



GAI-TRONICS®
A HUBBELL COMPANY

69268-001

Amplifier Zone Interface II PCBA

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General Information

NOTE: If the 69268-001 Amplifier Zone Interface II (AZI II) board is being installed in a system that does not currently have an AZI II, the GAI-Tronics Service Department must be contacted to modify the system configuration. If the AZI II Board is being installed as a replacement for an existing AZI II, follow the instructions contained in this manual. The 69268-001 AZI II board is designed to be installed in the 10457 Series Card Rack Assembly and is used to interface between a 69254 Series or 69440 Series Master Control Unit (MCU) and up to twelve power amplifiers.

How to Use the Assembly/Model

Application

The AZI II Board serves the following functions:

- Performs audio switching of the backplane page resources to the power amplifiers. There are two page resources or buses available in the 10457 Series card rack.
- Performs audio switching from the backplane Supervisory Tone resource to the power amplifiers. The Supervisory Tone permits health check monitoring of the power amplifiers' speaker loops. The supervisory tone incorporates gain control.
- Provides an audio path from the backplane Fail-safe Bus Tone to the power amplifiers.
- Provides normal/emergency output level selection for each of the two backplane page resources. Each level is manually adjustable through the front bezel. The MCU controls output level selection.
- Provides manually-adjustable gain on two of the twelve outputs. The Amplifier 6 and Amplifier 12 outputs incorporate gain control.
- Provides RS485 communication to external Snaptrack™ modules.

Hardware Configuration

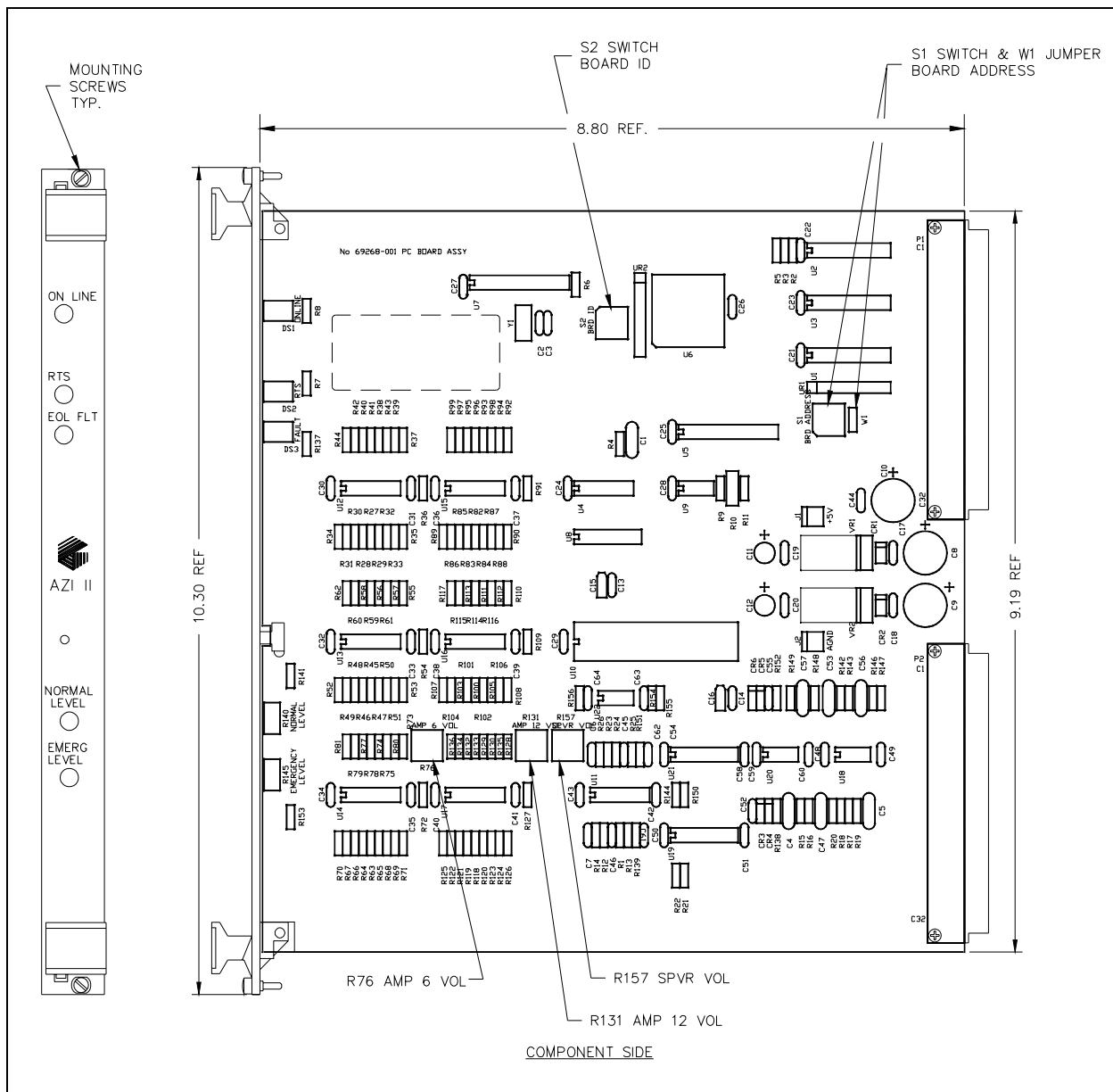


Figure 1. The Amplifier Zone Interface II PCBA - 69268-001

Interfaces

Figure 2 illustrates the location, method of connection, and part numbers associated with the installation of the AZI II board.

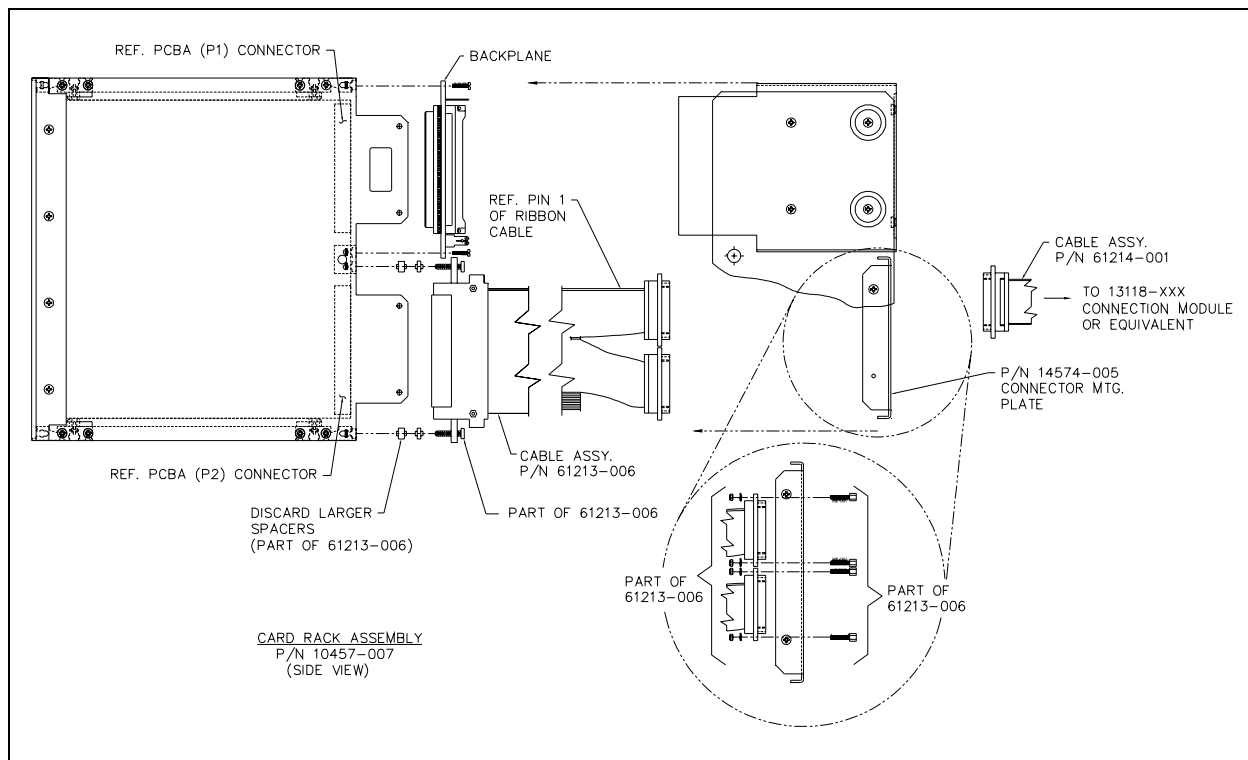


Figure 2. AZI II PCBA (69268-001) Interfaces

P1

P1 interfaces the AZI II board to the backplane on the 10457 Series Card Rack. This connector provides the board's digital I/O as well as power input. In addition, all of the audio buses are interfaced through P1.

P2

P2 provides an audio interface to support up to 12 central amplifiers. It also provides an RS485 interface to enable communication with external Snaptrack™ modules.

Installation/Replacement

Warnings: Please observe the following warnings, or damage to the equipment may result.



WARNING:
Observe precautions for
handling electrostatic
sensitive devices.



WARNING:
Disconnect power
to the card rack
prior to installation.

1. Remove the AZI II board from its carton. Ensure that power is disconnected from the card rack assembly.
2. Before installation, set hex switch S1 (Board Address) and hex switch S2 (Board ID) as shown in the system manual.
 - The valid range of Board IDs is: 0x1 to 0xE (hex)
 - The valid range of Board Addresses is: 0x200 to 0x3F0 (hex)
The following is an example of a Board Address and how it is derived:
Sample Board Address: 2 E 0
 - The first digit must always be either a 2 or a 3. This corresponds to whether W1 is installed (2), or is removed (3).
 - The second digit is set by switch S1. It is a hexadecimal number ranging from 0 to F.
 - The third digit is always zero.
3. Remove existing AZI II board from card rack assembly.
4. Align the new AZI II board into the upper and lower tracks for the slot.
5. Slide the card towards the rear of the card rack assembly until the board comes in contact with the backplane connector.
6. Firmly press on the front bezel until the board is seated.
7. Secure the board to the card rack assembly by tightening the two screws located on the front bezel. (See Figure 1.)

8. Apply power to the card rack assembly. You can expect to see the following responses on the AZI II board:

These responses are summarized in the table below:

LED	Color	LED State	Condition
ON-LINE	Green	On/Off	After a brief delay, the ON-LINE LED illuminates. On indicates AZI II board is powered and recognized by MCU.
RTS	Yellow	Flashes	The RTS LED begins flashing continuously if external modules are configured to communicate with the AZI II board. Flashing indicates that the AZI II board is transmitting data via RS485. (The LED is <u>on</u> when transmitting, and <u>off</u> when not transmitting. The rapid switching between these two conditions results in flashing.)
EOL FAULT	Red	On/Off	The EOL FAULT LED does NOT illuminate if all the end-of-line (EOL) external modules are responding to the AZI II Board. ON indicates an EOL device is not responding. LED is extinguished when all EOL devices respond to MCU.

9. Verify the AZI II Board properly routes audio and communicates with the external devices as indicated in the system manual.
10. Adjust the normal level during a period when audio is routed via the AZI II board and **normal** volume level is selected by the MCU. The volume control labeled **NORMAL LEVEL** is located on the AZI II front bezel. Rotate clockwise to increase the normal level.
11. Adjust the emergency level during a period when audio is routed via the AZI II board and **emergency** level is selected by the MCU. The volume control labeled **EMERGENCY LEVEL** is located on the AZI II front bezel. Rotate clockwise to increase the emergency volume.
12. Specific audio levels for the Amplifier 6 output and the Amplifier 12 output can be set independently from the remaining ten amplifiers. If they are used, adjust the audio output levels of Amplifier 6 and Amplifier 12 while audio is routed via the AZI II board. There are two user adjustments labeled as **AMP 6 VOL** and **AMP 12 VOL** on the AZI II board. Rotate the corresponding volume control clockwise to increase volume.
13. Specific audio level for the supervisory tone can be adjusted for all amplifiers simultaneously. R157 can be used to raise or lower the supervisory tone level. Rotating the pot clockwise will increase the level.
14. The start-up and check-out are now complete.

Troubleshooting Reference Table

Status/ Message	Possible Cause	Suggested Action
On-Line LED does not illuminate.	1. Power is not applied to the AZI II board.	• Verify power to the card rack assembly. • Verify the AZI II board is properly seated in the card rack. • Call for service.
	2. A component failure has occurred.	• Replace the AZI II board. • Call for service.
	3. Board is not in the configuration.	• Verify the proper board ID and board address settings on the AZI II board. • Verify MCU is configured as specified in system manual. • Call for service.
RTS LED does not flash.	1. No external devices are configured.	• Verify MCU is configured as specified in system manual. • Call for service.
	2. A component failure has occurred.	• Replace the AZI II board. • Call for service.
EOL fault LED is illuminated.	An end-of-line (EOL) external module is not reporting.	• Verify the connection between the AZI II P2 connector and its mating connector in the card rack assembly. • Verify the connection between the P2 connector and all the EOL external modules. • Verify power to all the external modules. • Verify the module addresses of the EOL external modules are set properly. • Verify the EOL resistor is installed. • Verify the MCU is configured as specified in system manual. • Call for service.
No difference in volume detected between normal and emergency volume levels.	NORMAL LEVEL and/or EMERGENCY LEVEL volume control(s) improperly set.	• Adjust the NORMAL LEVEL and/or EMERGENCY LEVEL volume control(s) until the desired levels are obtained. • Call for service.
Supervisory tone level is too low in all zones.	Supervisory tone volume (SPVR VOL) control is set too low.	Rotate supervisory tone volume control, SPVR VOL, to increase volume level.

Status/ Message	Possible Cause	Suggested Action
No audio in any zones.	1. The audio path is impaired.	• Verify the connection between the AZI II's P2 connector and its mating connector in the card rack assembly. • Verify the connection between the P2 connector and the affected zones. • Verify proper operation of the central amplifiers. • Verify the connection between the central amplifiers and their corresponding speakers. • Call for service.
	2. Volume set too low.	• Rotate NORMAL LEVEL and/or EMERGENCY LEVEL volume control(s) clockwise to increase volume level(s). • Call for service.
	3. MCU configuration is not correct.	• Verify the proper MCU configuration as listed in system manual. • Call for service.
No audio in a specific zone.	1. The audio path is impaired.	• Verify the connection between the AZI II Board's P2 connector and its mating connector in the card rack assembly. • Verify the connection between the P2 connector and the affected zones. • Verify proper operation of the corresponding central amplifier. • Verify the connection between the corresponding central amplifier and its associated speakers. • Call for service.
	2. AMP 6 VOL and/or AMP 12 VOL volume controls are set too low.	• Rotate AMP 6 VOL and/or AMP 12 VOL volume control(s) clockwise to increase volume level. • Call for service.
	3. MCU configuration is not correct.	• Verify the proper MCU configuration as listed in system manual. • Call for service.
Audio level is too low at Amplifier 6 or Amplifier 12.	AMP 6 VOL and/or AMP 12 VOL volume controls are set too low.	• Rotate the AMP 6 VOL and/or AMP 12 VOL volume control(s) clockwise to increase volume level. • Call for service.

Operation

The MCU controls the operation of the AZI II board in accordance with the parameters setup in the system configuration. Refer to system manual for AZI II board configuration.

Accessories

Part Number	Description
61213-006	Cable Assembly, 64 DIN to D-Sub

Specifications

Electrical

Power requirements	+5 V dc, +12 V dc, -12 V dc (from backplane)
Current draw (quiescent).....	Nominal 140 mA @ +5 V dc 90 mA @ +12 V dc 80 mA @ -12 V dc
Connections.....	2 × 64-pin DIN connectors
Audio input	1.5 V _{RMS} nominal
Audio output adjustment range (no attenuation, @ 1 kHz)	0.078–2.0 V _{RMS} nominal (10M-ohm load) 0.039–1.0 V _{RMS} nominal (600-ohm load)
Audio output adjustment range (Amplifiers 6 and 12, @ 1 kHz)	34 dB
Supervisory tone adjustment range	0.18–2.0 V _{RMS} nominal (600-ohm load)
Output impedance (Amplifiers 1–12, @ 1 kHz)	600 ohms
Frequency response.....	DC–31 kHz (+0/–3 dB reference to 1 kHz) (Supervisory Tone) DC–8 kHz (+0/–3 dB referenced to 1 kHz) (Fail-safe Tone) 16 Hz–8 kHz (+0/–3 dB referenced to 1 kHz) (All other audio inputs)
Distortion	Less than 0.5% THD @ 1 kHz
Front bezel LED indicators	ON-LINE RTS EOL FAULT
Front bezel controls.....	NORMAL LEVEL EMERGENCY LEVEL
Additional Controls.....	AMP 6 VOL AMP 12 VOL SPVR VOL

Environmental

Temperature range (operating/storage)..... +32° F to +122° F (0° C to +50° C)

Humidity 95% non-condensing relative humidity

Mechanical

Unit dimensions 10.30 H × 0.78 W × 9.07 D inches

Unit weight..... 1.2 lbs. maximum

Approval

CE Mark

Reference Material

ASSEMBLY/MODEL DRAWINGS

Published by	Title	GAI-Tronics Ref. No.
GAI-Tronics	Amplifier Zone Interface II PCBA 69268-001 Assembly Dwg	72053

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.