



GAI-TRONICS®
A HUBBELL COMPANY

Model 12594-001 Redundant AZI Switching Module

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General Information

The Model 12594-001 Redundant AZI Switching Module is designed to provide connection for a primary and a secondary AZI card when redundant circuits are required in GAI-Tronics ADVANCE cabinets or other audio switching applications. The module controls audio line switching from the AZI cards to amplifier inputs. Each module is capable of switching six audio lines. The switching action is controlled by an external contact closure.

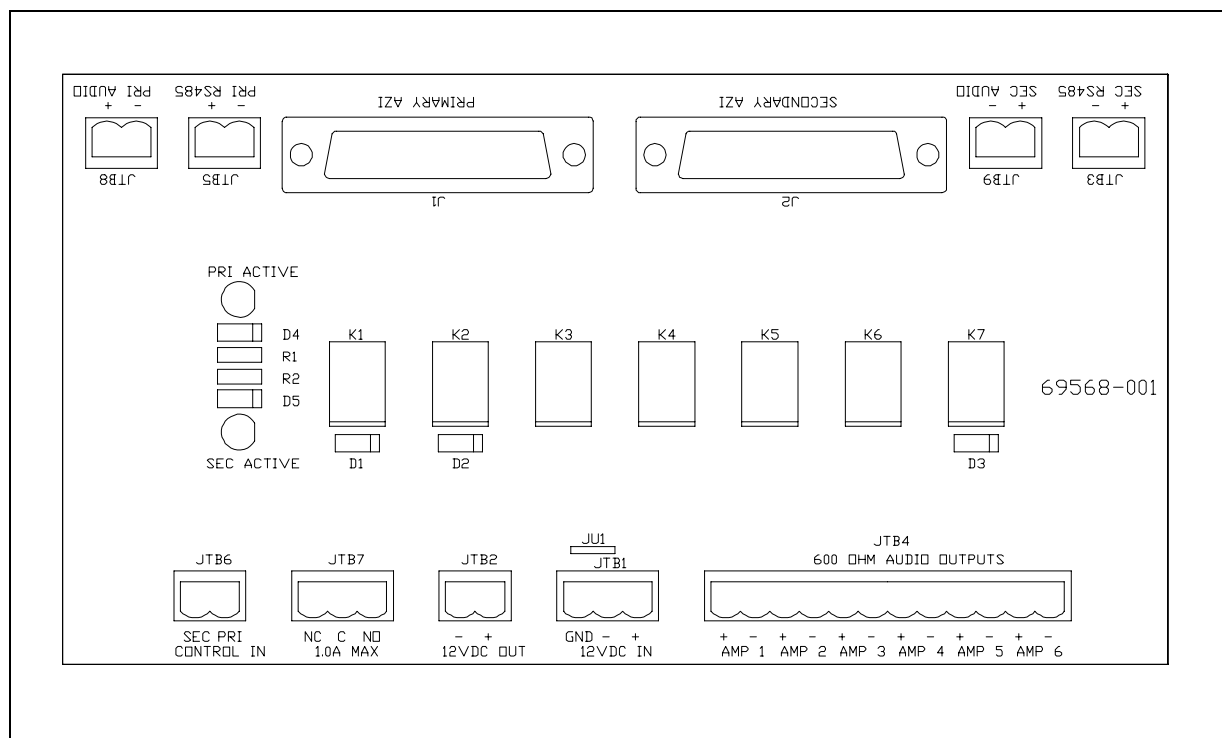


Figure 1. Model 12594-001 Redundant AZI Switching Module

Installation

 **CAUTION**  **When installing or replacing this module, be sure power is not applied to avoid damage to the module circuits.**

The Model 12594-001 Redundant AZI Switching Module is designed for mounting in 4-inch Snap Trak[®]. When inserting the module in SnapTrak[®], exercise care when pressing on the module edges to avoid damage to the module's printed circuit board and components.

Once installed in the SnapTrak[®], be sure the module edges are secured in the channels so that the module does not dislodge during transport or operation if subjected to vibration. Also, if this module is used with other modules in the SnapTrak[®], be sure to leave spacing between modules to facilitate wiring at any edge-mounted terminal blocks.

Terminations

The following is a description of the available terminations:

- J1** – is the primary AZI card connection; a cable with a 25-pin “D-Sub” connector is required.
- J2** – is the secondary AZI card connection; a cable with a 25-pin “D-Sub” connector is required.
- JTB1** – is the 12 V dc power input to the module.
- JTB2** – is a feed-through 12 V dc power output to other modules.
- JTB3** – is the secondary RS-485 data connection.
- JTB4** – is for the six switched, audio outputs.
- JTB5** – is the primary RS-485 data connection.
- JTB6** – are the control inputs to the module to activate the relays to switch between primary and secondary AZI cards when a fault occurs. Activation at either input requires dc (-) control.
- JTB7** – is the Form “C” dry contact output, which can be used to activate other devices or for remote status indication. The maximum switching capacity for the contact set is 30 V dc @ 1 amp.
- JTB8** – is an auxiliary audio output connection from the AMP-6 output of the primary AZI card that can be used to supply audio signals to other devices, if needed.
- JTB9** – is an auxiliary audio output connection from the AMP-6 output of the secondary AZI card that can be used to supply audio signals to other devices, if needed.

The following is a summary of each connector and terminal block function(s):

J1 - Primary AZI Card (25-pin D-Sub)	
Pin No.	Function
1 & 14	RS-485 Data
5 & 18	Audio line #1
6 & 19	Audio line #2
7 & 20	Audio line #2
8 & 21	Audio line #4
9 & 22	Audio line #5
10 & 23	Audio line #6
2-4, 11-13, 15-17, 24-25	Spare - No connection

J2 - Secondary AZI Card (25-pin D-Sub)	
Pin No.	Function
1 & 14	RS-485 Data
5 & 18	Audio line #1
6 & 19	Audio line #2
7 & 20	Audio line #2
8 & 21	Audio line #4
9 & 22	Audio line #5
10 & 23	Audio line #6
2-4, 11-13, 15-17, 24-25	Spare - No connection

JTB1 - 12 V dc Power Input	
Terminal No.	Function
1	12 V (+)
2	12 V (-)
3	GND

JTB2 - 12 V dc Power Output	
Terminal No.	Function
1	12 V (+)
2	12 V (-)

JTB3 - Secondary RS-485 data line	
Terminal No.	Function
1	Data (-)
2	Data (+)

JTB5 - Primary RS-485 data line	
Terminal No.	Function
1	Data (+)
2	Data (-)

JTB4 - Audio Outputs	
Terminal No.	Function
1 & 2	Audio Line #6
3 & 4	Audio Line #5
5 & 6	Audio Line #4
7 & 8	Audio Line #3
9 & 10	Audio Line #2
11 & 12	Audio Line #1

JTB6 - Switching Control Inputs	
Terminal No.	Function
1	Primary Control Line
2	Secondary Control Line

JTB7 - Relay Contact Output	
Terminal No.	Function
1	Normally Open
2	Common
3	Normally Closed

JTB8 - Primary Audio Output #6	
Terminal No.	Function
1	Audio (+)
2	Audio (-)

JTB9 - Secondary Audio Output #6	
Terminal No.	Function
1	Audio (-)
2	Audio (+)

Operation

The module has essentially two modes of operation, normal and fault. Each mode is described in detail below.

Data line terminals JBT3 and JBT5 are not affected by the module's switching action. They are simply pass-through terminals for the RS-485 data lines from the AZI card connectors. JTB3 connects to the Secondary AZI card (J2) and JTB5 connects to the Primary AZI card (J1).

Audio line terminals JBT8 and JBT9 are not affected by the boards switching action. They are simply pass-through terminals for the audio line #6 from the AZI card connectors. JTB8 connects to the Primary AZI card (J1) and JTB9 connects to the Secondary AZI card (J2).

Normal Condition

All relays on this module are de-energized. The Primary AZI card's audio (J1) is connected to audio output terminals (JTB4). The Secondary AZI card's audio (J2) is disconnected from the audio output terminals (JTB4).

Fault Condition

A fault condition is signaled by connecting either terminal of JBT6 to 12 V dc (-). LED1 (Pri-Active) or LED2 (Sec-Active) illuminates to indicate the active input. In an ADVANCE system application, these inputs are active if a primary MCU or primary AMI fault occurs. The control signal input is supplied by an external relay contact.

When activated, relays K1–K7 are energized. Relay K1 contacts are wired to JBT7 and will change state for the duration of the active condition. Relays K2–K7 switch the Secondary AZI card's audio (J2) to the audio output terminals (JTB4). The Primary AZI card's audio (J1) is disconnected from the audio output terminals (JTB4).

Maintenance

If the module requires service, contact your Regional Service Center for a return authorization number (RA#). The module should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the module is under warranty, repairs or a replacement will be made in accordance with GAI-Tronics' warranty policy. 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.

Troubleshooting

Problem	Solution
No audio from output terminals	<ul style="list-style-type: none"> • Verify ribbon cables at J1 and J2 on the module are properly connected to AZI cards at designated card racks. • Verify amplifiers are connected to the correct outputs along with proper polarity at JTB4. • Verify primary and secondary MCU cards contain correct software configurations to output audio at designated AZI amplifier outputs.
Module LEDs do not illuminate and relays do not switch when input control is provided.	<ul style="list-style-type: none"> • Verify 12 V dc power is applied to the module. • Verify 12 V dc (-) is being switched to the PRI and/or SEC inputs at JTB6.
Module still does not function after all checks described in this section.	Contact GAI-Tronics service for repair or replacement of the module in accordance with the information provided on this page.

Specifications

Electrical

Power requirements	10–14 V dc (12 V dc @ 91.5 mA nominal)
Number of control inputs	2
Number of fault outputs	1
Fault output type	Form “C” dry contact
Fault output contact rating	1 A maximum @ 30 V dc

Connections

25-Pin “D-Sub”	2
Modular (plug-in) terminal blocks	9
Minimum terminal block conductor size	No. 28 AWG (0.5 mm ²)
Maximum terminal block conductor size	No. 12 AWG (3.0 mm ²)

Mechanical

Module dimensions	7.50 L × 4.00 W × 1.44 H inches (190.5 × 101.6 × 36.6 mm)
Module weight	0.38 lbs. (0.17 kg)

Environmental

Temperature range (operating/storage)	-4° F to 158° F (-20° C to 70° C)
Humidity	85% non-condensing relative humidity

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.

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