. Remove the back plate from the paging module by removing the four #6-32 screws. Refer to Figure 4.

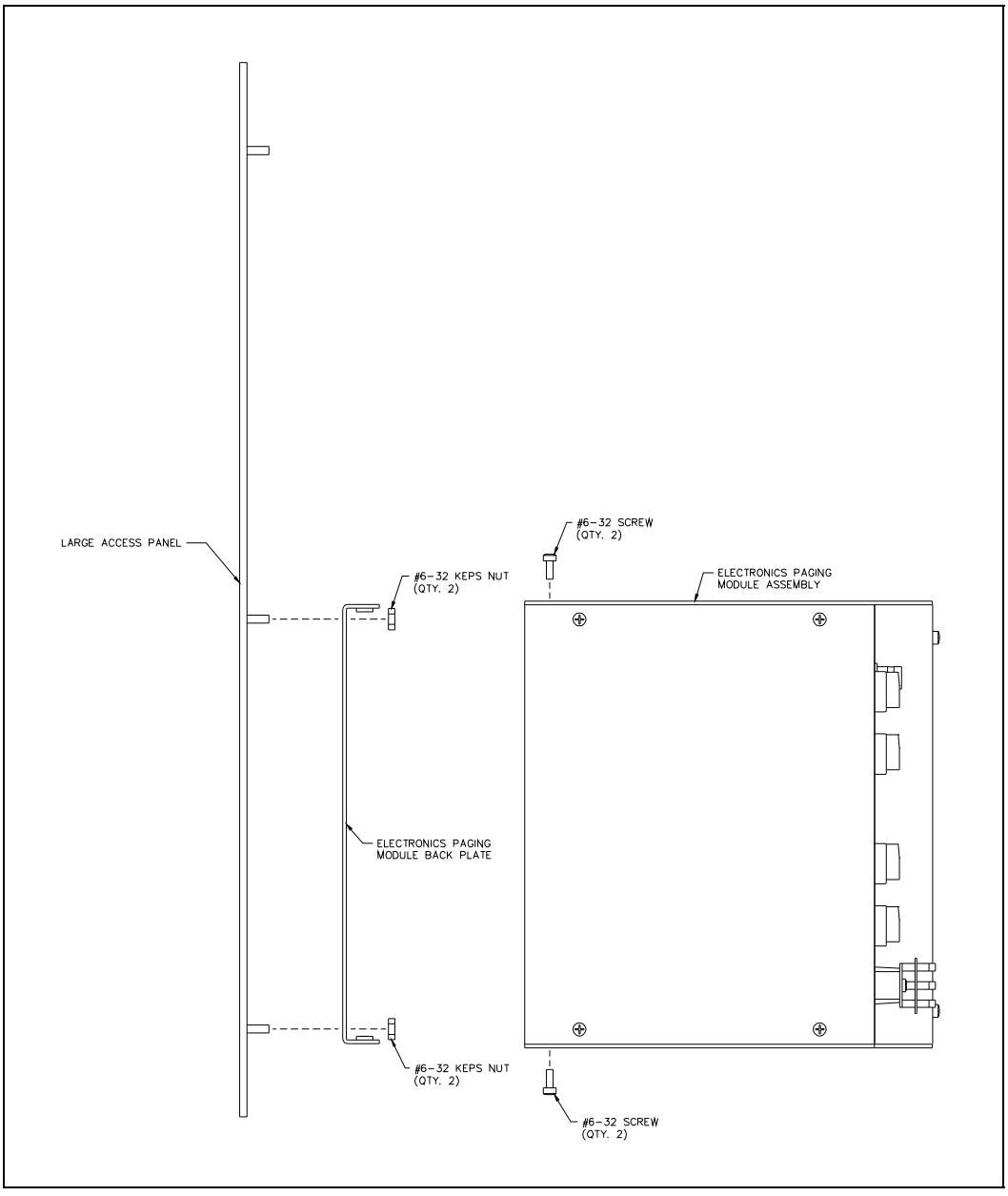


Figure 4. Exploded View of Paging Module

3. The Model 12510-002 or Model 12510-003 Access Panel Kit (sold separately) contains four #6-32 studs to attach the paging module. Attach the 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. Refer to Figure 5.

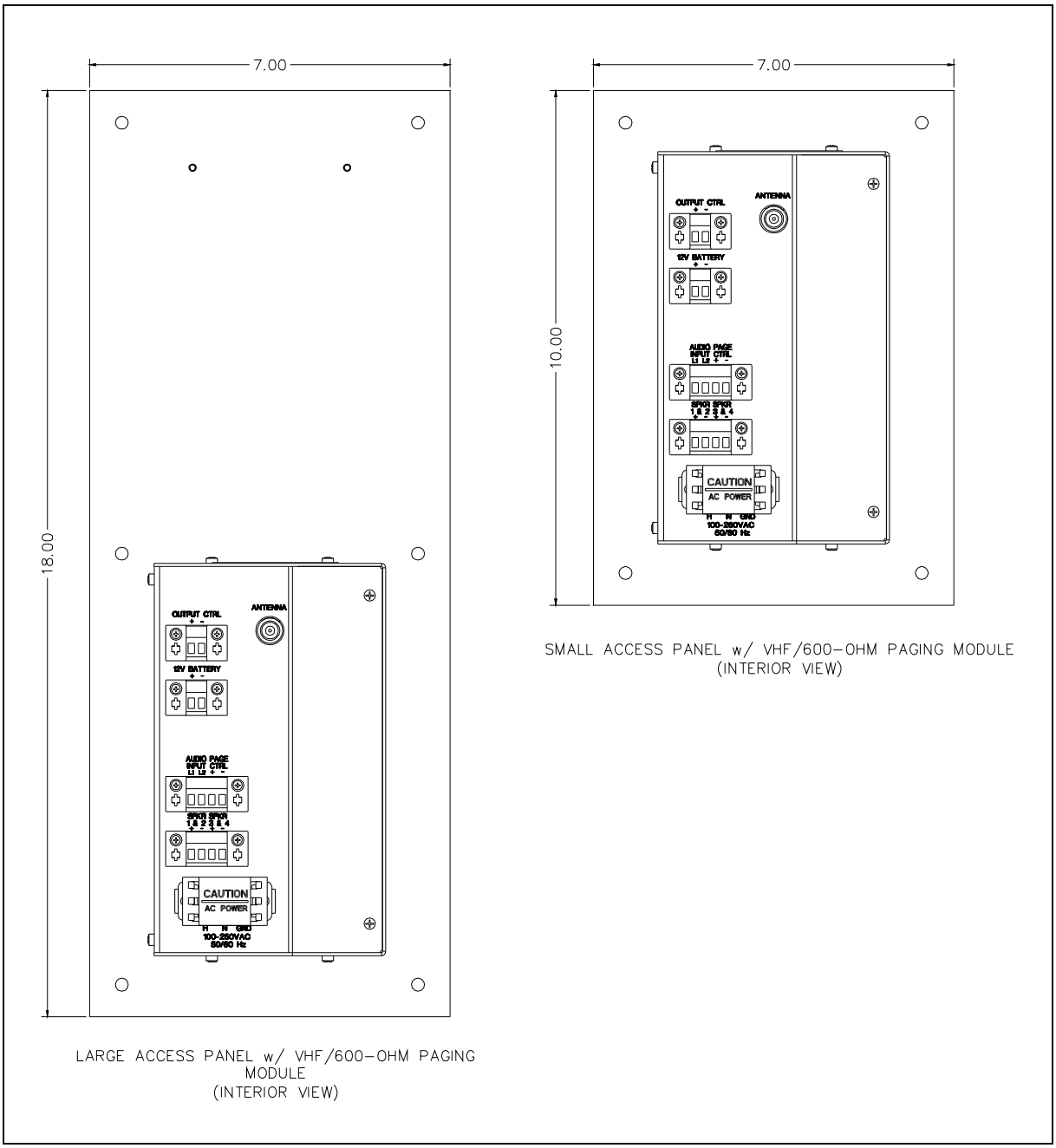


Figure 5. Electronics Paging Module Attachment to Front Panel

4. Attach the remainder of the paging module to the back plate/access panel assembly with the four #6-32 screws. Note orientation of the module.

5. Attach the access panel/paging module to the Model 234 Stanchion.

Wiring and Connections

The paging module provides terminal blocks on the front of the assembly for all field wiring. Each terminal block is labeled to indicate the functionality. Refer to Figure 6 for a sample wiring diagram.

1. After installing all speaker kits and antenna kit (for RF installations), make sure all wires & cables from the components are at the bottom of the 234 Series Stanchion.

2. Connect the black/white and white/black speaker wires to the 4-point speaker connector. Speakers 1 and 2 are parallel wired onto terminals labeled 1 & 2. Speakers 3 and 4 are parallel wired onto terminals labeled 3 & 4.

3. For hardwired audio installations:

   - Connect the audio input wires to the terminals labeled AUDIO INPUT L1&L2. Polarity for the audio wires is not important. The audio cable must be a twisted pair to prevent noise pickup on the line.
   - Connect the contact closure input wires (if used) across the terminals labeled PAGE CTRL + and –.

4. For RF installations, plug in the BNC connector on the antenna cable into the paging module.

5. Connect the battery wires to the battery connector observing the + (red) and (-) black polarity.

6. Connect the violet and orange wires from the GAI-Tronics Model 530-001 Strobe Light to the terminals labeled OUTPUT CTRL + and -. Polarity is important: violet wire (+), and orange wire (-).

7. Remove the cover from the power terminal block. Connect the 120/240 V ac power wires observing the H, N and GND labels. Replace the cover before applying power.

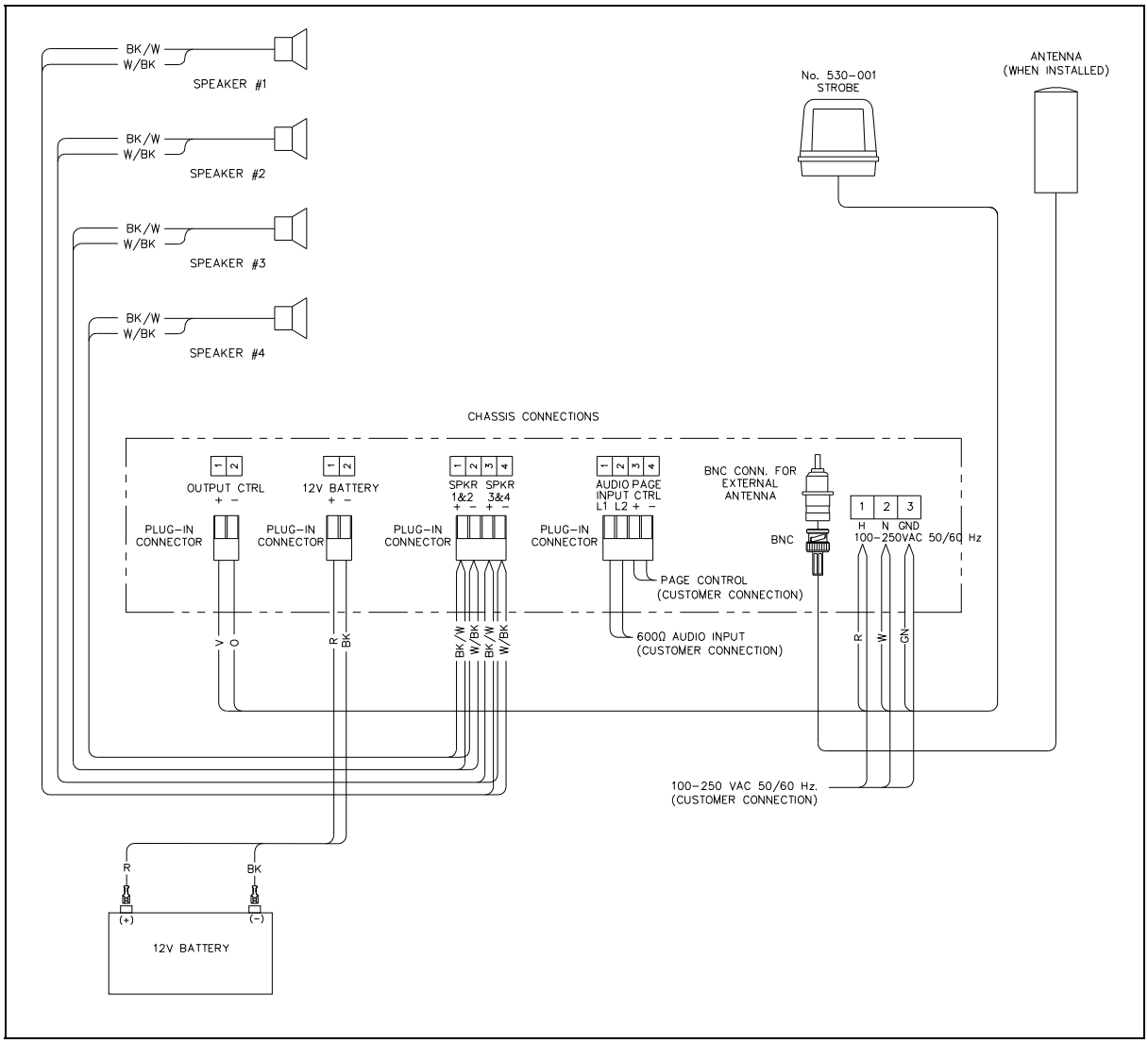


Figure 6. Typical Electronics Paging Module Wiring Diagram

Specifications

Power Requirements

AC power supply

Input voltage ..... 120/230 V ac (nominal), 50/60 Hz
Power factor @ nominal 120 V ac 0.5

Battery Backup

Voltage ..... 12 V dc
Minimum Capacity ..... 2.8 Ah
Battery life ..... 1 hour at full output

Mechanical

Physical dimensions ..... 4.5 W × 7 D × 7.63 H inches (0.11 W × 0.18 D × 0.19 H m)
Construction/finish ..... 0.62 inch thick aluminum
Termination connections ..... Screw-type terminal blocks
Shipping weight

Model 10458-101 ..... 2.5 lbs. (1.13 kg)
Models 10458-102 and -103 ..... 3.0 lbs. (1.36 kg)

Control Output

Type ..... Opto-coupled sold state relay
Current Rating ..... 100 mA

Environmental

Temperature range ..... -4º F to +140º F (-20º C to +60º C)
Humidity ..... 95% non-condensing

Amplifier

Input impedance ..... 600 Ω +/-10% with 600 Ω setting
15 kΩ minimum with 15 kΩ setting
Minimum input level for rated output ..... 0.7 Vrms
Output power ..... 4 mW to 8 W (default 16 mW)
Maximum sound pressure level (SPL) ..... 110 dB SPL at 1 meter
(when used with
Frequency response ..... 250–6,500 Hz, +0/-3 dB ref. to 1 kHz
Distortion ..... <1% THD @1 kHz

RF Module (Models 10458-102 and -103 only)

General

Frequency range ..... VHF: 154–174 MHz
UHF: 450–470 MHz

Antenna impedance ..... 50 Ω

Antenna connector ..... BNC

Operating voltage ..... 9–18 V dc, 12 V dc nominal

Decoder ..... CTCSS/CDCSS

Receiver (measurement procedures made per ANSI/TIA/EIA-603)

Sensitivity (12 dB SINAD) ..... 0.25 µV

Inter-modulation ..... 60 dB

Spurious response ..... 55 dB

Audio output ..... 900 mVrms
3.5 kHz deviated signal

Approvals

FCC Identifier ..... VHF: AIERT 17-142
UHF: AIERT 17-442

FCC Compliance ..... Part 90

Appendix A: Speaker Zoning Example

This is an example of a typical 4-zone system containing a total of eight modules.

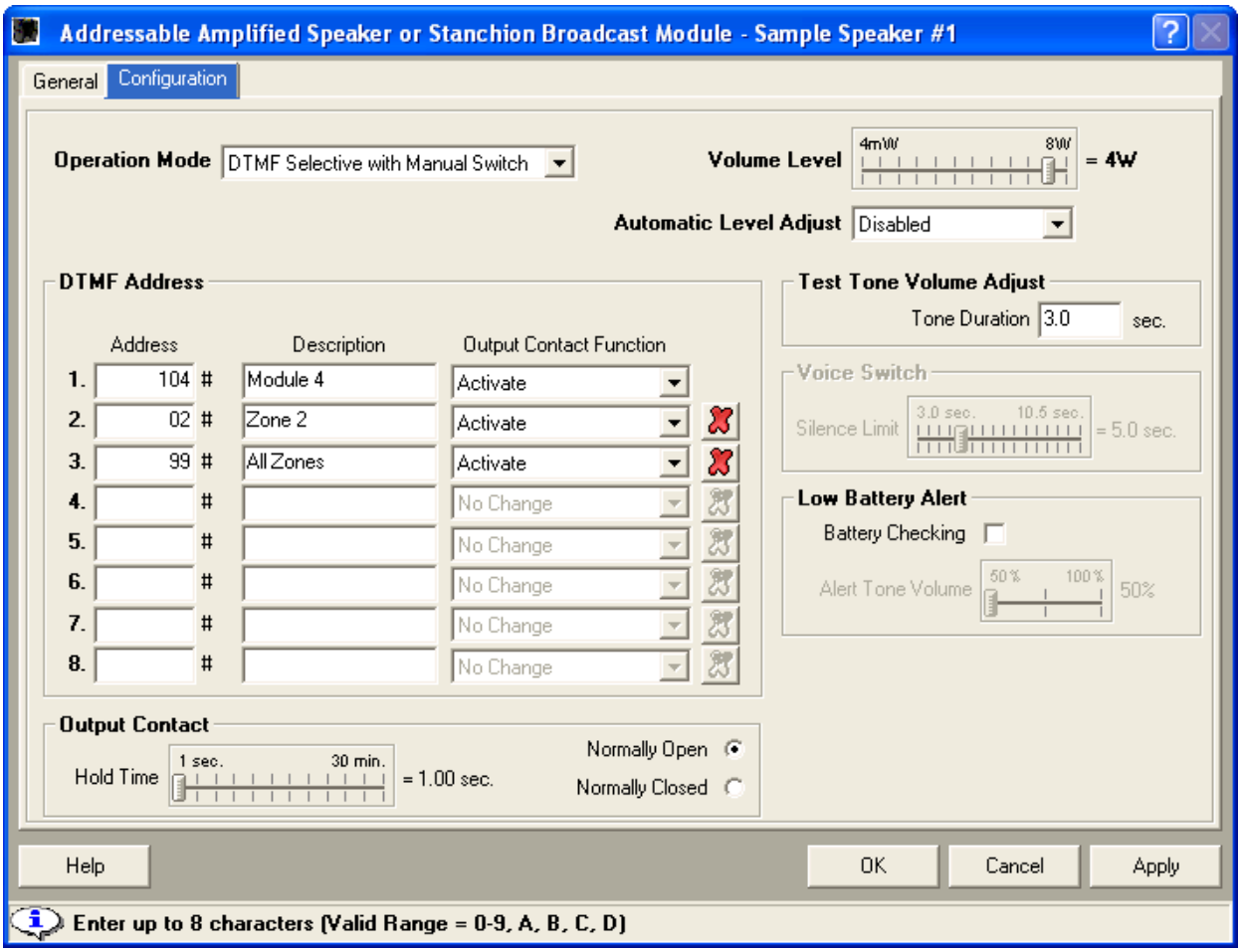
Each stanchion paging module has a unique address for individual stanchion paging and volume control, a zone address for group paging and an all zone address for system wide paging.

Figure 7. System Layout

Table 1. - Address Allocation

Module Access Address						
Module	Module Address	Zone 1 Address	Zone 2 Address	Zone 3 Address	Zone 4 Address	All Zone Address
1	101#	01#				99#
2	102#	01#				99#
3	103#		02#			99#
4	104#		02#			99#
5	105#			03#		99#
6	106#			03#		99#
7	107#				04#	99#
8	108#				04#	99#

CARD Suite Information for Module 4.



In this example, Module 4 can be accessed through addresses 104#, 02#, and 99#. If any other code is entered, Module 4 will remain inactive.

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.