



GAI-TRONICS®
A HUBBELL COMPANY

701-309 24 V DC Handset/Speaker Amplifier with Auxiliary Jack

Confidentiality Notice

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

The following are trademarks of GAI-Tronics Corporation:

SmartSeries®

Page/Party®



ADVANCE™

SmartVolume™

General Information

The GAI-Tronics No. 701-309 Handset/Speaker Amplifier (24 V dc) with Pressbar, Auxiliary Jack, and Magnetic Hookswitch is a component of the 700 series Page/Party system. This handset/speaker amplifier mates directly with the No. 702, 703, 732, and 733 series amplifier enclosures and is suitable for indoor or outdoor use. The auxiliary jack accepts a GAI-Tronics No. 10416 Series Headset.

Installation

 **CAUTION**  —Do not install this equipment in hazardous areas other than those on the equipment approval list in the Approvals section. Such installation may cause a safety hazard and consequent injury or property damage.

SCR (silicon-controlled rectifier) Electrical Noise—Communications Alert—Refer to Pub. 42004-140, Installation of 24 V dc Page/Party Systems, for system installation suggestions where SCR power supply systems are used or consult with a GAI-Tronics sales representative.

Plug the No. 701-309 Handset/Speaker Amplifier directly into any of the enclosures listed above. The following figure shows installation and adjustment details (see Figure 1).

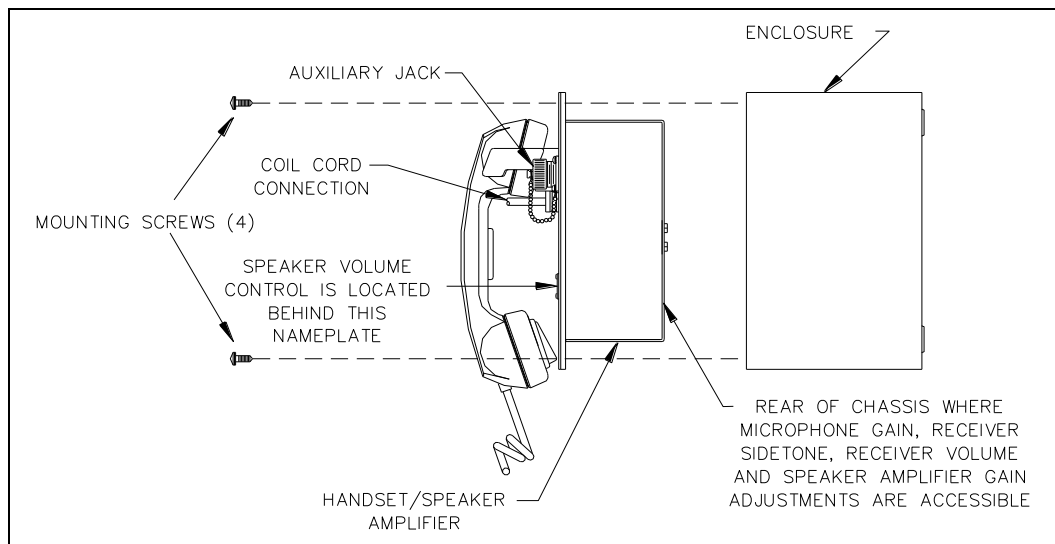


Figure 1. Installation and Adjustment Details

Operation

GAI-Tronics offers two types of Page/Party systems: page/single-party (with one party line), and page/multi-party (with five party lines), allowing up to five simultaneous full-duplex conversations.

Page/Single-Party

To initiate a call:

1. Lift the station handset
2. Press the page button or handset pressbar.
3. Speak directly into the handset to make the page announcement.

The paged individual lifts the handset of a Page/Party station for two-way communication over the party line.

Page/Multi-Party

1. Select an available party line using the five-position selector switch.
2. Press the page button or press the handset pressbar.
3. Speak directly into the handset to make the page announcement.

Remember to indicate the party line being used.

The paged individual then selects the indicated party line and lifts the handset for two-way communication.

Auxiliary Headset Operation

The auxiliary headset allows page announcements and hands-free party-line conversation up to 30 feet away from the station, while providing noise reduction for hearing protection. A party-line connection is automatically established (the same as lifting the handset) when an auxiliary headset/cable assembly is plugged into the auxiliary jack.

The auxiliary headset has priority over the handset. The handset's microphone and page switch are disabled when the handset is lifted from the cradle while the auxiliary headset is in use; but, the handset receiver remains active. A GAI-Tronics 10416 series headset/microphone assembly is required.

Maintenance

Make the following adjustments through the rear chassis of the amplifier using a small standard screwdriver.

NOTE: These levels are factory-set for optimal performance. Do not adjust these levels before following all troubleshooting steps (see the [Troubleshooting](#) section).

Each adjustment is clearly labeled:

- *Microphone Gain:* adjusts the gain level from the microphone signal to the page or party lines.
- *Receiver Sidetone:* the amount of signal transmitted from the microphone to the receiver of a handset.
- *Receiver Volume:* adjusts the gain level from a party line to the receiver.
- *Speaker Amplifier Gain:* adjusts the speaker volume; also accessible from the front panel.

Replacement Parts

Table 1. Replacement Parts

Part No.	Description
10112-201	Handset Assembly, black
13204-001-00	Receiver Cap, black
12511-011	Dynamic Transmitter and Cap, black
12525-002	Pressbar Switch Kit, black
12514-107	PVC Cord and Bushing, 6-foot, black
12514-108	PVC Cord and Bushing, 15-foot, black
12514-109	PVC Cord and Bushing, 25-foot, black
12514-010	Hytrel Cord and Bushing, 6-foot, black
12514-011	Hytrel Cord and Bushing, 15-foot, black
12514-012	Hytrel Cord and Bushing, 25-foot, black
69701-121	PCBA
12523-001	GAI-Tronics Nameplate Kit
46101-012	Amplifier Enclosure Mounting Hardware
12512-008	Hookswitch/Cradle Assembly Kit
12530-102	Transformer/Connector Subassembly
21412-001	Cap and Chain Assembly
25210-005	Cell Gasket
10440-002	Maintenance Cable, 16-pin
12604-005	Fuse 0.3 amp (10 pack)
12604-004	Fuse 2.0 amp (10 pack)

Troubleshooting

Problem	Solution
Any problem with station performance occurs.	Review all the steps of the installation, ensuring that you have correctly followed ALL steps. Check all the terminations on the board and in the line balance assembly before proceeding to any other adjustments.
Integral speaker level requires adjustment.	<ul style="list-style-type: none"> • Adjust the volume control behind the nameplate on the front panel. • Replace the speaker or driver.
Outgoing conversation level requires adjustment.	<ul style="list-style-type: none"> • Adjust the microphone gain by removing the front cover of the station and attaching a 10440 series extension cable between the connectors. Use a small standard screwdriver ($\frac{1}{8}$-inch blade) to slowly turn potentiometer (R17) on the rear chassis of amplifier until reaching the proper microphone gain. • Replace the handset microphone.
Incoming conversation level requires adjustment.	<ul style="list-style-type: none"> • Use a small standard screwdriver to adjust the receiver volume control on the rear of the amplifier using the extension cable assembly as described above. • Replace the receiver element in the handset.
Feedback occurs only during page.	Use the muting feature in the amplifier enclosure at the terminal blocks. Connect the violet wire at terminal 8 to terminal 7.
Feedback/distortion (a hum or buzz on the line) occurs during all Page/Party station operation.	<ul style="list-style-type: none"> • Adjust the receiver sidetone on the rear of the amplifier using the cable assembly as described above. • The line may be improperly terminated. Inspect the system cable for loose connections, shorts, and grounds. Line balance assembly connections are critical. • Replace the line balance assembly.
Sidetone (how the operator hears his own voice) requires adjustment.	<ul style="list-style-type: none"> • Adjust the receiver sidetone at the amplifier, using the extension cable as described above. • Check that the line balance assembly resistors are connected properly. See GAI-Tronics Pub. 42004-140.
Crosstalk occurs.	One or more system cable pairs may be improperly terminated. Visually inspect the system cable connections for accidental crossing of the cable pairs or grounds.

Specifications

Amplifier

Power requirements (24 V dc)

Voltage 21–28.8 V dc, 25 V dc nominal

Power consumed: zero/max. signal (12 watts) 2.75 W/27 W

Construction/Finish 16-gauge cold-rolled steel/gray baked enamel

Handset

Microphone dynamic, noise-canceling

Receiver dynamic, hearing aid compatible per FCC Part 68

Cable retractile, 6-foot extended PVC

Material black ABS

External controls push-to-page handset pressbar and handset hookswitch

Handset Amplifier

Output level 1.5 V_{RMS} nominal into 33-Ω load

Output limiter 1.5 V_{RMS} nominal

Gain 55 dB nominal (below limiter level); adjustable from 40 to 63 dB

Frequency response 250–4000 Hz, ±3 dB ref. to 1,000 Hz (below AGC)

Distortion 1.5% maximum THD @ 1,000 Hz

Controls microphone gain, receiver volume, and sidetone

Speaker Amplifier

Output 12 W minimum with nominal supply voltage

Voltage gain 26 dB maximum, adjustable

Frequency response 250–4,000 Hz, ±3 dB ref. to 1,000 Hz

Distortion 1% maximum THD @ 1,000 Hz, 12 W

Input impedance 50 kΩ nominal

Controls speaker volume (adjusted through the access hole behind the nameplate on the front panel)

General

Temperature range –22 °F to +158 °F (–30 °C to +70 °C), operating and storage

Dimensions 8.1 H × 8.1 W × 3 D in (20.6 × 20.6 × 7.6 cm) behind panel

8.1 H × 8.1 W × 3.5 D in (20.6 × 20.6 × 8.9 cm) front of panel

Shipping weight 6.8 lb (3.1 kg)

Approvals

NRTL Listed for USA and Canada Class I, Div. 2, Groups A, B, C, D

when used with listed GAI-Tronics 702 or 703 24 V dc series enclosures

..... Class I, Div. 2, Groups A, B, C, D

..... Class II, Div. 2, Groups F and G;

..... Class III, Div. 2,

when used with listed GAI-Tronics 732, 7325, 733, or 7335 24 V dc series enclosures

CE Mark

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.