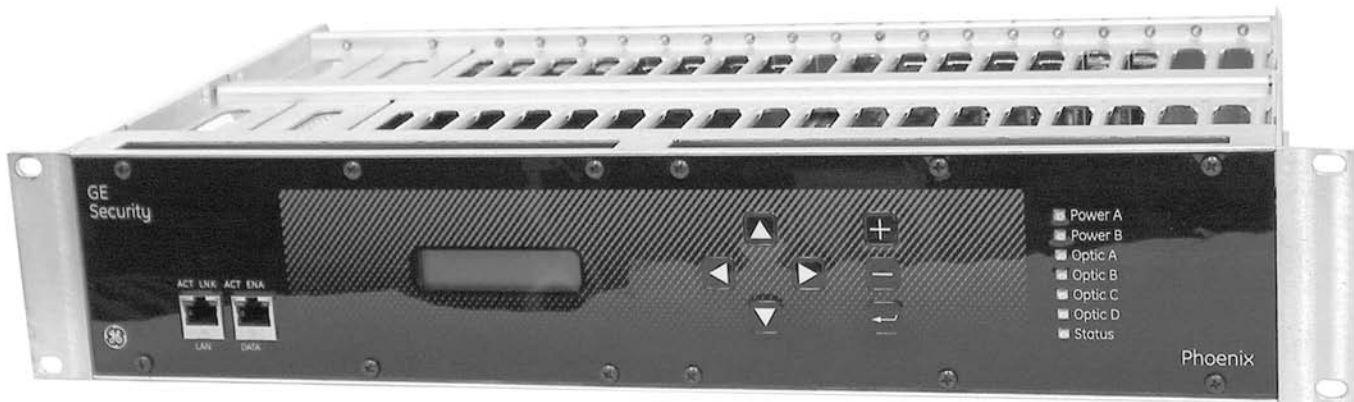


Phoenix Fiber Optic Communication System  
A8950CC

# installation instructions



imagination at work

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## Before You Begin

Read these instructions before installing or operating this product.

**Note:** This installation should be made by a qualified service person and should conform to local codes.

This manual provides installation and operation information.

To use this document, you must have the following minimum qualifications:

- A basic knowledge of CCTV systems and components
- A basic knowledge of electrical wiring and low-voltage electrical hookups

## Intended Use

Use this product only for the purpose for which it was designed; refer to the product specification and user documentation.

## Customer Support

For assistance in installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, please contact technical support during normal business hours (Monday through Friday, excluding holidays, between 6 a.m. and 5 p.m. Pacific Time).

### GE Security

Call: 888 437-3287 (US, including Alaska and Hawaii; Puerto Rico; Canada)

Outside the toll-free area: 503 885-5700

Fax: 561 998-6224

**Note:** You should be at the equipment and ready with details before calling Technical Support.

## Conventions Used in this Manual

**Boldface** or button icons highlight command entries. The following **WARNING**, **CAUTION**, and **Note** statements identify potential hazards that can occur if the equipment is handled improperly:



\* **WARNING:**

Improper use of this equipment can cause severe bodily injury or equipment damage.

---



\*\* **CAUTION:**

Improper use of this equipment can cause equipment damage.

---

**Note:** Notes contain important information about a product or procedure.

\* This symbol indicates electrical warnings and cautions.

\*\* This symbol indicates general warnings and cautions.

## Getting Started



### \*\* CAUTION:

This product contains ESD-sensitive components. Although all precautions have been made to reduce ESD susceptibility, use good grounding techniques when handling uninstalled modules.

## Overview

Installing the Phoenix chassis is a three-step process:

1. Install mounting hardware and power supplies.
2. Install modules and connect cabling.
3. Configure the system.

## Determine Mounting Hardware

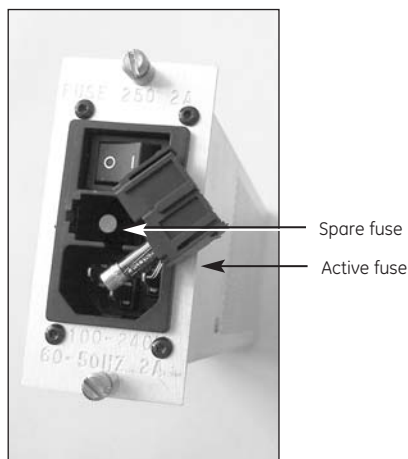
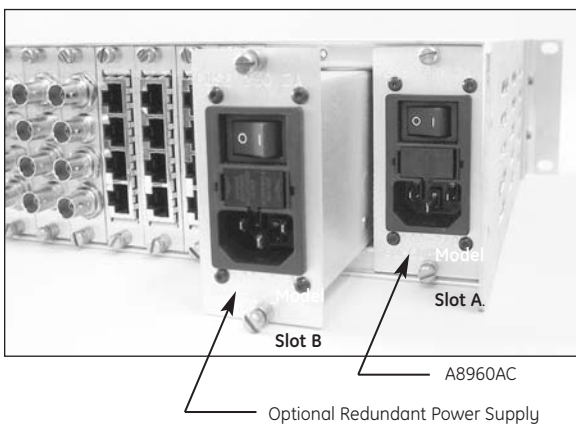
Mounting brackets are adjustable. Choose the best location to fit your application and position brackets using the supplied hardware. Remove screws holding front mounting bracket, move to top, bottom, back or front and refasten.

## Installing Power Supplies

All installation should be from rear of rack unit.

To install power supply, slide power supply in slot "A" and secure with hardware. Remove center support panel and use to cover open slot if redundant power supply is not used.

Optional Redundant Power Supply: When using the redundant power supply, remove panel and insert second power supply in slot "B" and secure.



## Specifications

Model	A8960AC
Size	1.65 in. W x 3.30 in. H x 8.00 in. D (42 x 84 x 203 mm)
Weight	1.25 lb. (5.67 g)

### Electrical

- Input power: 100 V to 240 V, 60 to 50 Hz
- Current requirement: 2 A
- Power consumption: 40 W
- Protection: 250 V, 2 A fuse

## Module Installation

The Optical Transceiver is the first module to be installed.

# Installing the Optical Transceiver Module

## Overview

The Phoenix optical transceiver module is used to provide connectivity to the fiber connections between nodes. The A8972FLC optical transceiver module contains a single optical transceiver with dual LC connectors and is used as an 'end node' in either a point to point, or linear system. The A8974FLC optical transceiver module features two optical transceivers with two dual LC connectors and is used in repeating nodes within a linear system as well as all nodes in a self-healing ring system.

## Tools and materials required

The optical module is held in place with simple thumbscrews with screwdriver slots. The only tool recommended is a small flat blade screwdriver.



**\* WARNING:**

Insure main power is off when installing or removing.

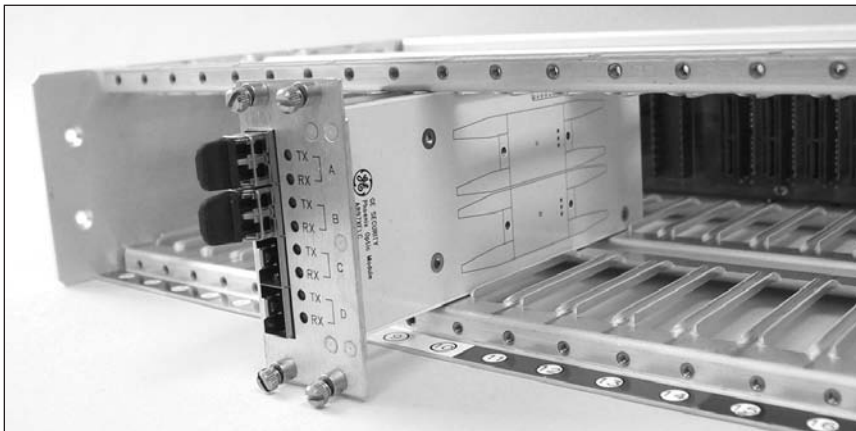
## Installation instructions:

**1. Install optical transceiver module in slots 9 and 10 (color-keyed white) and secure.**



**\*\* CAUTION:**

Use caution when inserting it into a slot adjacent to an existing module. It is best to install this module in your node first, to avoid potential damage to components on the back of this module.



**INSERT OPTICAL TRANSCEIVER MODULES IN SLOTS 9-10 (White)**

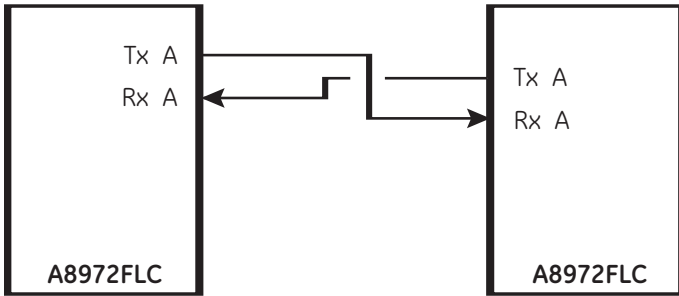
## 2. Connect fiber:

Connect single-mode fiber optic cables by using LC connectors. Each port connects to a pair of fibers. The top fiber in a port is the laser output (Tx) and the bottom fiber is the photo diode input (Rx). In a point-to-point system, connect the optic in port A from the first node to the optic in port A in the second node. Remember that the two fibers need to be crossed, so that the laser output on one node is connected to the photodiode input in the other node. This can be verified by observing the corresponding LEDs as shown in the table below.

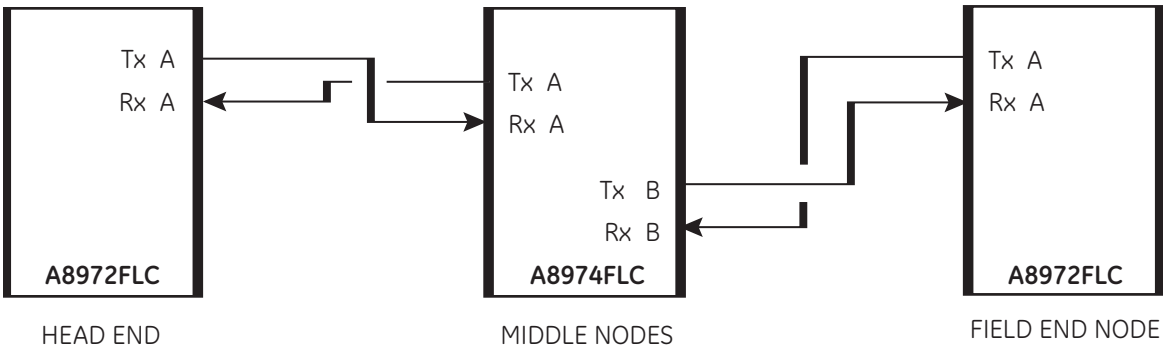
In a linear system, connect the fiber to Optic A in the end node (node with only one fiber transceiver) to Optic B in the subsequent node. Repeat until the 'headend' node is reached, where the fiber must go into Optic A .

In self-healing ring systems, simply connect Optic A from one node to Optic B on the next node, throughout the ring.

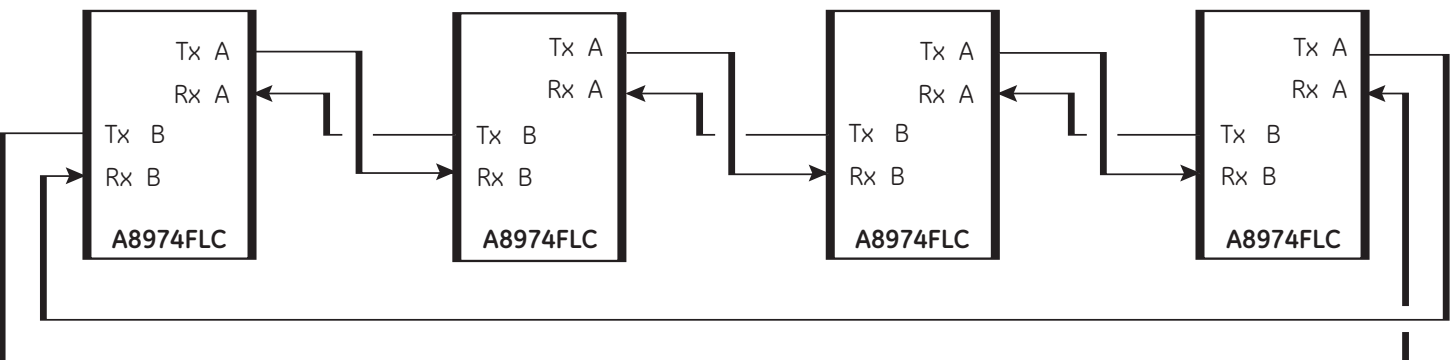
## Point-to-Point Connect



## Repeater Connect



## Self-Healing Connect



### 3. Verify fiber connectivity:

Using the LEDs on the back of the unit adjacent to the optic module, verify proper operation as shown in the table below. Both optical launch power and optical receive power, as well as transceiver status, can be verified from the LCD front panel.

## LED operating status

Optic LED		
Tx	RED	Indicates faulty LASER or no module installed
	OFF	LASER operating within specifications
Rx	GREEN	Indicates sufficient power received and frame synchronization
	OFF	Indicates insufficient optical power

# Installing the Data Module

## Overview

The Phoenix A8910MPD data module is capable of inserting/extracting 4 channels of multiprotocol serial data (MPD) per module. With a maximum of four cards per node, the system capacity is 16 channels. Each channel is capable of transmitting and receiving serial data throughout the Phoenix system. The card is not limited to any single data type so that various formats can be mixed on a single card. As with other GE Security MPD products, data translation capabilities are included.

## Tools and materials required

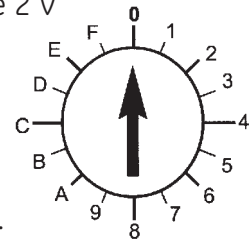
The data modules are held in place with simple thumbscrews with screwdriver slots. The only tool recommended is a small flat blade screwdriver.

## Installation instructions:

### 1. Configure data module:

Prior to installation, you must specify the appropriate data format using the rotary switches on the module. For each channel on the data module, rotate the dial switch to the desired format. If you want to select the data format from the front panel, leave the switch in position 0.

Setting	Mode	Setting	Mode
0	Software-selectable (factory preset)	8	RS-485 2-wire 2 V
1	RS-232 (3-wire)	9	RS-485 4-wire standard
2	RS-232 + handshake	A	RS-485 4-wire 1 V
3	TTL	B	RS-485 4-wire 2 V
4	RS-422 2-wire	C	Reserved
5	Manchester/biphase	D	Reserved
6	RS-485 2-wire standard/Sensornet	E	Reserved
7	RS-485 2-wire 1V	F	Test Mode



**NOTE:** The DATA SELECT switches are shipped in the Software-Selectable setting.

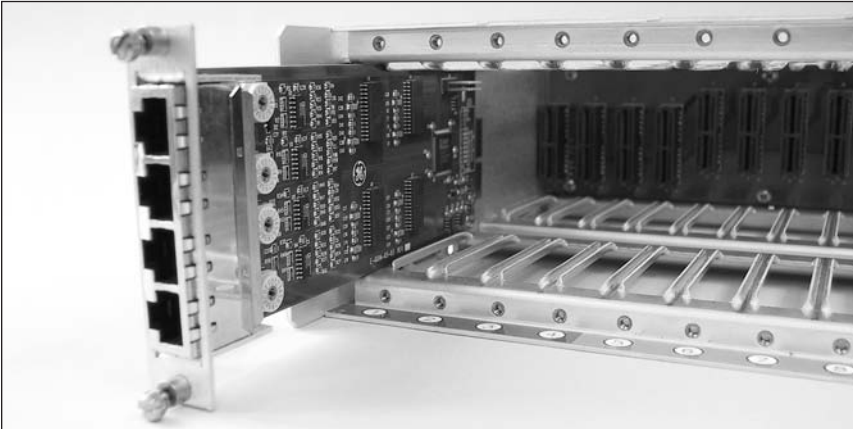
As with all GE Security MPD products, data translation can easily be accomplished using the table information below.

Translation	Input	Output	Comment
TTL → RS-232, 3-wire	3	1	Signal level conversion.
RS-232, 3-wire → TTL	1	3	Signal level conversion.
TTL → RS-422	3	4	Single ended to differential conversion.
RS-422 → TTL-wire	4	3	Differential to single ended conversion.
RS-232, 3-wire → RS-422	1	4	Single ended to differential conversion.
RS-422 → RS-232, 3-wire	4	1	Differential to single ended conversion.
RS-232, 5-wire → RS-485	2	7 - A	RS232 Handshaking bit is used to indicate Tri-state.
RS-485 → RS-232, 5-wire	7 - A	2	Tri-state detection circuitry activates handshaking bit.



## 2. Install data module:

Up to four data modules can be installed in the Phoenix node. From left, locate and insert data modules into slot 1, 2, 3, or 4 (color-keyed red) and secure.



**INSERT DATA CARDS IN SLOTS 1-4 (Red)**

## 3. Connect:

Each data module is shipped with (four) RJ45 cables and (four) breakout boxes to aid in connecting to the Phoenix. Use the tables below to determine pinout information for your application. GE Security recommends using shielded cable for all single ended applications and twisted shielded cable for all differential formats. Wire gauge is dependent on copper run length. Refer to manufacturer of data equipment for specific recommendations. Once the data equipment has been connected, confirmation of data activity can be verified on the front panel LCD.

The channel order is sequential, beginning with the top RJ45 in slot 1 as Channel 1, working vertically such that the bottom RJ45 in slot 1 is Channel 4, and the top RJ45 in slot 2 is Channel 5. This continues to the bottom RJ45 in slot 4, which is mapped to Channel 16.

Figure 1. Fiber Link Data Connections

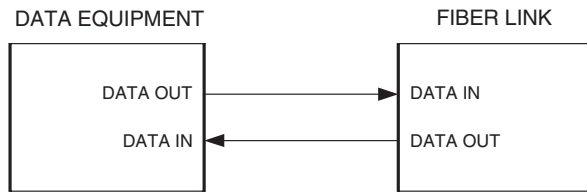


Figure 1. Terminal Block Pin Assignments

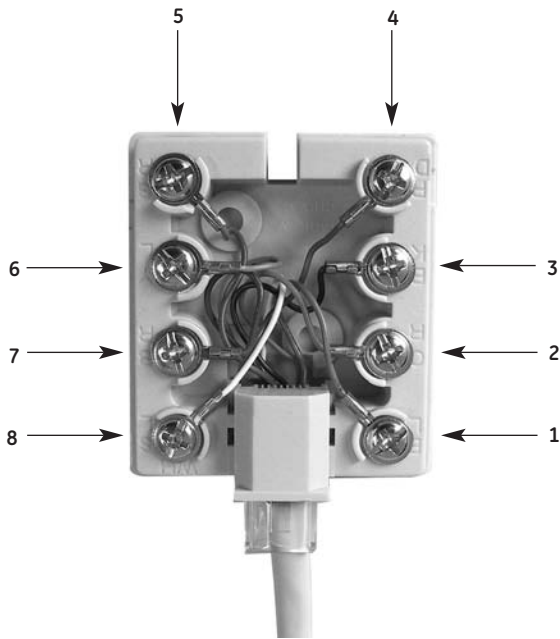


Figure 2. RJ45 Socket  
(Viewed from the rear of the unit)

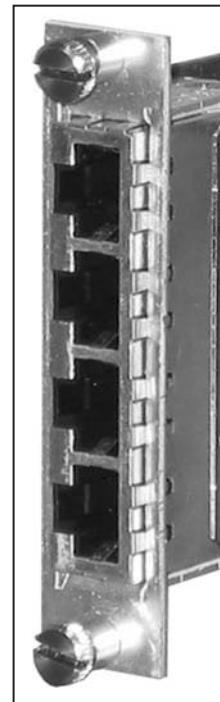


RJ45-A

RJ45-B

RJ45-C

RJ45-D



**Using the breakout box**

A breakout box with a 3' CAT 5 patch cord (supplied) can be used to interface to the Phoenix system. Pinouts are shown in the tables and figures above.

**NOTE:** When making data connections listed in Tables 3 through 11, always connect the pins labeled IN on the fiber unit to the pins labeled OUT on the external equipment, and the pins labeled IN on the external equipment to the pins labeled OUT on the fiber unit.

**TABLE 3: RS-232 INTERFACE**

DATA SELECT Switch: Position 1

Pin	Signal
1	RS-232 Out
2	N/C
3	GND/SHIELD
4	N/C
5	N/C
6	GND
7	N/C
8	RS-232 In

**TABLE 4: RS-232 WITH HANDSHAKING INTERFACE**

DATA SELECT Switch: Position 2

Pin	Signal
1	RS-232 Out
2	RTS/CTS Out
3	GND/SHIELD
4	N/C
5	N/C
6	GND
7	RTS/CTS In
8	RS-232 In

**TABLE 5: TTL INTERFACE**

DATA SELECT Switch: Position 3

Pin	Signal
1	N/C
2	TTL Out
3	GND/SHIELD
4	N/C
5	N/C
6	GND/SHIELD
7	TTL In
8	Tie to pin 6

**TABLE 6: RS-422 INTERFACE**

DATA SELECT Switch: Position 4

Pin	Signal
1	RS-422 Out (+)
2	RS-422 Out (-)
3	GND/SHIELD
4	N/C
5	Termination, tie to 8 if req'd.
6	GND/SHIELD
7	RS-422 In (-)
8	RS-422 In (+)

**TABLE 7: MANCHESTER/BIPHASE INTERFACE**

DATA SELECT Switch: Position 5

Pin	Signal
1	Manchester/Biphase Out (+)
2	N/C
3	Manchester/Biphase Out (-)
4	N/C
5	Termination, tie to 8 if req'd.
6	GND/SHIELD
7	Manchester/Biphase In (-)
8	Manchester/Biphase In (+)

**TABLE 8: RS-485 2-WIRE INTERFACE**

DATA SELECT Switch: Position 6 (<200mV),  
Position 7 (<1V), Position 8 (<2V)

Pin	Signal
1	N/C
2	N/C
3	GND
4	+5 VDC Bias Out
5	Termination, tie to 8 if req'd.
6	GND/SHIELD
7	RS-485 (-)
8	RS-485 (+)

**TABLE 9: RS-485 4-WIRE INTERFACE**

DATA SELECT Switch SW1:

Position 9 = standard offset

Position A = 1V offset

Position B = 2V offset

Pin	Signal
1	RS-485 Out (+)
2	RS-485 Out (-)
3	GND/SHIELD
4	+5 VDC Bias Out
5	Termination, tie to 8 if req'd.
6	GND/SHIELD
7	RS-485 In (-)
8	RS-485 In (+)

**TABLE 10: SENSORNET INTERFACE**

DATA SELECT Switch: Position 6

Pin	Signal
1	N/C
2	N/C
3	GND
4	N/C
5	Termination, tie to 8 if req'd.
6	GND/SHIELD
7	Sensornet (-)
8	Sensornet (+)

**TABLE 11: TEST MODE LOOPBACK INTERFACE**

DATA SELECT Switch: Position F

Pin	Signal
1	Tie to pin 8
2	Tie to pin 7
3	N/C
4	N/C
5	N/C
6	N/C
7	Tie to pin 2
8	Tie to pin 1

## Data module - channel sequence

	Slot 1	Slot 2	Slot 3	Slot 4
RJ45-A	Ch 1 IN/OUT	Ch 5 IN/OUT	Ch 9 IN/OUT	Ch 13 IN/OUT
RJ45-B	Ch 2 IN/OUT	Ch 6 IN/OUT	Ch 10 IN/OUT	Ch 14 IN/OUT
RJ45-C	Ch 3 IN/OUT	Ch 7 IN/OUT	Ch 11 IN/OUT	Ch 15 IN/OUT
RJ45-D	Ch 4 IN/OUT	Ch 8 IN/OUT	Ch 12 IN/OUT	Ch 16 IN/OUT

## Installing the Ethernet Module

### Overview

The Phoenix A8911ETH Ethernet module provides Ethernet connectivity to the Phoenix system. Each module has three RJ-45 ports supporting full-duplex 10/100Base-T interfaces. Each port also supports Auto-Negotiation and automatic MDI/MDI-X selection.

Unlike other modules used in the Phoenix system, the ethernet module does not use “channels”. Each slot position provides access to one of four independent Ethernet networks. Every port on a module can communicate with every other port on other modules connected to the same network (i.e. modules plugged into the same slot number at different nodes). There is no restriction to the number of modules connected to a network, however they must share bandwidth between nodes. Each network can sustain 25Mbps throughput between nodes.

**Note:** Ethernet is inherently a bi-directional communication protocol. Therefore all nodes in a Phoenix system with Ethernet modules must be connected with duplex fiber connections. Simplex connections between nodes will cause the network to fail.

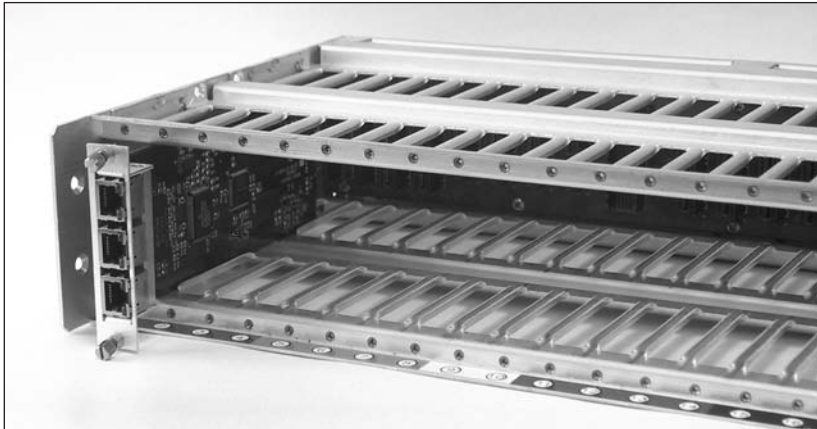
### Tools and materials required

The Ethernet modules are held in place with simple thumbscrews with screwdriver slots. The only tool recommended is a small flat blade screwdriver.

### Installation instructions:

#### 1. Install the Ethernet module:

Up to four Ethernet modules can be installed in the Phoenix node. From left, locate and insert Ethernet modules into slot 1, 2, 3, or 4 (color-keyed red) and secure.



INSERT ETHERNET MODULES IN SLOTS 1-4 (Red)

## **2. Connect:**

Connect Ethernet-capable equipment directly to the Ethernet module using CAT5 twisted-pair cables with male RJ-45 connectors at both ends. Do not use breakout boxes.

Standard CAT5 cabling used for Ethernet is available with either straight-through or crossover connections. Either variety may be used with the Ethernet module. The auto-MDI/MDI-X feature of each port automatically detects the type of cable connection to establish link.

## **3. Configure:**

At power-up, every port has Auto-Negotiation enabled. This should work seamlessly with most Ethernet equipment. However, if necessary, Auto-Negotiation, Link Speed and Duplex can be configured manually via the Phoenix chassis's front panel. Refer to the section Front Panel Menu Tree and Descriptions for more information.

## Installing the Video Module

### Overview

The Phoenix A8900VI input module is capable of inserting up to four baseband, composite video signals per card. A maximum of four cards can be installed in any node, allowing up to 16 inputs per node.

The Phoenix A8905VO output module is capable of outputting up to 4 base band, composite video signals per card. A maximum of four cards can be installed in any node, allowing up to 16 outputs per node.

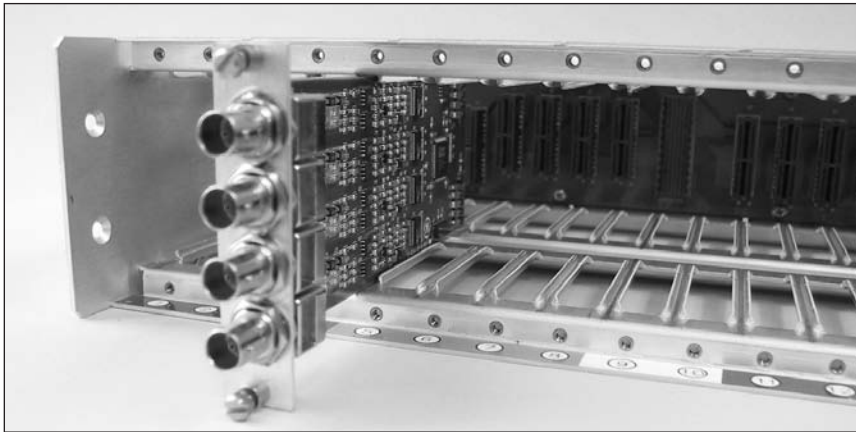
### Tools and materials required

The video modules are held in place with simple thumbscrews with screwdriver slots. The only tool recommended is a small flat blade screwdriver.

### Installation instructions:

#### 1. Install video input module:

As shown below, install video Input modules in slots 5, 6, 7, or 8 (color-keyed green) and secure. Up to four modules may be installed per Phoenix node. Up to four incoming video signals can be installed per module by connecting to BNC mounts (four) on each card.



INSERT VIDEO INPUT MODULES IN SLOTS 5-8 (Green)

#### 2. Install video output module:

As shown below, install video output modules in slots 11, 12, 13, or 14 (color-keyed blue) and secure. Up to four modules may be installed per Phoenix node. Up to four outgoing video signals for monitoring or recording can be installed per module by connecting to BNC mounts (four) on each card.



INSERT VIDEO OUTPUT MODULES IN SLOTS 11-14 (Blue)

## Connection instructions

### Video Inputs:

Connect video source equipment such as cameras or matrix switcher outputs to the video input modules using the BNCs on the back of the panel. Confirmation of video presence can be confirmed on the front panel LCD. The channel order is sequential, beginning with the top BNC in slot 5 as Channel 1, working vertically such that the bottom BNC in slot 5 is assigned Channel 4, and the top BNC in slot 6 is assigned Channel 5. This continues to the bottom BNC in slot 8, which is mapped to Channel 16.

### Video Outputs:

Connect video monitoring equipment including monitors and recording devices, to the video output cards using the BNCs on the back of the panel. Confirmation of video output can be confirmed on the front panel LCD. As with the inputs cards, the channel order is sequential, beginning with the top BNC in slot 11 as Channel 1, working vertically such that the bottom BNC in slot 11 is assigned Channel 4, and the top BNC in slot 12 is assigned Channel 5. This continues to the bottom BNC in slot 14, which is Channel 16.

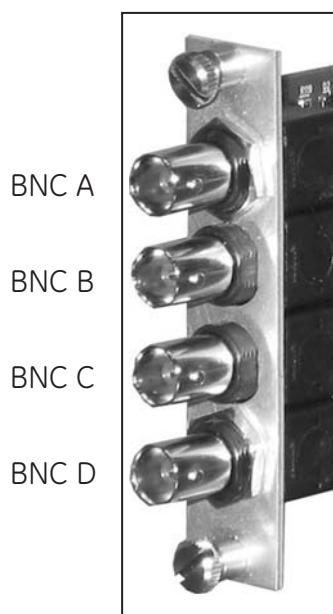


## Video Input module - channel sequence

	Slot 5	Slot 6	Slot 7	Slot 8
BNC A	Ch 1 IN	Ch 5 IN	Ch 9 IN	Ch 13 IN
BNC B	Ch 2 IN	Ch 6 IN	Ch 10 IN	Ch 14 IN
BNC C	Ch 3 IN	Ch 7 IN	Ch 11 IN	Ch 15 IN
BNC D	Ch 4 IN	Ch 8 IN	Ch 12 IN	Ch 16 IN

## Video Output module - channel sequence

	Slot 11	Slot 12	Slot 13	Slot 14
BNC A	Ch 1 OUT	Ch 5 OUT	Ch 9 OUT	Ch 13 OUT
BNC B	Ch 2 OUT	Ch 6 OUT	Ch 10 OUT	Ch 14 OUT
BNC C	Ch 3 OUT	Ch 7 OUT	Ch 11 OUT	Ch 15 OUT
BNC D	Ch 4 OUT	Ch 8 OUT	Ch 12 OUT	Ch 16 OUT



# Installing the Audio Module

## Overview

The Phoenix A8920A audio module is capable of inputting and outputting up to 4 audio channels. The audio module occupies one audio slot (color coded black) and with up to four slots available, each node has a capacity of 16 channels. The audio interface connector is four, ganged RJ45 connectors located on each card. The audio module supports an audio test pattern, similar to GE Security standards.

## Tools and materials required

The audio modules are held in place with simple thumbscrews with screwdriver slots. The only tool recommended is a small flat blade screwdriver.

## Installation instructions:

### 1. Configure audio module:

Prior to installation, the audio modules need to be configured for proper use in the system. Refer to the Fig. 1 and Fig. 2 for switch locations and settings.

**a. Input termination:** Input termination should be set depending on your system requirements. You can choose either high-impedance (default) or 600 ohm termination on an individual channel basis.

**b. Input range:** Based on the level of input signal you will be applying the specific channel, you may choose to modify the input range selection switches. By default, the switches are set to high range (+18dBu) and will transmit any audio signal within the specifications of the unit. If lower level input signals are expected, you may change the input range to low (+8dBu) to increase the overall signal to noise ratio. Clipping (distortion) however, will occur if input levels exceed +8dBu. Note that for each channel, two switches must be thrown to change the input range.

**c. Output range:** To normalize the system, you must switch the output range switch to the same setting as the CORRESPONDING input range switch. Note, this does not mean that the switches on the same board need to be the same, just that the switches at the input node, must match the switches at the output node. If multiple outputs are mapped (broadcast mode) than all outputs must be set to the same gain range.

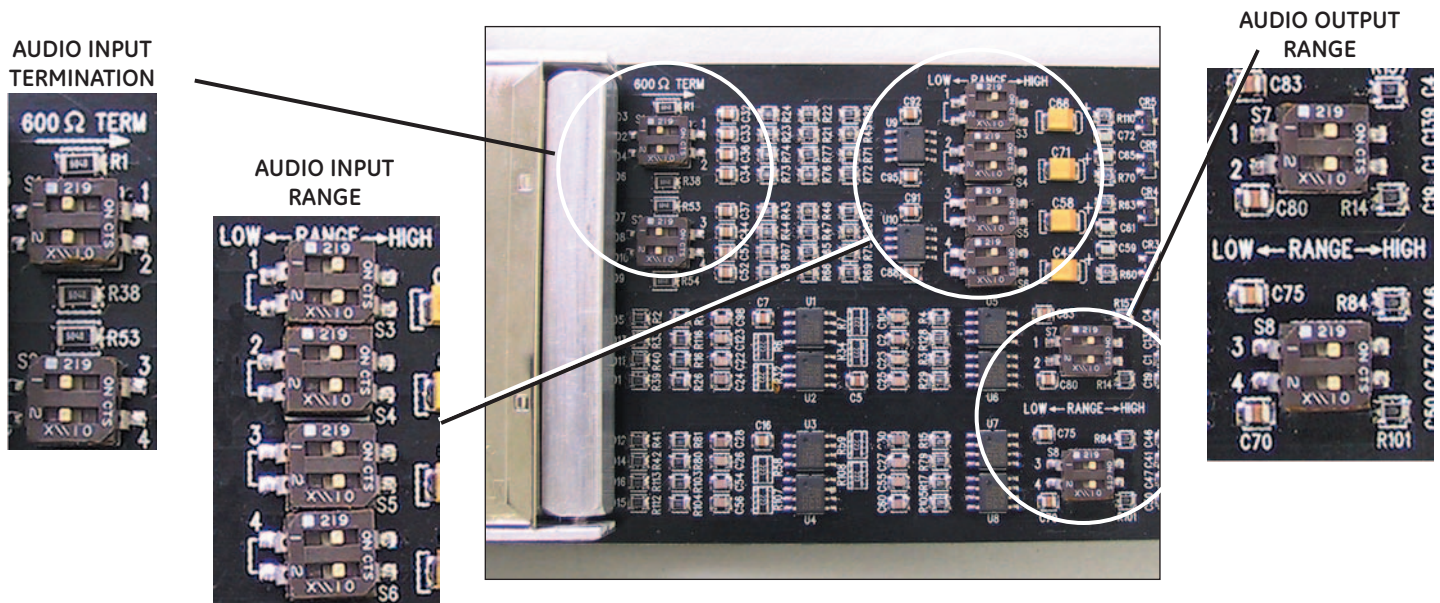
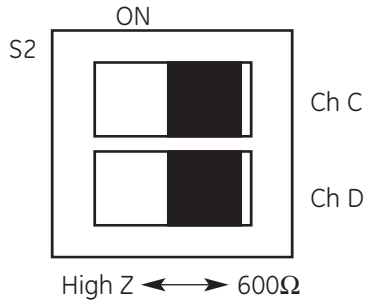
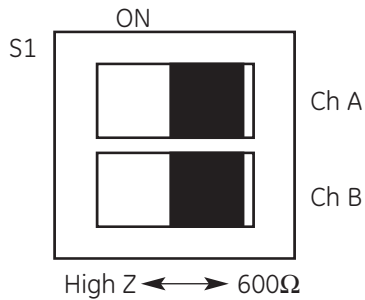


Figure 1. Audio Level Switch Locations

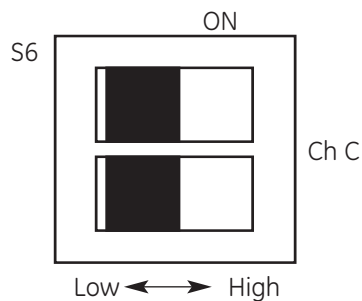
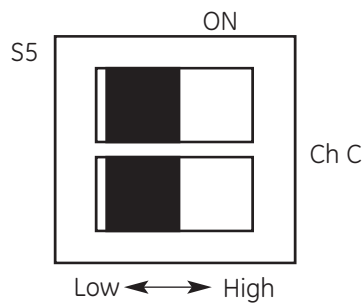
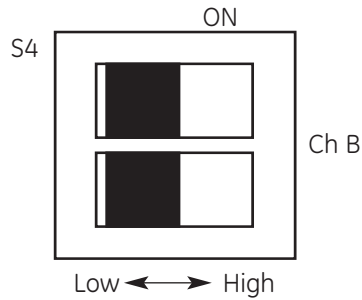
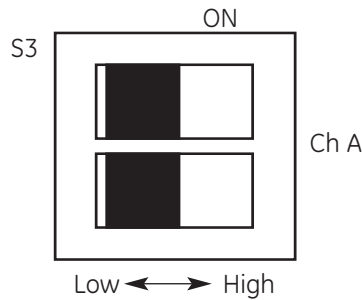
### AUDIO INPUT TERMINATION

Note: One switch per channel



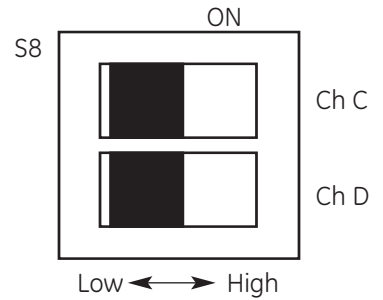
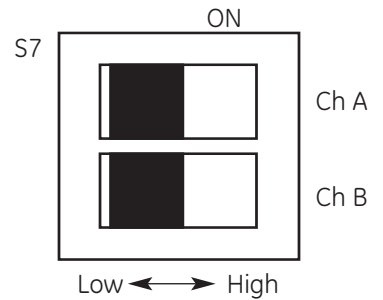
### AUDIO INPUT RANGE

Note: Two switches per channel



### AUDIO OUTPUT RANGE

Note: One switch per channel



The A8920A units are shipped with the input impedance set at (high-Z). To select a 600Ω input impedance in place of the high-Z input, set switches SW1 and SW2 on the audio to 600Ω.

If a low audio level causes the output audio signal to degrade, the input sensitivity of the A8920A can be increased by switching to the 8 dBu maximum scale.

You can set the transmitter input to 8 dBu and the receiver output to 18 dBu to add 10 dB of gain to the system, however, this also increases system signal-to-noise ratio (S/N).

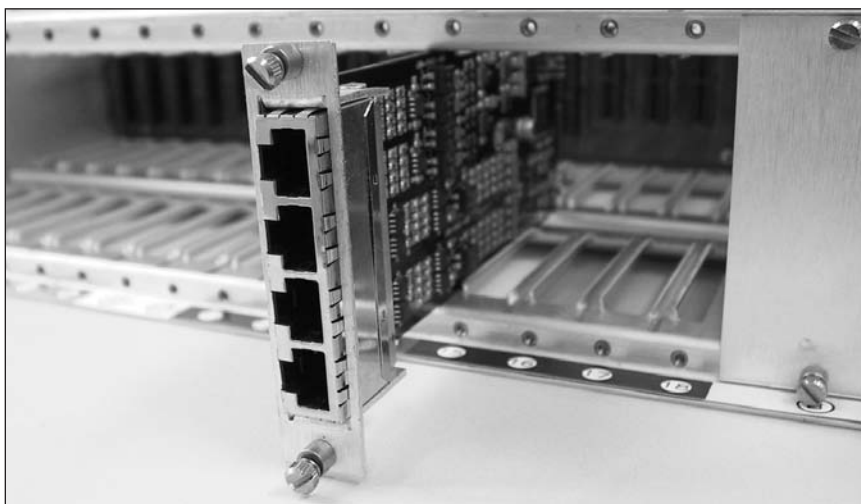
Figure 2. Audio Level Switch Positions

## 2. Installing audio modules:

Audio modules must be installed in slots 15, 16, 17, or 18 (color coded black). Up to four Audio modules can be installed per Phoenix node.

### The channel sequence is as follows:

Slot 15, top RJ45 connector is assigned to Channel Inputs 1 and 2.  
The second RJ45 connector gets assigned to Channel Inputs 3 and 4.  
The third RJ45 connector gets assigned to Channel Outputs 1 and 2.  
The bottom RJ45 connector gets assigned to Channel Outputs 3 and 4.  
Subsequent modules, placed in slots 16, 17, and 18 are assigned to Channels 5-8, 9-12, and 13-16 respectively.



**INSERT AUDIO CARDS IN SLOTS 15-18 (Black)**

### 3. Connecting to audio modules:

GE Security recommends connecting to the terminal block using high-quality shielded, twisted-pair wire for best audio performance.

The I/O for the audio inputs and outputs are as follows:

**RJ45 - A (Top) AUDIO INPUTS - CHANNELS A-B**

Pin	Audio Signal
1	IN A (+)
2	IN A (-)
3	GND/SHIELD
4	GND
5	GND
6	GND/SHIELD
7	IN B (+)
8	IN B (-)

**RJ45 - B AUDIO INPUTS - CHANNELS C-D**

Pin	Audio Signal
1	IN C (+)
2	IN C (-)
3	GND/SHIELD
4	GND
5	GND
6	GND/SHIELD
7	IN D (+)
8	IN D (-)

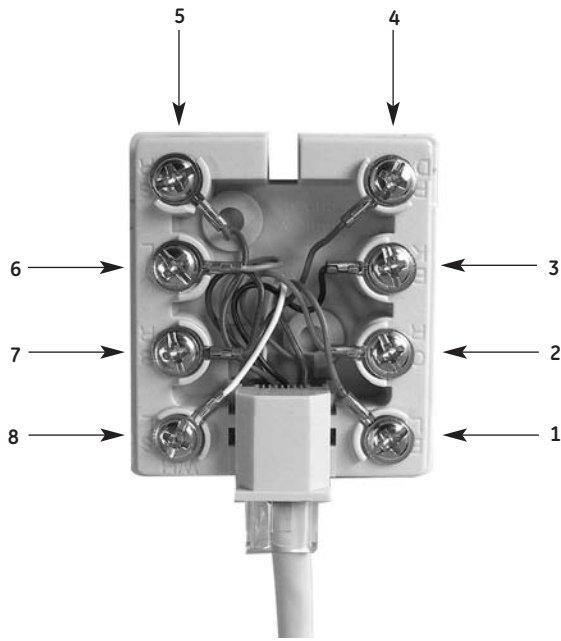
**RJ45 - C AUDIO OUTPUTS - CHANNELS A-B**

Pin	Audio Signal
1	OUT A (+)
2	OUT A (-)
3	GND/SHIELD
4	GND
5	GND
6	GND/SHIELD
7	OUT B (+)
8	OUT B (-)

**RJ45 - D (Bottom) AUDIO OUTPUTS - CHANNELS C-D**

Pin	Audio Signal
1	OUT C (+)
2	OUT C (-)
3	GND/SHIELD
4	GND
5	GND
6	GND/SHIELD
7	OUT D (+)
8	OUT D (-)

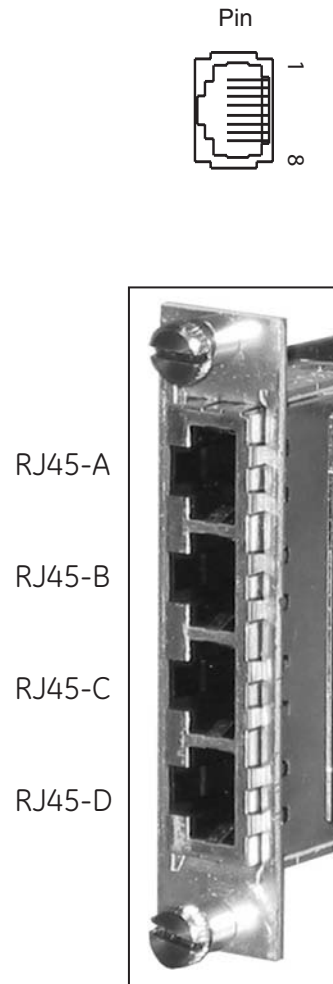
Figure 1. Terminal Block Pin Assignments



### Using the breakout box

A breakout box with a 3' CAT 5 patch cord (supplied) can be used to interface to the Phoenix system. Pinouts are shown in the tables and figures above.

Figure 2. RJ45 Socket  
(Viewed from the rear of the unit)



## Audio module - channel sequence

	Slot 15	Slot 16	Slot 17	Slot 18
RJ45-A	Ch 1-2 IN	Ch 5-6 IN	Ch 9-10 IN	Ch 13-14 IN
RJ45-B	Ch 3-4 IN	Ch 7-8 IN	Ch 11-12 IN	Ch 15-16 IN
RJ45-C	Ch 1-2 OUT	Ch 5-6 OUT	Ch 9-10 OUT	Ch 13-14 OUT
RJ45-D	Ch 3-4 OUT	Ch 7-8 OUT	Ch 11-12 OUT	Ch 15-16 OUT

## Installing the Contact Closure Module

### Overview

The Phoenix A8930C contact closure module is capable of supporting up to 8 contact closure inputs, and 8 contact closure outputs per module. With up to 4 modules available per system, up to 32 contact inputs and outputs can be transmitted. Contact closure modules are color coded black, and can be installed in slots 15, 16, 17, or 18. The input/output interface is four, ganged RJ45 connectors located on each card. See contact closure pin-out connection in Fig. 2.

### Tools and materials required

The contact closure modules are held in place with simple thumbscrews with screwdriver slots. The only tool recommended is a small flat blade screwdriver.

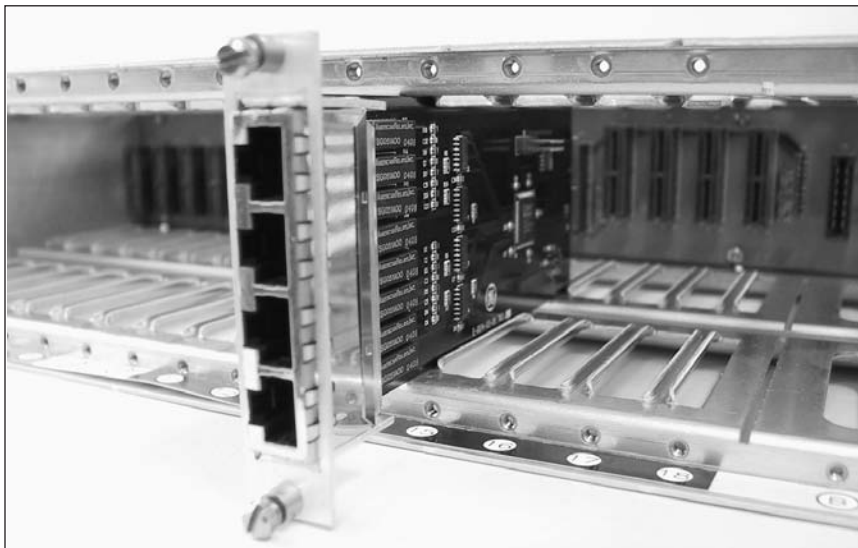
### Installation instructions:

#### 1. Install contact closure module:

Install contact closure modules in slots 15, 16, 17, or 18 (color-coded black) and secure. Up to four contact closure modules can be installed in each node. Connect contact closure wires to terminal blocks on each card by using the RJ45 connectors.

#### The channel sequence is as follows:

Slot 15, top RJ45 connector is assigned to Channel Inputs 1, 2, 3, and 4.  
The second RJ45 connector gets assigned to Channel Inputs 5, 6, 7, and 8.  
The third RJ45 connector gets assigned to Channel Outputs 1, 2, 3, and 4.  
The bottom RJ45 connector gets assigned to Channel Output 5, 6, 7, and 8.  
Subsequent modules, placed in slots 16, 17, and 18 are mapped to Channels 9-16, 17-24, and 25-32 respectively.



**INSERT CONTACT CLOSURE CARDS IN SLOTS 15-18 (Black)**

## 2. Connect to the module:

Each contact closure module is shipped with (four) RJ45 cables and (four) breakout boxes to aid in connecting to the Phoenix. Use the tables below to determine pin out information for your application. GE Security recommends using shielded cable for all single ended applications and shielded twisted-pair for all differential formats. Wire gauge is dependent on copper run length. Refer to manufacturer of data equipment for specific recommendations.

Figure 1. Terminal Block Pin Assignments

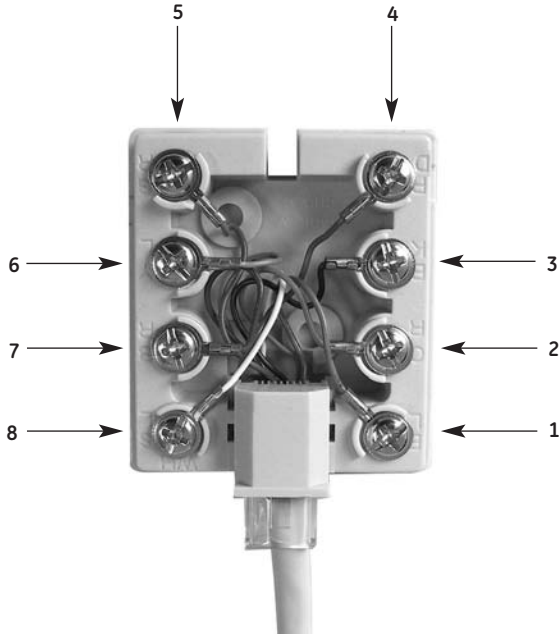


Figure 2. RJ45 Socket  
(Viewed from the rear of the unit)

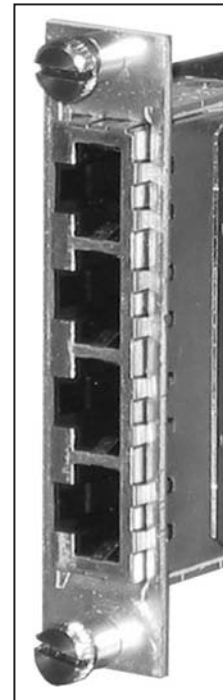


RJ45-A

RJ45-B

RJ45-C

RJ45-D



### Using the breakout box

A breakout box with a 3' CAT 5 patch cord (supplied) can be used to interface to the Phoenix system. Pinouts are shown in the tables and figures below.

#### RJ45 - A (Top) CONTACT INPUTS - CHANNELS A-D

Pin	Contact Signal
1	IN A
2	(GND)
3	IN B
4	(GND)
5	IN C
6	(GND)
7	IN D
8	(GND)

#### RJ45 - B CONTACT INPUTS - CHANNELS E-H

Pin	Contact Signal
1	IN E
2	(GND)
3	IN F
4	(GND)
5	IN G
6	(GND)
7	IN H
8	(GND)

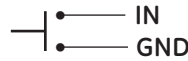
#### RJ45 - C CONTACT OUTPUTS - CHANNELS A-D

Pin	Contact Signal
1	C A
2	N/O A
3	C B
4	N/O B
5	C C
6	N/O C
7	C D
8	N/O D

#### RJ45 - D (Bottom) CONTACT OUTPUTS - CHANNELS E-H

Pin	Contact Signal
1	C E
2	N/O E
3	C F
4	N/O F
5	C G
6	N/O G
7	C H
8	N/O H

To activate a relay, provide a connection from an **IN (+)** to **GROUND**.



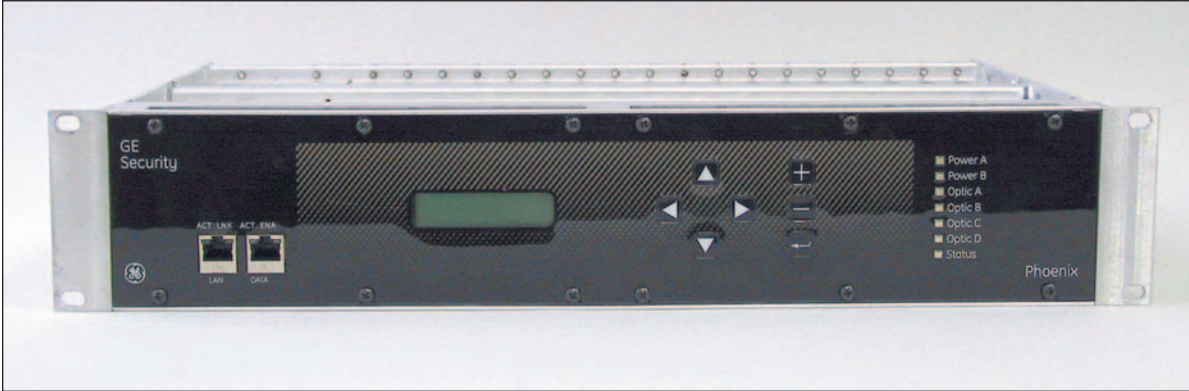
### Contact Input module - channel sequence

	Slot 15	Slot 16	Slot 17	Slot 18
RJ45-A	Ch 1-4 IN	Ch 9-12 IN	Ch 17-20 IN	Ch 25-28 IN
RJ45-B	Ch 5-8 IN	Ch 13-16 IN	Ch 21-24 IN	Ch 29-32 IN
RJ45-C	Ch 1-4 OUT	Ch 9-12 OUT	Ch 17-20 OUT	Ch 25-28 OUT
RJ45-D	Ch 5-8 OUT	Ch 13-16 OUT	Ch 21-24 OUT	Ch 29-32 OUT



## Configuring the Phoenix Fiber Optic Communications System

This section explains how to configure a Phoenix chassis using the front panel. The front panel has seven status LEDs, an LCD display, seven push buttons and two RJ-45 ports. These RJ-45 ports (labeled LAN and DATA) are currently unused. Do NOT connect any cables or equipment to these ports; it may damage the Phoenix chassis.



Basic configuration of a Phoenix chassis is a three-step process:

1. Turn on power and check status.
2. Select the system topology.
3. Set the node ID.

If your system requires non-default settings (e.g. channel mapping, PAL video, etc.), please refer to the section titled FRONT PANEL MENU TREE AND DESCRIPTIONS after you have completed the basic configuration.

If you have not already done so, install the Power Supply Module(s), Optic Module, and any other plug-in modules (i.e. Data, Video Input, Video Output, etc.) and connect cabling as instructed in the previous sections of this manual

## 1. Turn on power and check status

Turn on the power to the Phoenix chassis using the switches on the Power Supply modules. If two power supplies are installed, turn on both switches. The LEDs perform a brief test when the chassis powers up: all seven LEDs turn green and then turn red. After the test has completed the LEDs indicate the status of the power supplies and optics.

**Power A and Power B:** If a module is installed, and the power switch is on, and the supply is working properly the corresponding LED will be green. If the supply is installed, but the power switch is off or a problem has been detected the LED will turn red. If either power supply slot is empty then the corresponding LED will be off.

**Optic A and Optic B:** If an optic transceiver is installed in one of the top two Optic Module transceiver slots, the corresponding LEDs indicate the status of the following conditions:

1. The transmit laser is working properly.
2. The receive photodiode detects sufficient light over the fiber.
3. The receiver detects another Phoenix node at the other end of the fiber.

If all three of these conditions are true, then the LED will be green. If any of these conditions is not true, then the LED will be red. If an optic transceiver module slot is empty, then the LED will be off.

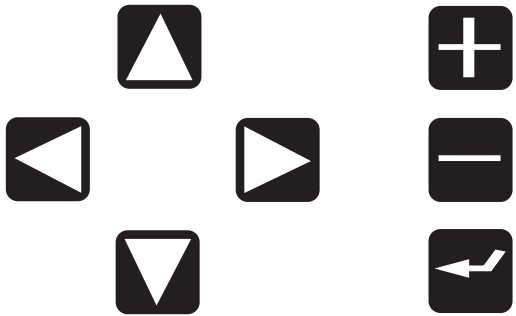
**Optic C and Optic D:** These LEDs are unused. After the power-on test, they will always be off.

**Status:** This LED indicates the status of the ring when the Phoenix system is configured as a Self-Healing Ring (SHR). If the ring is complete (no fiber breaks) the LED will be green. If a single fiber break is detected the LED turns amber/orange. If a double fiber break is detected the LED turns red. Note that a single fiber break will not result in a loss of video, audio, or data. A double fiber break **may** result in lost video, audio, or data. The LED is off if the system is a Linear topology.

## 2. Select the system topology

In order for a Phoenix chassis to route information over its fiber links correctly, it must know the topology of the entire system. A chassis can be part of either a Linear or Self-Healing Ring topology. If you are configuring a Self-Healing Ring topology, then each node must also know the total length of optical fiber used in the ring. Once set, the topology (and ring length) will be remembered if the chassis loses power.

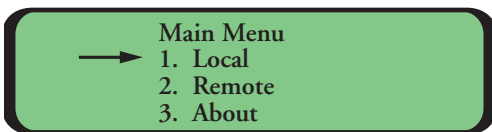
The topology and node ID are set using the front panel LCD display. The LCD displays a menu from which sub-menus or features can be selected. The push buttons allow you to navigate through the menus. A small black arrow is used as a cursor. The "up" and "down" buttons move the cursor up or down one line in the menu, respectively. The "enter" button selects the sub-menu or feature at which the cursor is pointing. The "left" button takes you back up one level in the menu hierarchy. The remaining three buttons, "right", "+", and "-" are menu-specific and are described later.



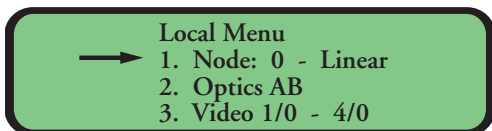
A brief initialization routine is displayed on the LCD when the chassis powers up. A splash screen showing the GE logo and Phoenix product name is displayed after the routine completes. After approximately one minute of inactivity the LCD display will turn off. The display can be re-enabled by pressing any of the seven buttons on the front panel.



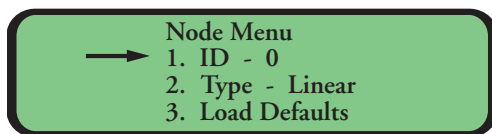
If the splash screen is displayed or if the display is blank press the "enter" button one time. This will bring up the Main Menu. If any other menu is displayed, then press the "left" button until the Main Menu is shown:



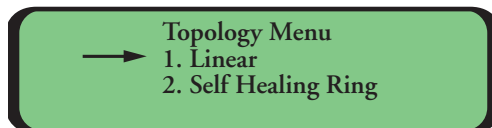
Use the "up" and "down" buttons to move the cursor to "1. Local". Press the "enter" key to select the Local Menu:



Press "enter" again to select the Node Menu:



If you are configuring a system with a linear topology, and item 2 in the menu reads, "2. Type - Linear", then you do not have to make any changes and can continue to Step 3, below. Otherwise, select item 2 from the menu. This displays the Topology Menu:



Move the cursor to the topology of the system from the menu's choices: Linear or Self-Healing Ring (SHR). Press "enter". A new screen will appear asking you to confirm your choice for topology. Move the cursor to "Accept" and press "enter". The next screen will ask you whether or not you would like to load defaults. Move the cursor to "Accept" and press "enter". If you chose Linear then you can continue to Step 3 after you have been returned to the Node Menu.

If you chose Self-Healing Ring, then you must also specify the length of fiber used in the entire ring. The "+" key increments the length by 10km. The "-" key decrements the length by 10km. Round up when selecting the ring length. Press "enter" when you are done. You must confirm your selection on the following screen by moving the cursor to "Accept" and pressing, "enter". The topology is now set and you are returned to the Node Menu. Note that the topology (and ring length) is indicated on item 2 in the menu.

### 3. Set the Node ID.

Every Phoenix node (i.e. chassis) in a system should have a unique node ID number. The node ID is set to 0 the first time a Phoenix chassis is switched on. This is an invalid ID; it must be a number between 1 and 255. Once set, the node ID will be remembered if the chassis loses power.

Navigate to the Node Menu if it is not currently displayed on the LCD. Move the cursor to "1. ID" and press "enter":

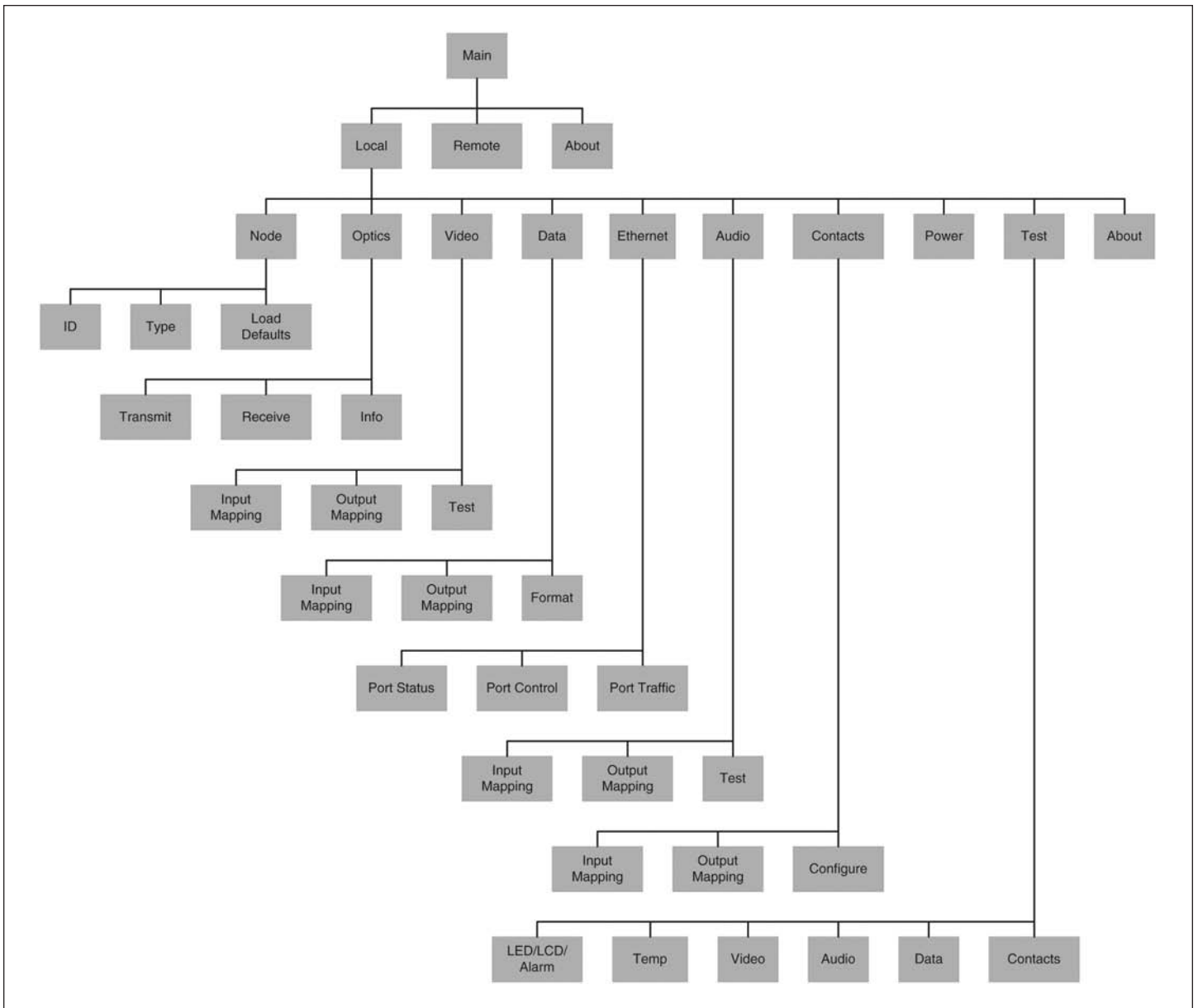


The ID will increment by one if you press "+". Similarly, the ID will decrement by one if you press "-". If you press and hold either of these buttons, the node ID will slowly increment or decrement. The rate will increase if you continue pressing the button. Once you have the node ID set, press the "enter" button. Another menu will ask you to confirm your selection. Move the cursor to "Accept" and press "enter". The node ID is now set and you are returned to the Node Menu. Note that the node ID is now shown after "1. ID" in the menu.

**Congratulations!** You have completed the basic configuration. If your system requires non-default settings (e.g. channel mapping or PAL video), or if you would like to learn more about the available menus and features refer to the following section.

## FRONT PANEL MENU TREE AND DESCRIPTIONS

The menus accessible from the front panel are shown in the menu tree below:



Navigating through the menu tree is accomplished using the push buttons and LCD display. The LCD shows menus from which sub-menus or features can be selected. A small black arrow is used as a cursor. The "up" and "down" buttons move the cursor up or down one line in the menu, respectively. The "enter" button selects the sub-menu or feature at which the cursor is pointing. The "left" button takes you back up one level in the menu hierarchy. The remaining three buttons, "right", "+", and "-" are menu-specific and are described later.

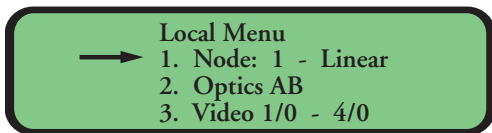
## Main Menu:



The menus accessible from the front panel are shown in the menu tree below:

Pressing any key from the opening screen will take you to the Main Menu.

## Main -> Local:

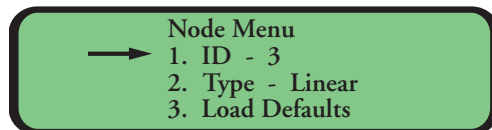


There are nine selections available to configure and monitor the local node. Some of the choices show information regarding the node or the modules installed:

1. Node: Shows node ID, topology (and ring length if SHR).
2. Optics: Shows optic ports that have transceivers installed.
3. Video I/O: Shows the number of input and output video channels installed.
4. Data: Shows the number of installed data channels.
5. Audio: Shows the number of installed audio channels.
6. Contacts: Shows the number of installed contact channels.
7. Power: Shows which power supplies are installed.
8. Test
9. About

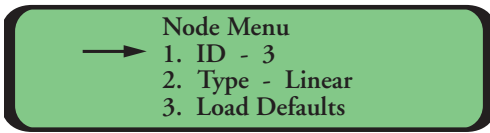
Only three of the menu choices are visible on the LCD at one time. Pressing the "down" button when the cursor is at the bottom of the screen will display the next three menu choices. Similarly, pressing the "up" button when the cursor is at the top of the screen will display the previous three menu choices.

## Main -> Local -> Node:



The Node Menu shows the node ID and topology.

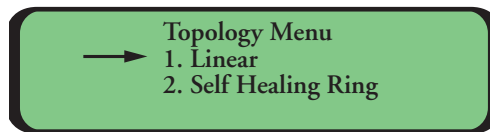
### Main -> Local -> Node -> ID



Every Phoenix node (i.e. chassis) in a system must have a unique node ID number. The node ID is set to zero the first time a Phoenix chassis is switched on, or if you Load Defaults. Zero is an invalid node ID; it must be a number between 1 and 255. Once set, the node ID will be remembered if the chassis loses power.

The ID will increment by one if you press "+". Similarly, the ID will decrement by one if you press "-". If you press and hold either of these buttons, the node ID will slowly increment or decrement. The rate will increase if you continue pressing the button. Once you have the node ID set, press the "enter" button. You will be asked to confirm your selection.

### Main -> Local -> Node -> Topology



In order for a Phoenix chassis to route information over its fiber links correctly, it must know the topology of the entire system. A chassis can be part of either a Linear or Self-Healing Ring topology. If you are configuring a Self-Healing Ring topology, then each node must also know the total length of optical fiber used in the ring. Once set, the topology will be remembered if power to the chassis is lost.

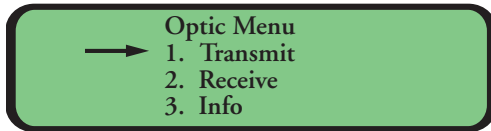
Select the topology of the system from the menu's choices: Linear and Self-Healing Ring (SHR). A new screen will appear asking you to confirm your choice for topology. Note that SHR is an acronym for Self-Healing Ring used throughout the menus. The next screen will ask you whether or not you would like to load defaults. **IMPORTANT:** If you choose to load defaults, the node ID will be set to zero and all channel mapping information for this node will be lost. Select cancel if you do not wish to load defaults.

If you chose Linear then you are returned to the Node Menu after you confirm your selection. If you chose Self-Healing Ring, then you must also specify the length of fiber used in the entire ring. The "+" key increments the length by 10km. The "-" key decrements the length by 10km. Round up when selecting the ring length. Press "enter" when you are done. You must confirm your selection before continuing.

## Main -> Local -> Node -> Load Defaults

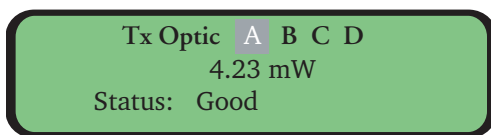
This feature sets the node ID back to zero and clears all channel mapping information for this node. The topology is retained.

## Main -> Local -> Optics:



Information about the fiber optic transceivers can be accessed from the sub-menus.

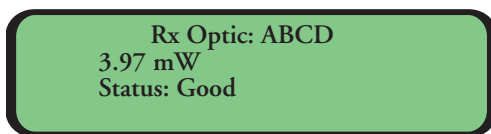
## Main -> Local -> Optics -> Transmit:



This screen shows the optical launch power of the selected optic transceiver. Use the "+" button to select the next transceiver. Use the "-" button to select the previous transceiver.

The launch power is displayed in milliwatts (mW). Values around +4mW are normal. Additionally, the transceiver transmit (TX) status is displayed. The status is reported as either Good, Faulty, or Not Found if the selected transceiver is not installed.

## Main -> Local -> Optics -> Receive:

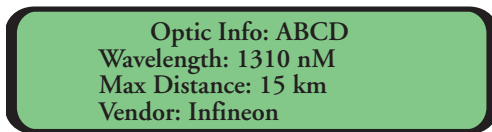


This screen shows the optical receive power of the selected optic transceiver. Use the "+" button to select the next transceiver. Use the "-" button to select the previous transceiver.

The power is displayed in milliwatts (mW). The receive power can be used to verify path loss if the transmit launch power at the other end of a fiber is known. Sensitivity must be greater than 0.04 mW to insure enough optical power is being received. Additionally, the transceiver receive (RX) status is displayed. The status is reported as Good, Sync Loss, Signal Loss or Not Found if the selected transceiver is not installed.



## Main -> Local -> Optics -> Info:



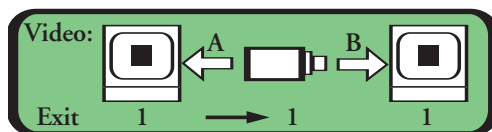
The Info Menu shows the wavelength (normally 1310nM), maximum distance (normally 15km) and optic transceiver vendor name (Infineon) for the selected optic transceiver. Use the "+" button to select the next transceiver. Use the "-" button to select the previous transceiver.

## Main -> Local -> Video:



Video Input and Video Output mapping, monitoring, and tests can be accessed from the sub-menus.

## Main -> Local -> Video -> Input Mapping:



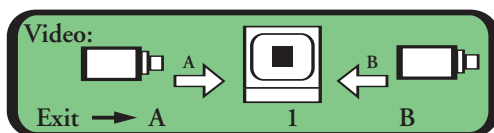
This screen allows you to assign a video input channel to a video output channel over a selected fiber port. The camera icon in the middle of the screen indicates the presence of a video signal for the selected channel. If the camera has an X through it, video is not present on this channel. If the camera does not have an X through it, then video is present. The number under the camera icon indicates the currently selected input channel. The numbers under the monitor icons to the left and/or right of the camera represent the output channel numbers. The arrows to the left and/or right of the camera (labeled A and B, respectively) indicate over which fibers this mapping is enabled. If the selected input channel is mapped to the output channel then a black square is shown in the middle of the monitor icon and the arrow is displayed. If a mapping does not exist for this input and output channel pair, then the monitor icon is blank and the arrow is not shown.

Use the "left" and "right" button to move the cursor at the bottom of the screen. Use "+" and "-" to increment and decrement the channel numbers. Incrementing the input channel automatically increments both output channels. Press "enter" while the cursor is at an output channel to enable a mapping. Move the cursor to "Exit" and press enter to leave this screen. All channel mapping are saved when you leave this menu.

When a Phoenix node is initially configured (or if Load Defaults is selected from the Node Menu), every input channel is mapped to the output channel of the same number (e.g. input channel 1 is mapped to output channel 1, etc) on both fiber ports (for SHR) or just fiber port A (for Linear).

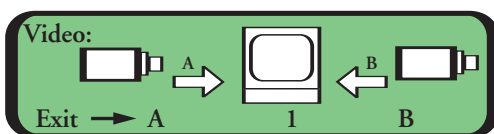
**IMPORTANT:** In Linear mode, mappings on fiber ports A and B are independent. For example, you could map input channel 1 to output channel 7 on fiber port A, but then map input channel 1 to output channel 12 on fiber port B. This allows you to have a total of 32 channels enabled in a system simultaneously; 16 in one direction and 16 in the other. However, in Self-Healing Ring mode, mappings on fiber ports A and B are identical. For example, if you map input channel 1 to output channel 7 on fiber port A, then the same mapping is made to output channel 7 over fiber B. Therefore, the maximum number of enabled channels in a Self-Healing Ring is 16. Channel mapping behaves the same way for Data and Audio channels.

### Main -> Local -> Video -> Output Mapping:

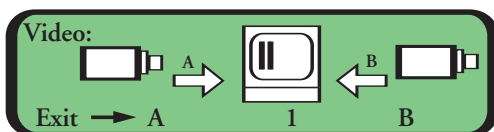


This screen allows you to select which optic port is being reviewed for each of the 16 video output channels. The number under the monitor icon indicates which output channel is selected. The letters under the camera icons indicate at which optic port the selected output channel will be looking. Arrows to the left and right of the monitor icon indicate that the mapping is enabled. If the output channel is not mapped to a fiber then the corresponding arrow is not shown. The status of the output video signal is depicted on the screen of the monitor icon. All channel mapping are saved when you leave this menu.

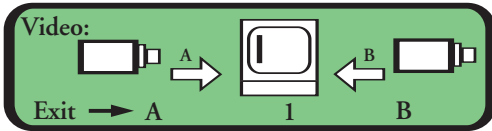
- Blank: If there is no output mapping (i.e. neither fiber is selected) then a blank monitor icon is shown.



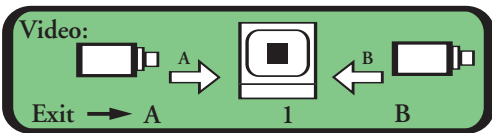
- Two-Bar: If the output is mapped but video is not detected on any of the selected fibers then two bars are shown in the monitor.



- One-Bar: If the input and output channels are both mapped but no input video signal is detected then one bar is shown in the monitor.



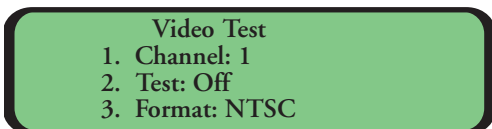
- Square: If the input and output channels are both mapped and active video is detected then a black square is shown in the center of the monitor.



Press "+" and "-" to select an output channel while the cursor is under the middle icon. Use "left" and "right" to move the cursor at the bottom of the screen. To enable fiber port A move the cursor to the left and then press "enter." Similarly, to select fiber B, move the cursor to the right and press "enter." To leave this screen move the pointer to "Exit" and press "enter." All channel mapping are saved when you leave this menu.

When a Phoenix node is initially configured (or if Load Defaults is selected from the Node Menu), the default output mappings depend on the system topology. In Linear mode every output channel is initially mapped to fiber port A. In Self-Healing Ring mode every output channel is initially mapped to both fiber ports.

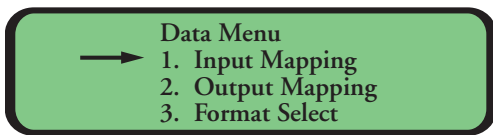
**IMPORTANT:** In Linear mode either A, B or no optic port can be selected depending on what optics are installed. In Self-Healing Ring mode, either both fiber ports are mapped or neither port is mapped.



This menu allows the user to select the format of the video test patterns and to initiate a test pattern for a specified channel. The first and second lines of this menu show the currently selected video channel and the status of the test pattern (Off or Ramp), respectively. An input video module does not have to be installed to view the pattern at the output video module. The test pattern will only be visible if the corresponding input channels, output channels and optic ports are mapped. The third line indicates the video format (NTSC or PAL). The default is NTSC. The video format is a global selection and affects all test patterns (e.g. Ramp, One-Bar, Two-Bar, etc.) on all video channels.

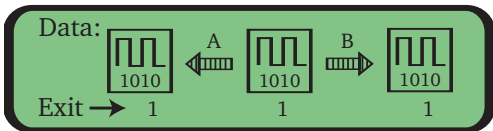
Use "+" and "-" to change selections at each line in the menu. Press "left" to exit this screen. When leaving this menu with test patterns enabled, a warning message comes up alerting that test patterns have been disabled to allow real video to pass.

Main -> Local -> Data:



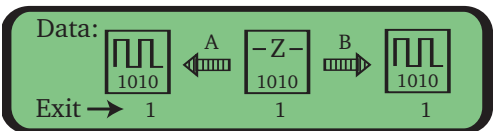
Data Input and Data Output channel mapping, monitoring, format and tests can be accessed from the sub-menus.

Main -> Local -> Data -> Input Mapping:

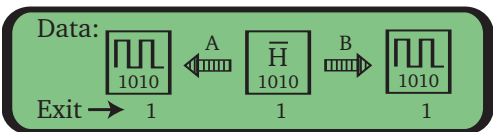


This screen allows you to assign a data input channel to a data output channel over a selected fiber port. The number under the middle oscilloscope icon indicates the currently selected input channel. The numbers under the oscilloscope icons to the left and/or right of the middle oscilloscope icon represent the output channel numbers. The arrows to the left and/or right of the middle icon (labeled A and B, respectively) indicate over which fibers this mapping is enabled. If the selected input channel is mapped to the output channel then a square-wave is displayed on the oscilloscope icon and the arrow is displayed. If a mapping does not exist for the selected input and output channel pair, then the square-wave and the arrow are not displayed. The status of the input data signal is depicted on the screen of the middle icon:

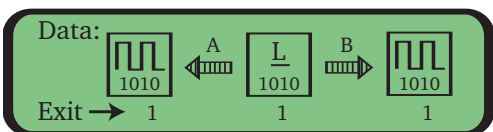
- Z: A high-impedance condition is detected at the data input (i.e. no equipment is driving an active signal).



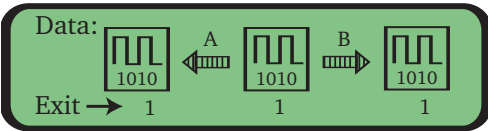
- H: A high level is detected at the data input (i.e. a logic-1).



- L: A low level is detected at the data input (i.e. a logic-0).

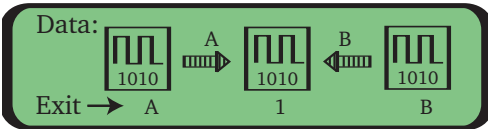


- Square Wave: Active data is detected at the data input.



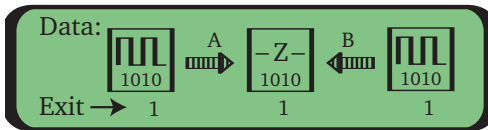
Please refer to the Video Input Mapping Menu described earlier in this manual for important notes regarding channel mapping and instructions on how to enable mappings.

**Main -> Local -> Data -> Output Mapping:**

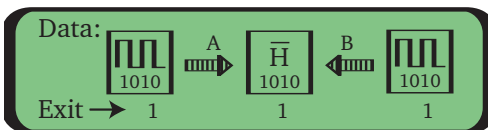


This screen allows you to select which optic port is being reviewed for each of the 16 data output channels. The number under the middle oscilloscope icon indicates which data channel is selected. The letters under the oscilloscope icons to the left and right indicate at which optic port the selected output channel will be looking. Arrows to the left and right of the middle icon indicate that the mapping is enabled. If the output channel is not mapped to a fiber then the corresponding arrow is not shown. The status of the output data signal is depicted on the screen of the middle icon:

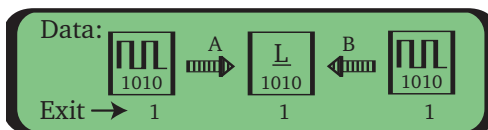
- Z: A high-impedance condition is detected at the data input (i.e. no equipment is driving an active signal).



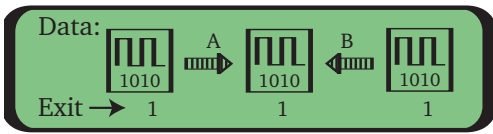
- H: A high level is detected at the data input (i.e. a logic-1).



- L: A low level is detected at the data input (i.e. a logic-0).

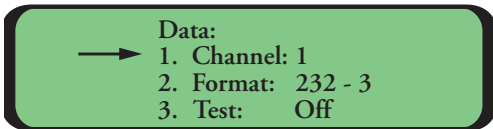


- Square Wave: Active data is detected at the data input.



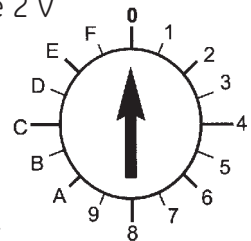
Please refer to the Video Output Mapping Menu described earlier for important notes regarding channel mapping and instructions on how to enable mappings.

**Main -> Local -> Data -> Format Select:**



This menu allows the user to view and change the format for a specified data channel. The first line of this menu shows the currently selected channel. The second line shows the current data format. If the switch on the Data Module for the corresponding data channel is set to position 0, then the data format can be modified. If the switch is set to any other position then the format cannot be changed. The third line indicates the status of a test pattern ("OFF" or "ON 1-0-Z"). The test pattern is generated at the specified output channel, so an Input Data Module is not required and channel mappings will have no affect on the test pattern.

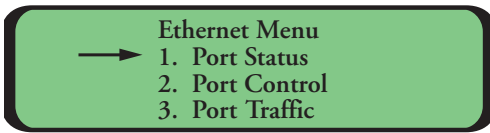
Setting	Mode	Setting	Mode
0	Software-selectable (factory preset)	8	RS-485 2-wire 2 V
1	RS-232 (3-wire)	9	RS-485 4-wire standard
2	RS-232 + handshake	A	RS-485 4-wire 1 V
3	TTL	B	RS-485 4-wire 2 V
4	RS-422 2-wire	C	Reserved
5	Manchester/biphase	D	Reserved
6	RS-485 2-wire standard/Sensornet	E	Reserved
7	RS-485 2-wire 1V	F	Test Mode



**NOTE:** The DATA SELECT switches are shipped in the Software-Selectable setting.

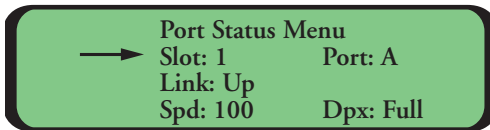
Use "+" and "-" to change selections at each line in the menu. Press "left" to exit this screen. When leaving this menu with test patterns enabled, a warning message comes up alerting that test patterns have been disabled to allow real data to pass.

## Main -> Local -> Ethernet:



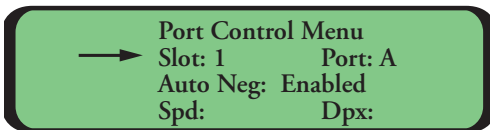
Port configurations, status and traffic statistics can be accessed from these submenus.

## Main -> Local -> Ethernet -> Port Status:



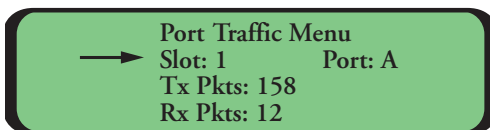
This screen allows you to monitor the link status of each port of an Ethernet module. Use the arrow keys to move back and forth between the slot and port selections. The '+' and '-' buttons increment and decrement the slot and port selections. Port A is the top port, Port B is the middle port and Port C is the bottom port. The link status is indicated as either Up or Down. If the Link is up, the negotiated speed and duplex are indicated. Press 'enter' to leave this menu.

## Main -> Local -> Ethernet -> Port Control:



This screen allows you to control the link parameters for each port of an Ethernet module. Use the arrow keys to navigate around the screen. The '+' and '-' buttons increment and decrement the slot and port selections, and toggle the Auto-Negotiation, Speed and Duplex settings. Port A is the top port, Port B is the middle port and Port C is the bottom port. Port A is the top port, Port B is the middle port and Port C is the bottom port. Press 'enter' to leave this menu.

## Main -> Local -> Ethernet -> Port Traffic:



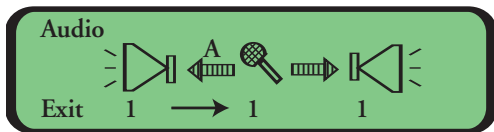
This screen allows you to monitor the number of error-free packets sent and received at each port of an Ethernet module. The '+' and '-' buttons increment and decrement the slot and port selections. Port A is the top port, Port B is the middle port and Port C is the bottom port. The packet counters wrap around to 0 once they reach 65,535. Press 'enter' to leave this menu.

## Main -> Local -> Audio:



Audio Input and Audio Output mapping and tests can be accessed from the sub-menus.

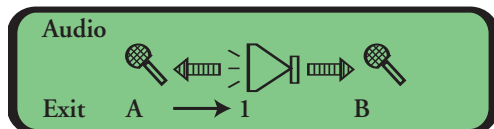
## Main -> Local -> Audio -> Input Mapping:



This screen allows you to assign an audio input channel to an audio output channel over a selected fiber port. The number under the microphone icon indicates the currently selected input channel. The numbers under the speaker icons to the left and/or right of the microphone represent the output channel numbers. The arrows to the left and/or right of the microphone (labeled A and B, respectively) indicate over which fibers this mapping is enabled. If the selected input channel is mapped to the output channel then three lines are displayed radiating out of the speaker icon and the arrow is displayed. If a mapping does not exist for this input and output channel pair, then the lines next to speaker and the arrow are not displayed.

Please refer to the Video Input Mapping Menu described earlier for important notes regarding channel mapping and instructions on how to enable mappings.

## Main -> Local -> Audio -> Output Mapping:



This screen allows you to select which optic port is being reviewed for each of the 16 audio output channels. The number under the speaker icon indicates which audio channel is selected. The letters under the microphone icons indicate at which optic port the selected output channel will be looking. Arrows to the left and right of the speaker icon indicate that the mapping is enabled. If the output channel is not mapped to a fiber then the corresponding arrow is not shown.

Please refer to the Video Output Mapping Menu described earlier for important notes regarding channel mapping and instructions on how to enable mappings.

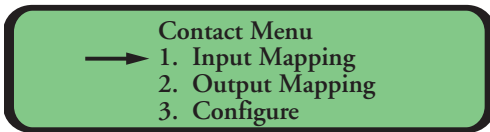


**Main -> Local -> Audio -> Test:**



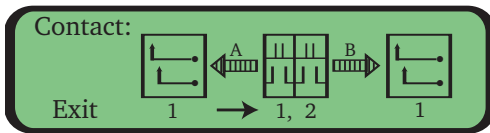
This menu allows the user to initiate a 1KHz test tone for a specified channel. The first line of this menu shows the currently selected audio channel. The second line indicates the status of the test tone (Off or 1.0 KHz), respectively. An input audio module does not have to be installed to hear the test tone at the output audio module. The test pattern will only be audible if the corresponding input channels, output channels and optic ports are mapped. Use "+" and "-" to change selections at each line in the menu. Press "left" to exit this screen. When leaving this menu with test patterns enabled, a warning message comes up alerting that test patterns have been disabled to allow real audio to pass.

**Main -> Local -> Contacts:**



Contacts Input and Contacts Output channel mapping, monitoring, and configuration can be accessed from the sub-menus.

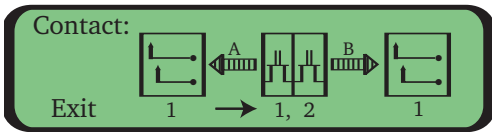
**Main -> Local -> Contacts -> Input Mapping:**



This screen allows you to assign a pair of contact input channels to a pair of contact output channels over a selected fiber port. The numbers under the switch icon indicates the currently selected input channels. The number under the circuit icons to the left and/or right of the switch icon represent the first of two output channel numbers. The arrows to the left and/or right of the switch icon (labeled A and B, respectively) indicate over which fibers this mapping is enabled. If the selected input channels are mapped to the output channel then the circuit in the icon is closed and the arrow is displayed. If a mapping does not exist for the selected input and output channels, then the circuit is open and the arrow is not displayed. The status of the input contacts are depicted on switches in the middle icon:

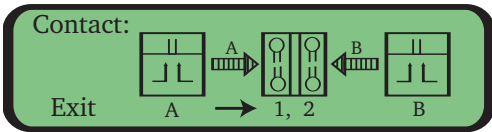
- Open: If the contact closure is open then the plunger of the switch is raised, as shown above.

- Closed: If the contact closure is closed then the plunger of the switch is lowered.



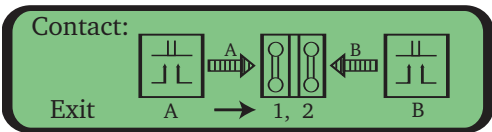
Please refer to the Video Input Mapping Menu described earlier for important notes regarding channel mapping and instructions on how to enable mappings. However, note that contact signals are mapped as pairs since there are 8 contact channels per Contact Closure Module.

**Main -> Local -> Contacts -> Output Mapping:**



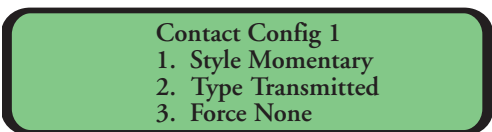
This screen allows you to select which optic port is being reviewed for each of the 32 contact output channels. The number under the circuit icon (in the middle of the screen) indicates which contact channels are selected. The letters under the switch icons to the left and right indicate at which optic port the selected output channels will be looking. Arrows to the left and right of the circuit icon indicate that the mapping is enabled. If the output channels are not mapped to a fiber then the corresponding arrow is not shown. The status of the output contacts are depicted on the circuits in the middle icon:

- Open: If the contact closure is open then the circuit is open, as shown above.
- Closed: If the contact closure is closed then the circuit is closed.



Please refer to the Video Output Mapping Menu described earlier for important notes regarding channel mapping and instructions on how to enable mappings. However, note that contact signals are mapped as pairs since there are 8 contact channels per Contact Closure Module.

**Main -> Local -> Contacts -> Configure:**



This menu allows the user to change the format or test a specified contact channel. Use "+" and "-" to change selections at each line in the menu. Press "left" to exit this screen. The top line of this menu shows the currently selected channel. The second line, "1. Style" shows the current contact format:

- Momentary: Configures the selected input channel to behave like a momentary switch.
- Latched: Configures the selected input channel to toggle each time the contact closes.

The third line, "2. Type" allows system events to be mapped to contact closure output channels:

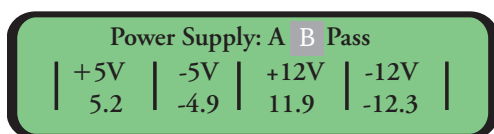
- Transmitted. The contact behaves normally.
- Optic A: A problem on optic port A closes the selected contact.
- Optic B: A problem on optic port B closes the selected contact.
- Optic A or B: A problem on either optic port closes the selected contact.
- Video X: Loss of video on the specified video input channel (where X is the video channel) closes the selected contact.
- Video W,X,Y,Z: Loss of video on any of the specified video input channels (where W,X,Y,Z are the video channels) closes the selected contact.

The fourth line, "3. Force" allows a contact output to be forced into a known state for test:

- None: The test is disabled and the contact behaves normally.
- Open: The contact is forced open.
- Closed: The contact is forced closed.

When leaving this menu with test patterns enabled, a warning message comes up alerting that the test states have been disabled to allow real contact closure information to pass.

#### Main -> Local -> Power:



Power Supply: A B Pass			
+5V	-5V	+12V	-12V
5.2	-4.9	11.9	-12.3

This menu displays the measured voltages of the selected power supply. It also indicates the status of the power supply (Pass/ Fail). Use "+" to select the next power supply. Use "-" to select the previous power supply. Press "left" to exit this menu.

#### Main -> Local -> Test:



Test Menu
→ 1. LED/LCD/Alarm
2. Temp
3. Video

Various tests can be selected from the sub-menus.

### Main -> Local -> Test -> LED/LCD/Alarm:

This selection runs through a series of three tests:

1. LED Test: All LEDs turn off, then turn green, and then turn red.
2. LCD Test: The screen turns black. Then the GE logo is displayed.
3. Alarm Test: The front panel alarm sounds for a few seconds.

### Main -> Local -> Test -> Temp:

This selection displays the temperature of inside optic transceiver A.

### Main -> Local -> Test -> Video:

This menu is identical to the Main -> Local -> Video -> Test Menu, described earlier.

### Main -> Local -> Test -> Data:

This menu is identical to the Main -> Local -> Data -> Format Menu, described earlier.

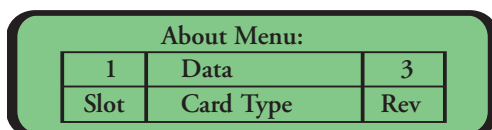
### Main -> Local -> Test -> Audio:

This menu is identical to the Main -> Local -> Audio -> Test Menu, described earlier.

### Main -> Local -> Test -> Contact:

This menu is identical to the Main -> Local -> Contact -> Configure Menu, described earlier in this section.

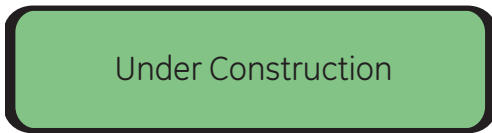
### Main -> Local -> About:



About Menu:		
1	Data	3
Slot	Card Type	Rev

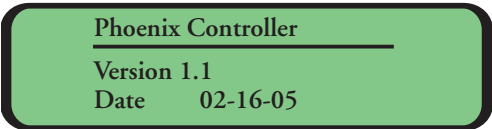
The Local About Menu displays the software version for each module installed in the chassis. Press "+" to view the next slot. Press "-" to view the previous slot.

### Main -> Remote:



This option is not available. An "Under Construction" message is displayed when selecting this menu.

### Main -> About:



The Main About Menu displays the software version of the chassis.

# Blank Panel Installation and Specifications

## Overview

The Phoenix blank panel(s) are available in one-slot (A8957RP1) and four-slot (A8957RP4) models and are designed and recommended for covering any open or unused card access points on the back of the Phoenix card rack.

## Tools and materials required

The blank panels are held in place with simple thumbscrews with screwdriver slots. The only tool recommended is a small flat blade screwdriver.

## Installation instructions:

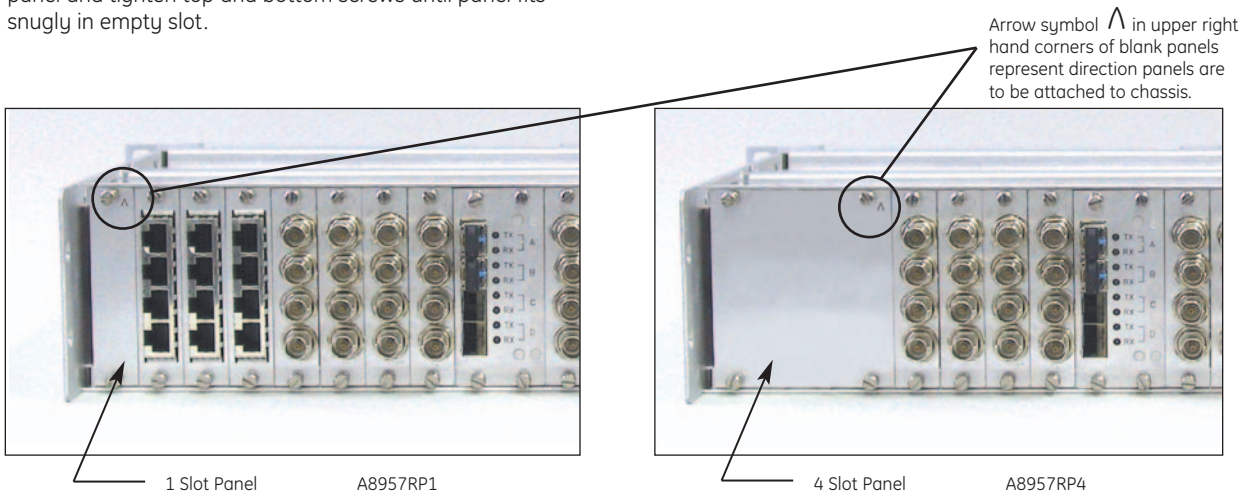
From back of Phoenix card rack, locate any unused module slots. If they are one card slot wide, use part number A8957RP1 for single slot openings and A8957RP4 if the opening is four slots wide.

Line up the thumbscrews with the threaded hole on the open panel and tighten top and bottom screws until panel fits snugly in empty slot.

## Limited warranty

GE Security warrants that equipment will be free from defects in material and workmanship and will substantially conform to the relevant specifications published by GE Security for a period of five years from delivery. During this period, GE Security will, at its option repair or replace any defective item of equipment or part or component of equipment, which GE Security determines was defective due to faulty material or workmanship and coordinate the replacement of the failed equipment provided that GE Security was responsible for the original installation of the equipment.

GE Security will warrant that equipment shall be free from defects in material and workmanship and will substantially conform to the relevant specifications published by GE Security for a period of one year from delivery. During this period, GE Security will at its option, repair or replace any defective item of equipment or part or component of equipment which GE Security determines was defective due to faulty material or workmanship. Customer will pay transportation and insurance costs to ship the equipment. GE Security will pay the return costs if the equipment is determined to have been defective.



## Specifications

Model	A8957RP1	A8957RP4
Size	0.74 in. W x 3.30 in. H (19 x 84 mm)	2.99 in. W x 3.30 in. H (77 x 84 mm)
Weight	.2 oz. (5.7 g)	.8 oz. (22.85 g)

## Product ordering

1 Slot Panel	A8957RP1
4 Slot Panel	A8957RP4

## Optical Transceiver Module Specifications

Model	A8972FLC module	A8974FLC module
-------	-----------------	-----------------

### Mechanical

Size	1.50 in. W x 3.30 in. H x 8.20 in. L (38 x 84 x 208 mm)
Weight	8.0 oz. (227 g)
Connections	one or two duplex LC connectors

### Optical

- Mode: Single-mode
- Optical Budget: 20 dB
- Operating distance: 20 km
- Emitter: Laser
- Wavelength: 1310 nm
- Transmitter launch power: (-) 2 dBm typical
- Receiver sensitivity: (-) 22 dBm typical
- Gain control: OAGC
- Connector style: Duplex LC

## Product ordering

Model	Part number
Single optical input/output module	A8972FLC
Dual optical input/output module	A8974FLC

## Data Module Specifications

Model	A8910MPD duplex data module
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### *Mechanical*

Size:	0.75 in. W x 3.30 in. H x 8.88 in. L (19 x 84 x 226 mm)
Weight:	4.0 oz. (113 g)
Connections:	RJ45 or factory-supplied breakout box

### *Data*

- Channels: 4 duplex
- Formats: RS-232 (3-wire/5-wire), TTL, RS-422 (2-wire/4-wire), RS-485, Manchester, Biphase, Sensornet
- Baud rate: DC to 512 kbps (depending on data format)
- Bit error rate:  $> 10^{-9}$
- Test signal: Internally generated RS-485 signal

## Product Ordering

Model	Part number
Duplex data module	A8910MPD



## Ethernet Module Specifications

Model	A8911ETH Ethernet Module
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### *Mechanical*

Size	0.75 in. W x 3.30 in. H x 8.88 in. L (19 x 84 x 226 mm)
Weight	4.0 oz. (113 g)

### *Ethernet*

- Ports: 3 10/100BASE-T
- Auto-Negotiation
- Supports Full and Half-Duplex
- Throughput:  
Module Port-to-Port: Line-Rate  
Between Nodes: 25 Mbps
- Auto MDI/MDI-X

## Product Ordering

Model	Part number
Ethernet Module	A8911ETH

## Video Module Specifications

Model	A8900VI Module	A8905VO Module
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### Mechanical

Size	0.75 in. W x 3.30 in. H x 8.25 in. L (19 x 84 x 210 mm)
Weight	4.8 oz. (136 g)

### Video

- Channels: 4
- Formats: NTSC/PAL
- Input/Output Signal: 1.0 V p-p composite
- Signal-to-noise ratio: > 55 dB
- Resolution: > 520 TVL
- Input impedance: 75 ohms
- Differential phase: 0.7 degrees
- Differential gain: 2.0 %
- 10 bit AD
- Test signal: Video pattern

## Product Ordering

Model	Part number
Video Input Module	A8900VI
Video Output Module	A8905VO

## Audio Module Specifications

Model	A8920A Audio Module
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### *Mechanical*

Size	0.75 in. W x 3.30 in. H x 8.88 in. L (19 x 84 x 226 mm)
Weight	4.0 oz. (113 g)
Connections:	RJ45 or factory-supplied breakout box

### *Audio*

- Channels: 4 duplex
- Input signal: Maximum +8 dBm or +18 dBm, switch-selectable
- Input impedance: > 30 K ohms or 600 ohms, switch-selectable
- Frequency response: 20-20 kHz
- Output signal level: Maximum +8 dBm or +18 dBm, switch-selectable
- Output impedance: < 30 ohms unbalanced; < 60 ohms balanced
- Audio sampling rate: > 46.8 kHz
- Signal-to-noise ratio: > 90 dB
- Total harmonic distortion: < 0.003%
- 24 bit AD
- Test signal: 1 kHz @0 dBu

## Product Ordering

Model	Part number
Audio module	A8920A

## Contact Closure Module Specifications

Model	A8930C Contact module
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### Mechanical

Size:	0.75 in. W x 3.30 in. H x 8.88 in. L (19 x 84 x 226 mm)
Weight:	4 oz. (113 g)
Connections:	RJ45 or factory-supplied breakout box

### Contacts / Relays

- Contact inputs: 8
- Relay outputs: 8
- Relay contact rating: 0.5 A @ 20 VDC resistive
- Frequency: 500 Hz

## Product Ordering

Model	Part number
Contact closure module	A8930C

## Customer Support

For assistance in installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, please contact technical support during normal business hours (Monday through Friday, excluding holidays, between 6 a.m. and 5 p.m. Pacific Time).

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