GAI-TRONICS®
A HUBBELL COMPANY

69255-001
Page/Party® Interface PCBA

Confidentiality Notice

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General Information

NOTE: If the 69255-001 Page/Party® Interface (PPI) is being added to an existing installed system, the GAI-Tronics Service Department must be contacted to modify the system configuration. If the PPI is being used as a replacement part, proceed as described herein.

The 69255-001 Page/Party® Interface (PPI) is a printed circuit board assembly (PCBA) used to interface Page/Party® field equipment to the 69254 Series or 69440 Series Master Control Unit (MCU). The PPI PCBA is housed in a 10457 Series Card Rack with the MCU and other associated PCBAs. For each Page/Party® zone or control area that exists in a system, one PPI is required.

How to Use the Assembly

The 69255-001 PPI includes the following features and capabilities:

- Communication with external GAI-Tronics field devices via RS485 or FSK
- Provides page line switching to the backplane page resources
- Provides monitoring capability of the Party Line 1 to a local speaker
- Supports Party Line 1 and Party Line 2 on/off hook detection
- Provides ground fault detection on page line and the Party Line 1
- Provides for fail-safe path
- Self check path diagnostics
- The PPI provides two modes of operation:
    − Interfacing the MCU to the Page/Party® zones
    − Interfacing the MCU to the control area Page/Party® stations and external GAI-Tronics modules

Functions of Mode One – Zone Interface

- Performs audio switching to transmit from the 33-ohm page line to one of two 1000-ohm differential backplane page resources

- Allows page line audio to drive a differential page monitor bus on the backplane

- Provides a 2400-baud FSK modem that operates over the 33-ohm page line

- Detects both Page line and Party line ground fault detection (less than 5000 ohms)

- Detects off hook conditions on both party lines (less than 120-ohms across L1 and L2)

- Allows party line switching from the 33-ohm party lines to the 33-ohm backplane

- Receives one external dry contact closure input

- Provides one output to drive an external relay for special applications

Functions of Mode Two - Control Area

Mode Two includes all of the functions of Mode One excluding FSK communication plus the following:

- Allows the Party Line 1 backplane resource to drive the 33-ohm page line in the control area

- Provides an RS-485 link to external GAI-Tronics modules
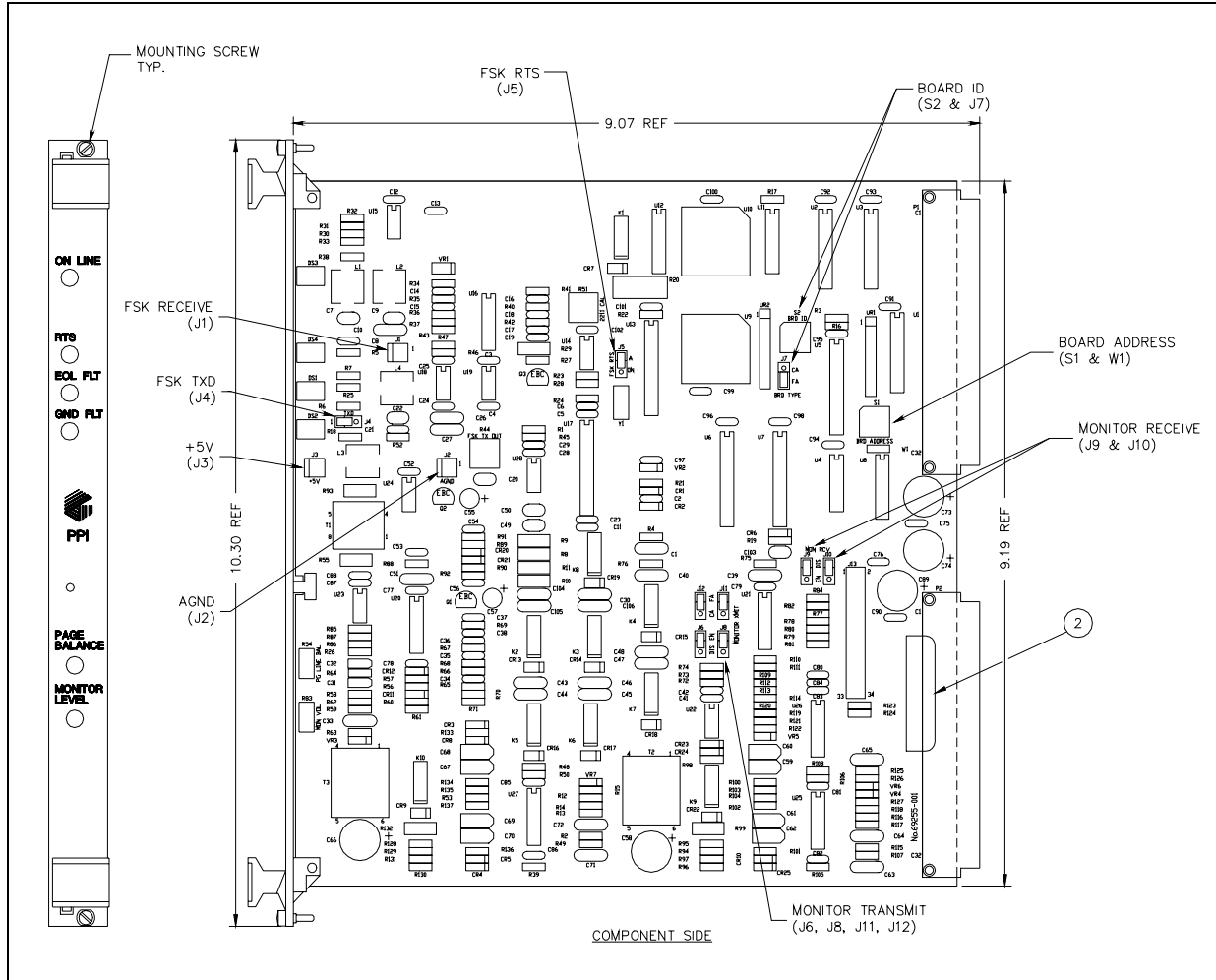
Hardware Configuration

Figure 1. 69255-001 PCBA

Interfaces

REF. PCBA (P1) CONNECTOR
BACKPLANE
REF. PIN 1 OF RIBBON CABLE
CABLE ASSY. P/N 61214-001
TO 13118-XXX CONNECTION MODULE OR EQUIVALENT
P/N 14574-005 CONNECTOR MTG. PLATE
REF. PCBA (P2) CONNECTOR
CABLE ASSY. P/N 61213-006
PART OF 61213-006
DISCARD LARGER SPACERS (PART OF 61213-006)
PART OF 61213-006
PART OF 61213-006
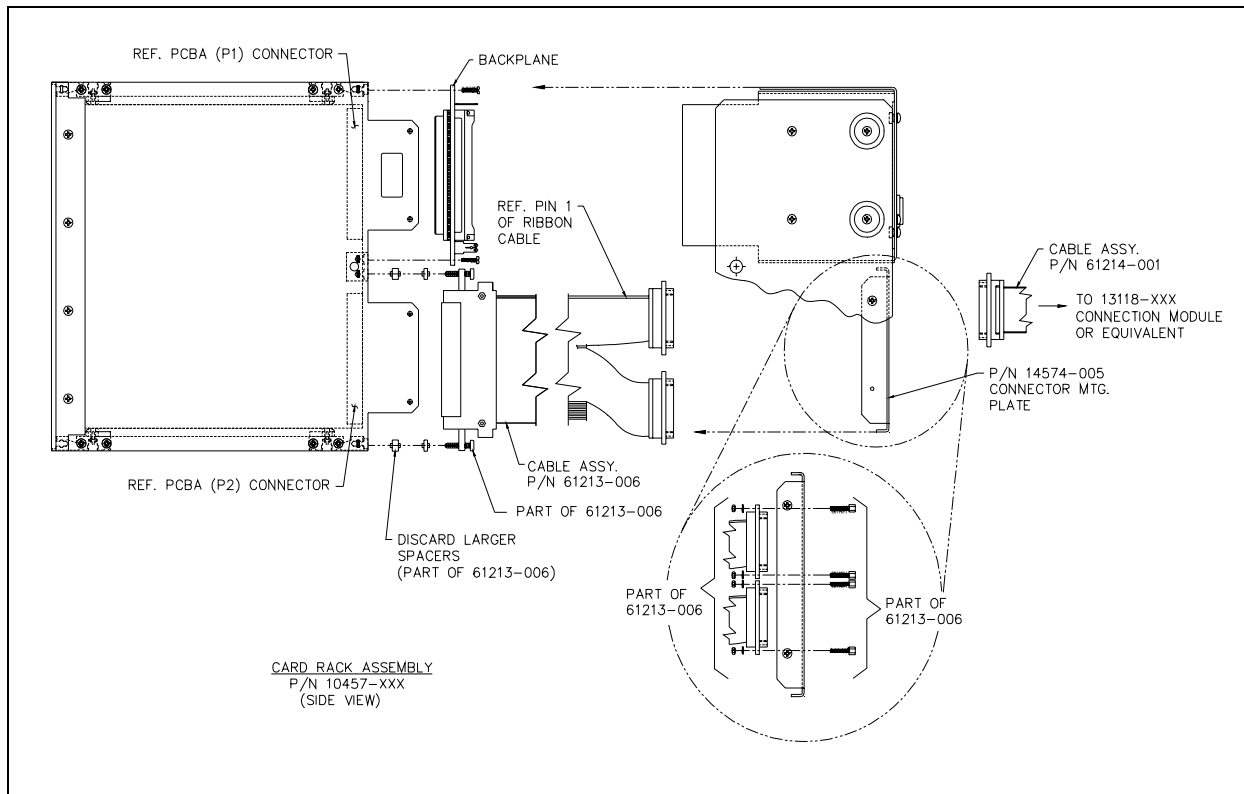CARD RACK ASSEMBLY P/N 10457-XXX (SIDE VIEW)

Figure 2. 69255-001 Interfaces

All interfaces are provided through P2 on the 69255-001 PPI PCBA and include the following:

- Page Line
- Party Line 1
- Party Line
- Contact Closure
- RS-485 Line
- External Relay Control

Installation/Replacement

WARNING: Failure to observe warnings may result in equipment damage.

WARNING: Observe Precautions For Handling Electrostatic Sensitive Devices

WARNING: Disconnect Power To The Card Rack Prior To Installation

1. Remove the 69255-001 PPI from its carton. Be sure to check that power is disconnected to the card rack assembly prior to replacement.

2. Set hardware jumpers per the system manual and as described below. See Figure 1 for details.

Address/PCBA ID:

- Hex switch (S1) and jumper W1 set the PCBA address
- Jumper J7 sets extended PCBA ID
- Hex switch (S2) sets the PCBA ID number
- For PPIs 1-14, short pins 2 and 3 of jumper J7.
- For PPIs 15 and 16, short pins 1 and 2 of jumper J7.
- Valid PCBA ID's are: 01-0E, and 11-12[hex]

PCBA ID Example:

	PCBA ID	*0*	*A*	*(hex)*
		/	/	
Equals 0 when J7 pins 2 and 3 are shorted	----/		/	*Set by switch S2*
Equals 1 when J7 pins 1 and 2 are shorted	----/			

- Valid PCBA addresses are: 0x0200-0x03F0 [hex]

Address Example:

	Address	*2*	*E*	*0*	*(hex)*
		/	/	*Fixed*	
		/	/	*Set by switch S1*	
Equals 2 when W1 is installed ------/					
Equals 3 when W1 is removed-------/					

Monitor Transmit: To transmit audio to the monitor bus

Relocate jumpers J6 and J8 to the Monitor Transmit Enable "EN" position (short pins 1 and 2) and jumpers J11 and J12 to the Monitor Transmit "FA" position (short pins 1 and 2). Also, relocate jumpers J9 and J10 to Monitor Receive Disable "DIS" position (short pins 1 and 2).

Monitor Receive: To monitor audio from the monitor bus

Relocate jumpers J6 and J8 to the Monitor Transmit Disable "DIS" position (short pins 2 and 3) and jumpers J11 and J12 to the Monitor Transmit "CA" position (short pins 2 and 3).
Also, relocate jumpers J9 and J10 to the Monitor RCV Enable "EN" position (short pins 2 and 3).

3. Remove existing PPI from card rack assembly.

4. Install the replacement PPI as described below.

    Align the PCBA into the upper and lower tracks of the assigned slot. Slide the PCBA towards the rear of the card rack until it comes in contact with the backplane connector. Firmly press on the front bezel until the PCBA is seated. Secure to the card rack by tightening the two screws located on the front bezel (See Figure 1).

5. Apply power to card rack assembly.

6. After a brief delay, the On Line LED on the PPI will illuminate.

7. The RTS LED flashes continuously if SmartSeries stations are configured to communicate with the PPI.

8. The EOL FAULT LED will NOT illuminate. This LED only illuminates when an End-of-Line (EOL) device is not responding to the PPI.

9. The GND FAULT LED will NOT illuminate. The LED only illuminates when a GND fault is present on the page line or Party Line 1.

LED	Condition
EOL Fault	An end-of-line station is not responding
Ground Fault	One conductor of either the page line or Party Line 1 is grounded
On Line	Page/Party® Interface PCBA is recognized by the MCU
RTS	Data Communication request to send

10. Set the page line balance adjustment as described below:

Page Balance

The Page Balance is used to set the line loading of the page zones page line. After all stations are connected to the card, the Page Balance is set. Use a station connected directly to the PPI. Squeeze the pressbar on the handset and blow steadily into the mouth piece. Listen to the sidetone in the receiver. Adjust the Page Balance until a minimal side tone is obtained in the receiver. The Page Balance does not require readjustment unless 10 or more stations are added to the zone.

NOTE: If a handset station is not available for use as indicated above, perform the following steps:

- Connect a true impedance meter to the page line of the appropriate PPI.
- Adjust the line balance potentiometer to a reading as close to 33 ohms as possible

11. Set the monitor level adjustment, if used:

Monitor Level

The Monitor Level can be adjusted during system start-up. This is required <u>only</u> if the Monitor Receive has been selected during the jumper configuration. Have an individual go to the nearest Page/Party® Station and talk on the Page Line. Adjust the Page Monitor until the desired level is achieved.

12. Verify that the PPI properly routes audio and communicates with the external devices as indicated in the system manual

Operation

The operation of the PPI is controlled by the MCU. See the MCU configuration details in the system manual for all PPI operational information.

Troubleshooting

Status/Message	Meaning	Suggested Action
On-Line LED does not illuminate	1. Power is not applied to the card	• Verify power is applied to the card rack • Verify the PPI is properly seated in the card rack • Call for service
	2. A component failure has occurred	• Replace the PPI with a spare • Call for service
	3. Card is not in the configuration	• Verify the proper Card Address and PCBA ID settings on the PPI • Verify proper MCU configuration • Call for service
RTS LED does not flash	1. No external devices are configured	• Verify proper MCU configuration • Call for service
	2. A component failure has occurred	• Replace the PPI with a spare • Call for service
EOL Fault LED is illuminated	The End-of-Line (EOL) station is not reporting	• Verify the connection between the PPI and the P2 connector • Verify the connection between the P2 connector and the external module • Verify power is applied to the external module • Verify the EOL station is installed • Verify the proper MCU configuration • Call for service
GND Fault LED is illuminated	A conductor on the page line or Party Line 1 is grounded	• Identify which conductor is grounded, by measuring the resistance to ground of each conductor. Then, remove ground from the associated conductor. • Call for service
No audio in the zone	1. The audio path is impaired.	• Verify the connection between the PPI and the P2 connector • Verify the connection between the P2 connector and the affected zones • Call for service
	2. MCU configuration is not correct.	• Verify the proper MCU configuration • Call for service
Receiver sidetone is high.	The page line balance needs adjustment	• Adjust the Page Balance • Call for service
Monitored audio levels are low.	The monitor level needs adjustment.	• Check the Monitor Receive jumper settings (J9 and J10). • Increase the Monitor Level adjustment • Call for service

Specifications

Electrical

Power requirements .... +5 V dc from backplane
+12 V dc from backplane
−12 V dc from backplane

Current draw ....Nominal +5 V, 135–420 mA
+12 V, 120 mA
−12 V, 75 mA

Connections... Two (P1, P2) × 64-pin DIN connectors

Inputs/outputs..Page Line, 33 ohms, 250–6000 Hz, 1.5 V_{RMS} nominal
Party Line 1, 33 ohms, 250–3500 Hz, 1.5 V_{RMS} nominal
Party Line 2, 33 ohms, 250–3500 Hz, 1.5 V_{RMS} nominal
RS-485 Line, dry contact closure input, normally open, maintained
External relay control output, 110 mA short circuit current

Data communications.. 2400 baud FSK modem/RS-485

Off hook detection .... Less than 120 ohms across Party Lines 1 & 2

Ground fault detection .... Less than 5000 ohms to ground for Page Line and Party Line 1

Output .... 1.5 V_{RMS} nominal into 33-ohm load

Frequency response.. 325-7000 Hz, +0, −3 dB ref. to 1 kHz

Distortion .... 1.5% max. THD @ 1 kHz

FSK output to line... 0.7 V_{RMS}, 2 Vp-p into 33-ohm load

FSK frequencies... 30.720 kHz (Mark)
32.914 kHz (Space)

Front Bezel Controls ....Monitor Speaker Level Adjustment
Page Line Balance Adjustment

Front Bezel LED Indicators

On Line (green - on/off)... Lit when operational

RTS (yellow - flashes) .... Indicates FSK or RS-485 transmission

EOL Fault (red - on/off)... Indicates no response from EOL station

Ground Fault (red - on/off) ....Indicates ground fault

Front Bezel Controls

Monitor Level ....Volume adjust for the Monitor Receive
0.5-1.8 V_{RMS} into 33Ω useable adjustment range (with 1.5 V_{RMS} across backplane)

Page Balance... Sets page line loading
15 to 115-ohm adjustment range

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 lb. max.

Approval

CE Mark

Accessories

GAI-Tronics P/N	Description
61213-006	Cable Assembly, 64 DIN to D-Sub

Reference to Assembly/Model Drawings

Published by	Title	GAI Tronics Ref. No.
GAI-Tronics	Page/Party® Interface PCBA Assembly Drawing	71939

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.