GAI-TRONICS®
A HUBBELL COMPANY

Audio Messenger Interface for ADVANCE

TABLE OF CONTENTS

GAI-TRONICS®
A HUBBELL COMPANY

Audio Messenger Interface for ADVANCE

Confidentiality Notice

This installation, operation, and maintenance manual 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

GAI-Tronics' Model 10959-209 AMI (Audio Messenger Interface) tone/speech generator broadcasts telephone pages, pre-recorded alarm tones, pre-recorded speech messages, etc., for exclusive use in ADVANCE systems that support one or two AMIs.
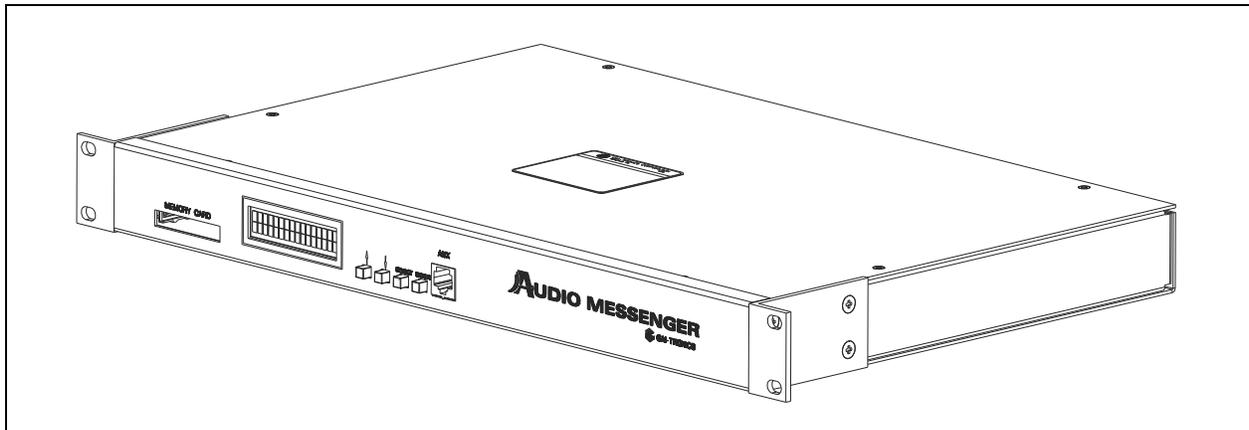

Figure 1. Rack-Mount Audio Messenger Interface

Features

- recorded alarm tones
- scheduled events
- day/night modes
- live/recorded speech messages

- status output
- CompactFlash® memory
- ACT (AMI Configuration Tool) PC application
- integration to ADVANCE SmartSeries systems

Functions

Use the ACT (AMI Configuration Tool) software, included with the AMI, to define and change the AMI's configuration. The AMI accesses a CompactFlash® memory card, pre-programmed with the Model 10959-209 product configuration, to retrieve configurations and play audio messages.

Alarms

The ACT software includes pre-recorded tones suitable for most applications. The tones include typical emergency tones (i.e., a siren, slow whoop, etc.) and signaling or process tones (i.e., a gong, steady tone, etc.). The AMI stores all tones and speech messages in the MP3 file format.

Use any tone stored in the MP3 file format for applications requiring custom tones. Record custom speech messages using commercially available audio editing software. Create speech-over-tone messages by recording live voice audio on one channel with a tone on the other channel.

Timed Events

The AMI can perform several functions based on the time of day. Schedule events to occur at any interval (hourly, daily, weekly, and monthly, etc.). Configure scheduled events using the ACT software.

Telephone Operation

The AMI provides passcode-protected telephone access to the system. Configure the AMI to allow telephone access only if the caller enters the correct *remote access security code*. The remote access code prevents unwanted callers from directly accessing the system. Callers must enter the correct security code to gain access to the system when configured to use a security code. Day and night modes can have different security codes.

Configure the operational mode of the telephone with the ACT software. The telephone interface has the following operational modes:

The operational modes of operation are as follows:

- **Page/Party**—Delivers live voice pages (not pre-recorded) to the page line output and holds the party line open following the page.

- **Record Page**—Records each page before delivery to the page line output.

- **Mixed Mode**—Records a page, delivers it to the page line output, and holds the party line open following the page.

- **Live Page Mode**—Delivers a live voice page (not pre-recorded) to the page line output. The party line is not open following the page.

- **Ring Mode**—Plays a preconfigured message on the page line to signal an incoming call.

- **Manual/Disabled**—The telephone interface does not automatically answer a phone call. However, an input configured for *manual access* will allow an attendant to manually answer the phone, and transfer calls to a party line.

NOTE: The party line for telephone operation is hardwired in the system and cannot be changed by the caller or with the AMI configuration tool.

The telephone interface supports two temporal modes of operation: *day mode* and *night mode*. Configure the day and night modes independently of each other. As an example of different day and night modes; the day mode may be configured to allow callers to page and wait for a subsequent party line

communication, while the night mode is configured to play a tone over the paging system, alerting personnel of an incoming call. Answer the call at any Page/Party station in this mode.

ADVANCE Operation

Page/Party® operation allows the AMI(s) to:

- play messages/alarms

- connect telephone calls to an ADVANCE system (see the Telephone Operation section).

- Play scheduled events and live pages through the ADVANCE system to a specified *zone group*.

    Configure zone groups using the ACT software. Assign configured zone groups to individual events, messages, or the AMI auxiliary microphone jack.

Installation

⚠—**Power Disconnect**—**The power cord is the main power disconnect for all units.**

⚠—**Disjontion de l'alimentation**—**Le cordon d'alimentation est la disjonction d'alimentation principale tous les appareils**.

⚠—**Para Desconectar la Alimentación**—**El cable de alimentación es el medio principal de desconexión del equipo**.

⚠—**Netzanschluß**—**Wenn man das Netzkabel aus der Steckdose zieht, dann ist die Spannungszuführung zum Gerät vollkommen unterbrochen**.

⚠**CAUTION** ⚠—To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

⚠**ATTENTION** ⚠—Pour réduire le risque d'incendie, utiliser uniquement des conducteurs de télécommunications 26 AWG ou de section supérieure.

⚠**PRECAUCIÓN** ⚠—Para aminorar la posibilidad de incendios, utilice solamente cable de telecomunicaciones de calibre 26 (sistema AWG americano) o mayor.

⚠**VORSICHT** ⚠—Um die Brandgefahr zu verringern, verwenden Sie bitte nur Fernmeldekabel der Stärke Nr. 26 AWG oder höher.

Mounting

Mount the Model 10959-209 AMI in a standard EIA 19-inch electronic equipment rack using the four (provided) 10–32 × ¾-inch screws.

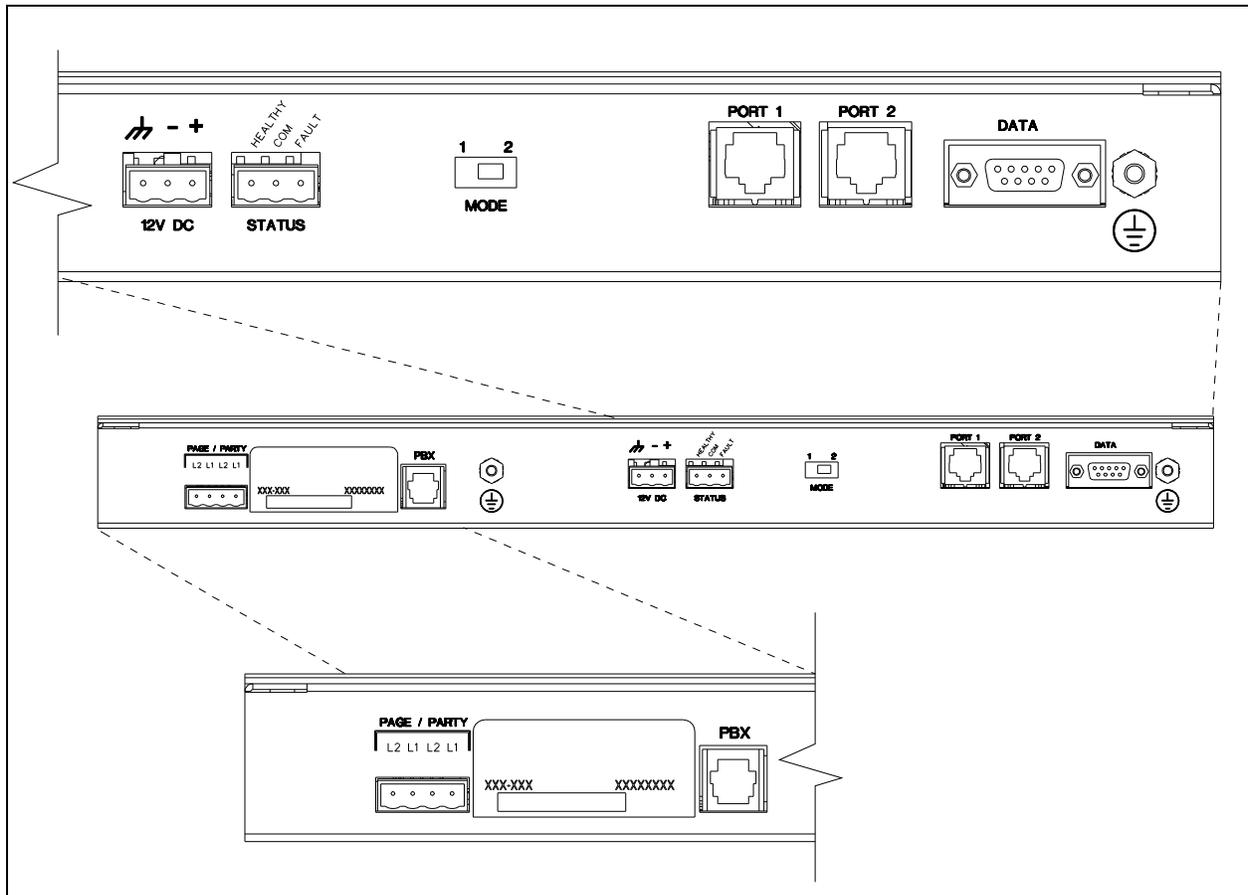The AMI requires 1U (unit) (1.75 inches) in height.

Field Connections

Figure 2. AMI rear panel detail

Data

The DB-9 connector labeled DATA, on the rear of the AMI, interfaces to the MCU (Master Control Unit) serving the ADVANCE control system. The position of the MODE switch determines which communication pathway the AMI responds on, i.e. COM1 or COM 2 (RS-485) to/from the MCU.

Port 1 and Port 2

RJ-45 jacks, PORT 1 and PORT 2, interconnect the EAI (External Audio Interface) PCBA associated with the ADVANCE system. This allows interfacing multiple audio paths (page, party line 1, and party line 2) to a SmartSeries system. In addition to audio paths, the ports also serve as the pathway for input and output control contacts to facilitate play, off-hook, and system failure notifications.

Mode Switch

The MODE slide-switch determines the communication pathway between the MCU and the AMI. In position one the AMI uses COM 1 and in position two it uses COM 2. The system configuration requires that one of the two required AMIs be set to MODE 1 and that the second AMI be set to MODE 2, which allows sharing the MCU resources.

Status

The STATUS three-position terminal allows external notification of an AMI failure and/or assurance of healthy and nominal operation via a fault relay (single form C, contact maximum current = 1.0 A). An open circuit between the FLT and COM contacts indicates normal operation; a closed circuit between FLT and COM indicates a fault condition.

Table 1. Power Status Termination

Label	Terminal	Function or ACT Description
HEALTHY	TB1-1	A short-circuit between TB1-1 and TB1-2 indicates normal operation.
COM	TB1-2	relay common
FAULT	TB1-3	A short-circuit between TB1-3 and TB1-2 indicates a fault condition.

Power

Connect power to the AMI at the CLASS 2, 12 VDC terminal block.

Table 2. Power Termination

Label	Terminal	Function or ACT Description
+	TB6-1	Positive terminal of external power supply
−	TB6-2	Negative terminal of external power supply
GND	TB6-3	Frame ground

PBX Connection

Connect a standard PBX analog station port to the PBX connector.

Page/Party

The PAGE/PARTY connector interfaces to a Page/Party system.

Table 3. Page/Party Termination

Label	Terminal	Function or ACT Description
PARTY L1	P1-1	The 33-ohm line interface to party line 3, 4 or 5. (Internal 33-ohm termination)
PARTY L2	P1-2	
PAGE L1	P1-3	Not typically used. (External 33-ohm termination required)
PAGE L2	P1-4	

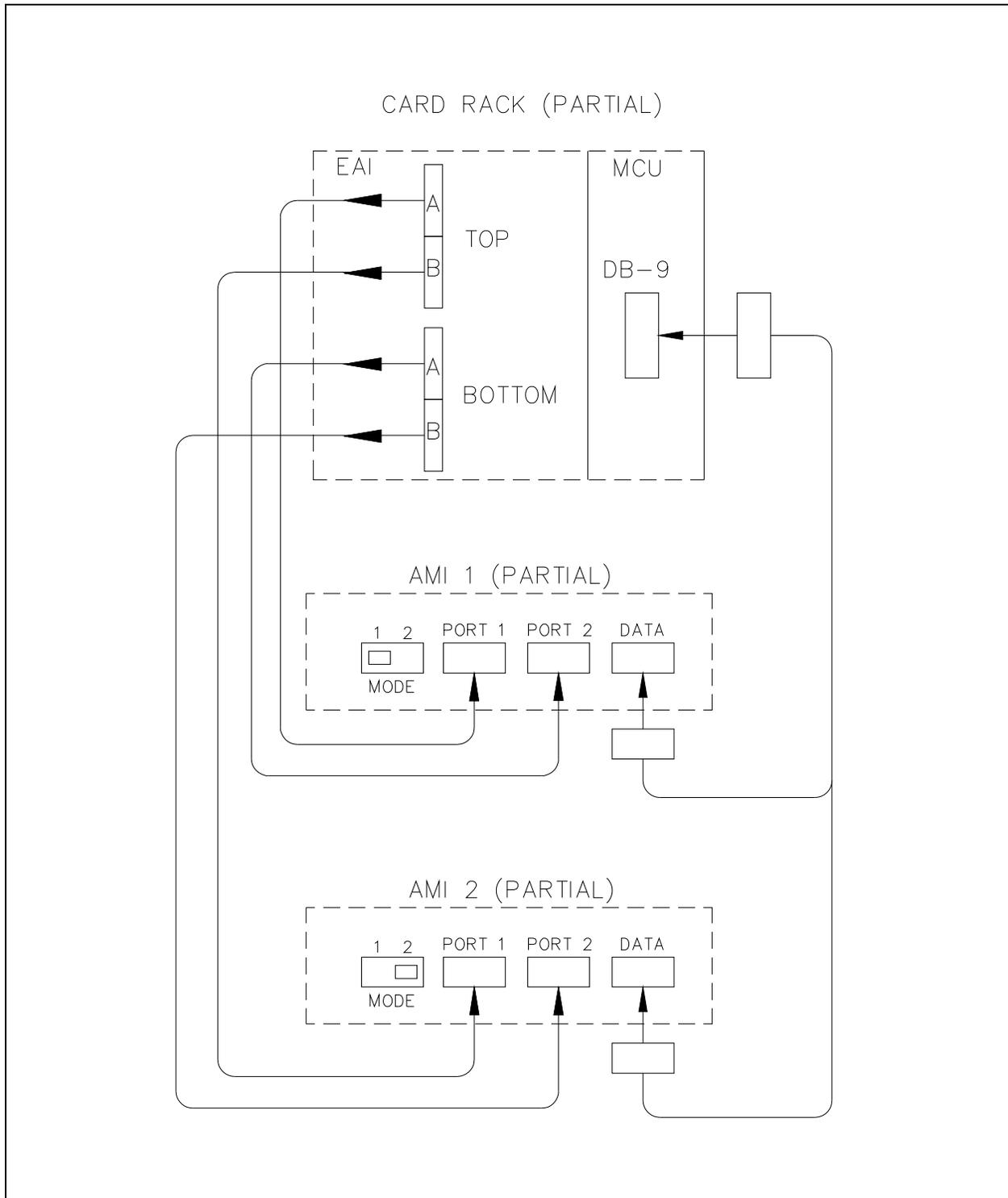**NOTE:** Pin 1 is on the right side of this connector.

Block Diagram

Figure 3. Block Diagram

Configuration

Open the AMI

1. Remove the four 10-32 × ¾-inch screws holding the unit in the rack and pull the unit out.

2. Remove the four screws from the AMI cover.
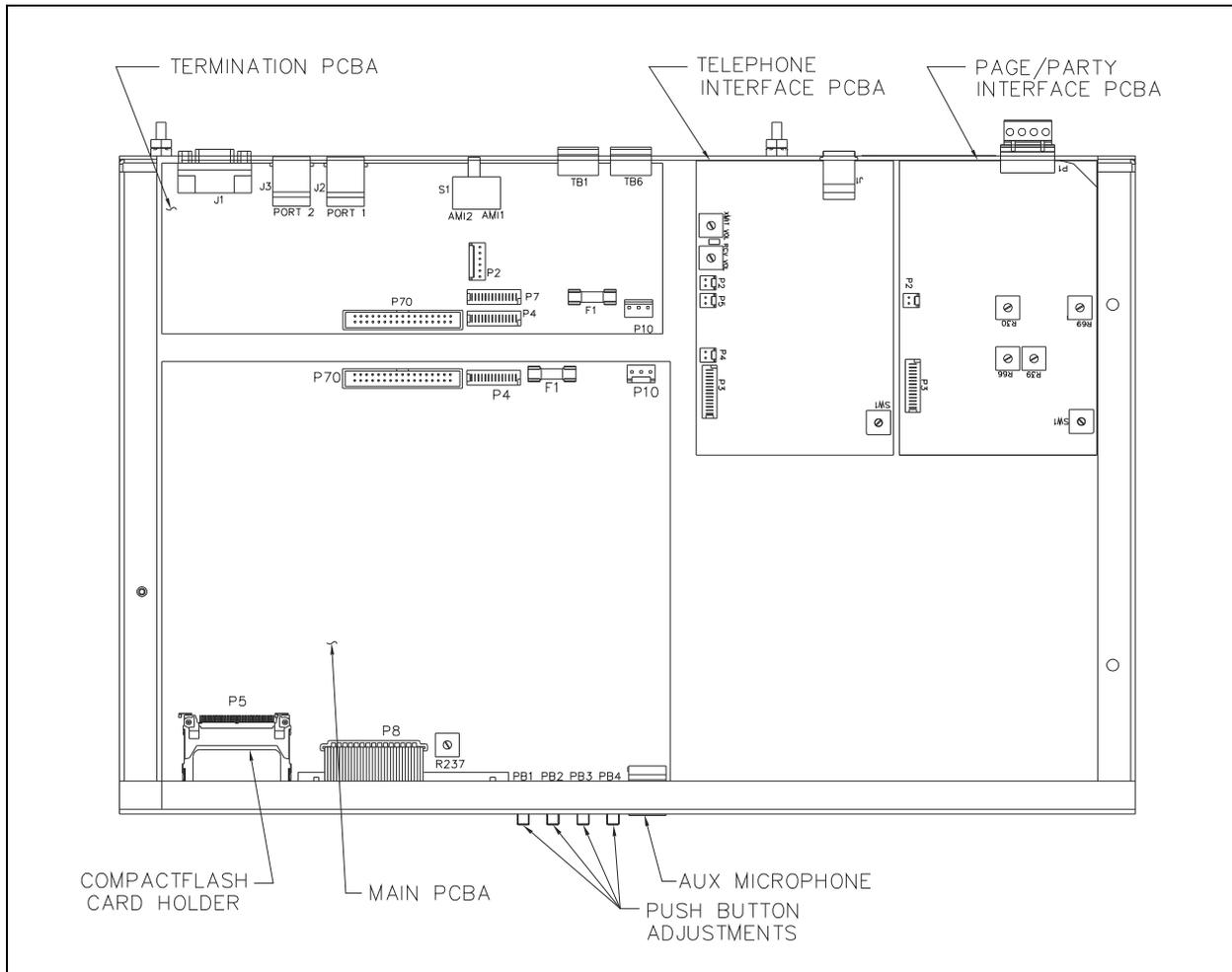
Figure 4. Model 10959-209 AMI without cover (all boards installed).

Adjustments

Display Brightness

Adjust potentiometer R237, on the main PCBA, to change the brightness of the LCD on the front of the assembly.

Telephone Line Levels

Two potentiometers, on the optional telephone interface PCBA, adjust the telephone audio levels:

*   **Volume level from telephone line**—Adjust the receiver volume potentiometer, R36.

*   **Volume to telephone line**—Adjust the transmit volume potentiometer, R1.

Party Line Levels

Two potentiometers, on the Page/Party interface PCBA, adjust the party line audio levels:

- **Volume level to party line**—Adjust the party volume potentiometer, R66.

- **Sidetone level from party line**—Adjust the party sidetone potentiometer, R30.

Page Line Levels

Two potentiometers on the Page/Party interface PCBA adjust the page line audio levels:

- **Volume level to the page line**—Adjust the page volume potentiometer, R39.

- **Page line audio monitor level**—Adjust the page monitor potentiometer, R69.

Date and Time Set Up

The MCU serving the ADVANCE system automatically updates the date and time on the AMI(s). The update occurs periodically without user interaction while the MCU is running.
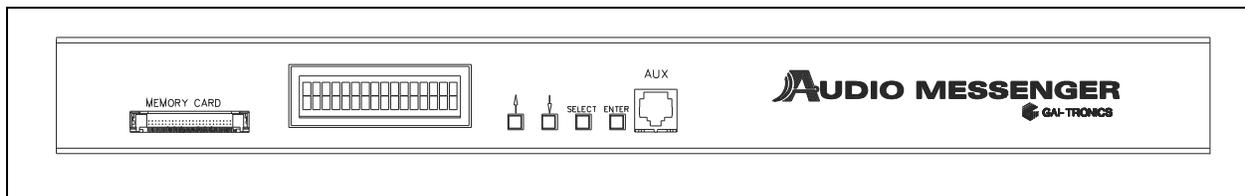
Figure 5. Front View of AMI

ACT (AMI Configuration Tool)

Overview

Use the ACT software to define and change configurations for the AMI. All AMI models include the software. The AMI accesses a CompactFlash® card to retrieve configurations and play audio messages. Each AMI ships with a CompactFlash® card pre-programmed with the **AMI Factory Default** configuration.

Please refer to the ACT software online help for specific instructions.

System Requirements

Install the ACT software on a Windows PC (Windows® XP/7/10) equipped with a USB port. Connect a CompactFlash® memory card reader/writer to the USB port. The AMI does not include the CompactFlash® reader/writer.

Parameter Configuration

Fragments

A CompactFlash® card stores all digitally recorded tones and voice messages as audio fragments in MP3 files.

Messages

Each message is a collection of fragments. Define the content of each message by selecting the fragment(s) to incorporate in the message. Other message parameters include:

- message title

- priority

- volume

- play mode and repeat interval

Inputs

The factory configures each input circuit for the customer's application. Do not change the factory settings. The following parameters define each input:

- title containing a brief text description of the input and its use

- type of switch contact that activates the input (NO, NC)

- action of the switch (maintained, momentary, toggle on/off)

- function of the input (activate a message, reboot, mute, etc.)

Outputs

The factory configures each output circuit for the customer's application. Do not change the factory settings. The following parameters define each output:

- title containing a brief text description of the output and its use

- mode of operation when active (maintained, flash, momentary, flicker)

- activation assignment from an input or scheduled event

Event Scheduling

Use the event-scheduling feature to set messages to automatically play at certain dates and times. Set the following parameters when scheduling events:

- start and stop times

- start and stop dates

- event duration and intervals

Telephone Interface

Configure the following parameters if using the telephone interface:

- number of rings before answer

- paging mode (live or recorded)

- page delay, if recorded

- maximum page duration

- greeting message played to the caller

- *pre-announcement* tone played to the PA system

Page/Party Interface

Set the following parameters for the Page/Party interface:

- VLC activation (must remain disabled)

- party hot dial

CompactFlash®

The CompactFlash® memory card stores the system configuration, speech messages, and alarm tones. Complete the following instructions to install the memory card:

1. Insert the memory card through the rectangular MEMORY CARD slot on the AMI main PCBA with the label on the memory card facing up.

2. Slide the memory card in until it fully seats in the slot.

   When seated properly, the card protrudes approximately ¼-inch from the front of the socket.

   NOTE: The memory card and its socket are keyed for proper insertion—*do not force the card into the socket*.

3. Reboot the system so the AMI unit can read the memory card.

Operation

The unit operates based on system inputs and outputs or by manual operation from the front of the rack-mount unit after programming and installing the CompactFlash® in the unit.

LCD Display at Initial Power Up

At initial power up, the AMI unit completes a self-diagnostic of its settings. The LCD display cycles through the following messages:

- AMI firmware version

- boot DSP

- media detected

- EEPROM firmware version

- DSP firmware version

- progress bar/LOAD CONFIG

- configuration version

- configuration date and time

- configuration file name

- HIO not installed

- ASM not installed

- Page/Party PCBA firmware version

- AMI main PCBA firmware version

- telephone interface mode

- telephone interface PCBA firmware version

- telephone interface greeting file name (if recording a new greeting)

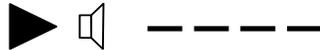- AMI ready

- time, page symbol/date

LCD Display During Operation

The LCD displays various symbols to indicate AMI activity:

The VU meter indicates the volume of the current page.

▶ ◁   MIN

▶ ◁ ▬▬▬▬   MAX

Mute indicates muting of the page audio.

▶ ◁ ▬ ▬ ▬ ▬

A progress bar indicates the time remaining before party line connection timeout.

▶ ◁   MIN

▶ ◁ ▬▬▬   MID

▶ ◁ ▬▬▬▬   MAX

A telephone handset indicates an active telephone connection to the AMI.

A microphone indicates a page from the auxiliary jack.

Off hook indicates that a digital input designated as party line off hook is active.

Right/left arrows indicate transmit and receive activity on the auxiliary jack or external RS-485.

→

←

Text display (scrolling) displays current system status, such as the name of the current message playing, telephone connection status, and party connection status.

Rotating slash, when visible, indicates the AMI has a lower priority message pending, ready to play.

Push-Button Operation

Front panel push buttons provide menu access for various control features including; firmware update, reset AMI, and return.

Firmware Update

Complete this sequence to update the AMI's main PCBA firmware:

1. Press <**ENTER**>, PB4, to enter the menu system.

2. Press <**SELECT**>, PB3, to scroll the menu to the FIRMWARE UPDATE: item.

3. Press <**ENTER**>, PB4, to select the FIRMWARE UPDATE: item.

4. Press <**ENTER**>, PB4, to confirm the selection.

Reset AMI

Complete the following menu sequence to restart the AMI:

1. Press <**ENTER**>, PB4, to enter the menu system.

2. Press <**SELECT**>, PB3, to scroll the menu to the SYSTEM REBOOT: item.

3. Press <**ENTER**>, PB4, to select the SYSTEM REboot: item.

4. Press <**ENTER**>, PB4, to confirm the selection.

Return

This sequence returns the system to normal operation mode:

1. Press <**ENTER**>, PB4, to enter the menu system

2. Press <**SELECT**>, PB3, to scroll the menu to the RETURN item

3. Press <**ENTER**>, PB4, to select the RETURN menu item and return to normal operating mode.

Maintenance

Replacement Parts

Table 4. Replacement Parts

Model Number	Description
69681-001	Termination PCBA
69462-001	Telephone Interface PCBA
69463-001	AMI Single-Party Interface
49100-007	CompactFlash® Card (blank)

Service

Contact a regional service center for a return authorization number (RA#) if the equipment requires service. Ship equipment prepaid to GAI-Tronics with an RA# and a purchase order number. Repairs or a replacement are made in accordance with GAI-Tronics' warranty policy, if the equipment is under warranty. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts. Call 800-492-1212 inside the USA or 610-777-1374 outside the USA for help with identifying the closest regional service center.

Specifications

Power Supply Requirements

Voltage	12 V dc (UL listed) Class 2 power source (plug-in 12 V dc power supply included with AMI)
Current	1 A (minimum)
Power consumed	10 W (maximum)

Audio

Speech capacity	500 minutes with 512 Mb CompactFlash® card
Scheduled events	29 maximum
Frequency response	250–6500 Hz, +0/−3 dB ref. to 1 kHz
Distortion	<1% THD @ 1 kHz @ nominal settings
33-ohm page line	1.5 V $_{RMS}$ nominal
33-ohm party line	1.5 V $_{RMS}$ nominal
Telephone line	−10 dBm nominal

Output

Status	1 A (maximum)

Communications

ADVANCE	RS-485
Phone line	DTMF

Enclosure

Material	steel body with aluminum cover; black, fine-textured paint finish
Mounting	1U in standard 19-inch rack
Dimensions	17.00 W × 11.18 D × 1.72 H in; (432 × 284 × 44 mm)
Weight	8.5 lb (3.86 kg)

Environmental

Temperature range	+32 ºF to +122 ºF (0 ºC to +50 ºC)

FCC Information

Complies with CFR47, Part 15	Class A

Approvals

Safety of Information Technology Equipment.......UL 60950, CAN/CSA-C22.2 No. 60950-00, IEC 60950