AL-1806 Universal Interface

Installation Manual

Introduction

This is the GE *AL-1806 Universal Interface Installation Manual*. This document includes an overview of the product and detailed instructions explaining:

- how to install and wire the unit ;and
- how to do basic programming.

There is also information describing how to contact technical support if you have questions or concerns.

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

- a basic knowledge of the Alliance system; and
- a basic knowledge of electrical wiring and low-voltage electrical connections; and
- a basic knowledge of network settings and internet protocols.

Read these instructions and all ancillary documentation entirely <u>before</u> installing or operating this product. The most current versions of this and related documentation may be found on our website. Refer to *Online publication library* on page 19 for instructions on accessing our online publication library.

Note: A qualified service person, complying with all applicable codes, should perform all required hardware installation and the local network administrator must be present to assist with network connections.

Conventions used in this document

The following conventions are used in this document:

Bold	Menu items and buttons.
Italic	Emphasis of an instruction or point; special terms.
	File names, path names, windows, panes, tabs, fields, variables, and other GUI elements.
	Titles of books and various documents.
`Monospace`	Text that displays on the computer screen.
	Programming or coding sequences.
Blue italic	Hyperlinks to cross-references, related topics, and URL addresses.

Safety terms and symbols

These terms may appear in this manual:

⚠️ **CAUTION**   Improper use may cause equipment damage.

Cautions identify conditions or practices that may result in damage to the equipment or other property.

⚡ **WARNING**   **Improper use could cause equipment damage or serious personal injury.**

Warnings identify conditions or practices that could result in equipment damage or serious personal injury.

Overview

When connected to a compatible panel and system components, the AL-1806 Universal Interface gives the Alliance system network based control and connectivity. *Figure 1* shows a typical system layout with an AL-1806.

Figure 1.   Typical system network configuration
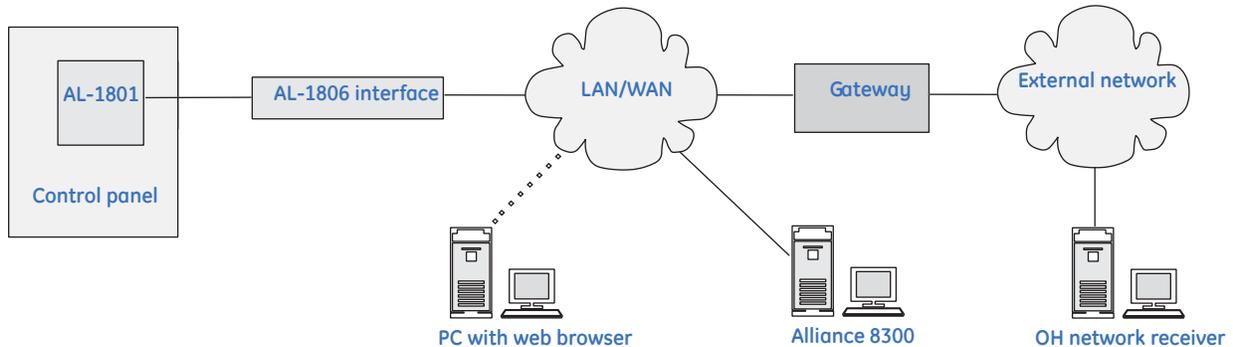
Product features include:

- Contact ID (CID) and Security Industry Association (SIA) data delivery via internet protocol.
- Web-based programming.
- Alliance control panel to management systems connectivity across the WAN or LAN.
- Password access protection and encrypted communications.
- Support of TCP/IP, UDP, and ICMP protocols.
- Firewall rules that can be set to allow and deny IPs, protocols, and ports.

Product contents

The AL-1806 ships with the following:

- One 6 mm Earth ring terminal
- Six mounting screws
- Six clip-in standoffs
- One 18-inch preasssembled data and power cable

Inspect the package and contents for visible damage. If any components are damaged or missing, do not use the unit; contact the supplier immediately. If you need to return the unit, you must ship it in the original box.

Other required equipment

You will also need the following:

- AL-4017/AL-4617 control panel with 04.06.42 or higher firmware installed with basic programming.
- AL-1801 computer interface board mounted on the control panel.

Installation

To install the AL-1806, you must do the following:

- Mount the unit.
- Wire the unit.
- Program the control panel's address, password, and reporting format.
- Default the unit to factory settings and program via a web browser.
- Program web browser functions.
- Configure management software.

Mount the unit

To mount the unit, do the following:

1. Mount the unit in the control panel enclosure using the six clip-in standoffs and mounting screws provided.
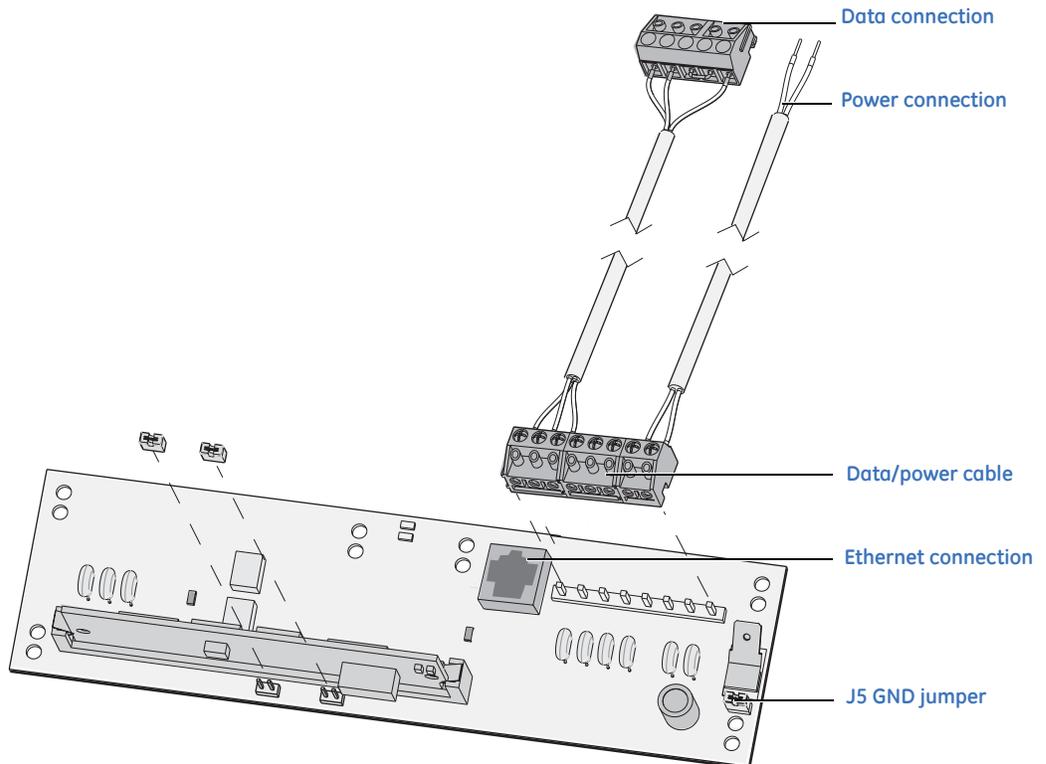
> ⚠️ **CAUTION**   You must be free of static electrictiy before handling circuit boards. Wear a grounding strap or touch a bare metal surface to discharge electricity.

2. Slide the preassembled data and power cable (*Figure 2*) over the terminal pins on the unit.

Figure 2.   Exploded view

Data connection
Power connection
Data/power cable
Ethernet connection
J5 GND jumper

Wire the unit

To wire the unit, do the following:

1. Connect the data connection terminal on the AL-1806 preassembled cable (*Figure 2*) to Port A on the AL-1801 computer interface board. The cable terminals connect the wires as follows:

AL-1806 data connection terminal	AL-1801 Port A terminal
GND	GND
TX OUT	RXDA
RX IN	TXDA
RTS (not connected)	CTSA (linked to RTSA)
CTS (not connected)	RTSA (linked to CTSA)
EARTH (connected to Earth ground on control panel	

2. Using the power connection terminal on the AL-1806 preassembled cable (*Figure 2*), connect the black wire (GND) and connect the red wire (+12V) on either an auxiliary power on the Alliance control panel, a DGP, or another 12 VDC power source.

3. Connect the CAT 5/Ethernet cable (*Figure 2*) from the AL-1806 to your network connection point.

Programming the control panel's address, password, and reporting format

Use the control panel's RAS keypad to program the control panel's address, password and reporting format.

Control panel's address and password

To program the control panel's address and password, do the following:

1. Press **Menu.**
2. Enter **1278**, and press **Enter**.
3. Enter **19** (installer menu) and press **Enter**.
4. Press the ***** key (advanced programming mode).
5. Enter **29** (computer connection) and press **Enter**.
6. Scroll through the menu by pressing **Enter** until the display shows `Computer Address: 0001`.
7. Type in the Alliance control panel's physical address and press **Enter**. The display shows `Security Password 0000000000`.
8. Type in the 10-digit security password (zero is valid) and press **Enter**.

Reporting format

To program the control panel's reporting format, do the following:

1. Press **Menu.**

2. Enter **1278**, and press **Enter**.

3. Enter **19** (installer menu) and press **Enter**.

4. Press the ***** key (advanced programming mode).

5. Enter **9** and press **Enter**.

6. Scroll through the menu by pressing **Enter** until the display shows `CS station 1..4`

7. Enter the central station number and press **Enter**. The display shows the reporting format number.

8. Enter the reporting format's number (*3* for CID Large or *5* for SIA) and press **Enter** until the display shows *System account* (a four-digit number identifying the site of a system alarm to the central station).

9. Enter the system account number and press **Enter** to confirm.

10. Enter the area 1 account number (four-digit number identifying an alarm area) and press **Enter** to confirm. Press **Enter** to scroll until the display shows *Conn Type* (default is PSTN).

11. Enter *4* to select Universal Interface and press **Enter** to confirm. Press **Enter** again to begin programming another central station.

Default to the unit to factory settings

The AL-1806 interface uses the J8 default jumper (*Figure 3*) to restore the unit to factory default settings.

Figure 3. Default and reboot jumpers

J8 Default jumper   J2 Reboot jumper
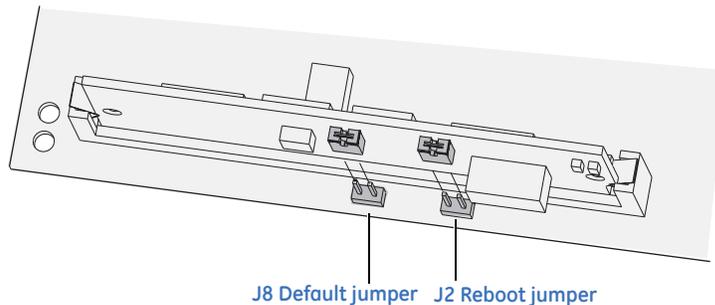
When the jumper is placed on the pins of the J8 default jumper, and the board is powered up or reset, the following occurs:

- IP address is set to 192.168.0.100 until the jumper is removed and the board is reset.
- Network mask is set to 255.255.255.0 until the jumper is removed and the board is reset.
- Default gateway is set to 192.168.0.1 until the jumper is removed and the board is reset.
- All firewall rules are permanently removed; default is set to *accept all*.
- Username is set to *ALLIANCE MASTER* (case sensitive) and the password is set to *998765*. All other users are permanently removed.
- Communications software is not started.

All other settings, such as management software settings, encryption keys, addresses, and ports are unaltered. If the default jumper is not fitted at power on/reset, the interface is configured using existing user-defined values in the EPROM. If the settings are wrong, for example, a firewall rule locks out the user, the interface will stop working. If this happens, fit the default jumper and reset the user-defined settings.

To default to the factory settings, do the following:

1. Put the default jumper on J8 (*Figure 3*) and power up the board.

2. Configure your PC to have an IP address within the 192.168.0.0 subnet. For example, use 192.168.0.X, with X being any number from 1 through 254 except 100. The AL-1806 interface uses 192.168.0.100, so do not use it for the PC.

3. Start a web browser on the PC. Ensure any proxy settings are turned off.

4. In the web browser, enter URL: http//192.168.0.100.

5. Log on with the user name ALLIANCE MASTER (case sensitive) and password 998765. Use the procedures provided in *Programming* on page 11 of this manual to program:

   - User name and password (*Change user details* on page 11).
   - Up to three central station configurations for contact ID events (OH-Network Receiver) and one central station to receive Alliance events (*Central station parameters* on page 12).
   - Panel physical address (*Panel physical address* on page 14).
   - Panel security password (*Panel security password* on page 14).

- Encryption key (*Encryption key* on page 14).
- Firewall rules (*Add a new rule* on page 15).

6. Remove the jumper on J8 default jumper and power on/reset the board by momentarily connecting the jumper at J2 reboot jumper (*Figure 3*).

Program web browser functions

To program web browser functions, do the following:

1. Alter your PC with the web browser network parameters so the AL-1806 interface and the PC are within the same subnet. For example, if the AL-1806 interface is 10.203.0.15, Mask 255.255.255.0, Gateway 10.203.0.1, then the PC has to be the same Mask and Gateway, but a different IP such as 10.203.0.X.

2. Enter the new URL (new address of the AL-1806 interface), for example, http://111.222.333.444.

3. To confirm the new settings were restored, click on the menu option links and check that the data was entered correctly.

4. We recommend that you configure your web browser to bypass the URL of the AL-1806 interface so the web browser always displays the most up-to-date information. To do this, in Internet Explorer, go to *Tools | Internet Options | Connections | LAN Settings | Advanced*. In the *Exceptions* dialog box type the address of the AL-1806 interface.

Configure management software

Configure the port number in the CID/SIA station software and configure the Alliance physical address, security password, and encryption key in Alliance 8300 software management.

Refer to the *Table 5, Programming checklist* on page 17 for the programming requirements for the management software.

Programming

Use a web browser to do the programming described in this section. Log on to the AL-1806 interface at the default address, http://192.168.0.100.

User Authentication menu

Use the *User Authentication* menu to:

- log on
- log off
- change user details.

Log on

To log on, do the following:

1. Go to *User Authentication | Login*.

2. Enter *ALLIANCE MASTER* (case sensitive) for the user name and *998765* for the password.

3. Click **Submit**.

Log off

Go to *User Athentication | Logout* to log off.

Change user details

We recommend that you change the default user name and password. To change user details, do the following:

1. Go to *User Authentication | Change user details*.

2. Enter the new user name, password, and confirm password.

3. Click **Change details**.

4. Refresh the browser frame to update the changes.

Network setup menu

Network parameters must be set up as part of the AL-1806 installation process. You will need assistance from the local site administrator to set up these parameters. Use the Network Setup menu to program:

- Static address parameters
- Central station parameters
- Network receiver parameters
- Email/TFTP parameters

Static address parameters

Setting the static address parameters is an essential step in installing the AL-1806. The static address is the IP addrss of the AL-1806 interface used to replace the default address.

To set the static address parameters, do the following:

1. Go to *Network Setup | Static address parameters*.

2. Type in the new static IP address for the AL-1806 in the *Enter IP address* boxes.

3. Click **Submit**

Central station parameters

To set the central station parameters, do the following:

1. Go to *Network Setup | Central station parameters*.

2. Type in the IP addresses for any CID site or Alliance 8300 management software site. The central stations are reserved as shown in *Table 1*.

Table 1.   Central stations

Central station number	Function
1	Main station for the OH network receiver.
2 - 3	Optional backups for the OH network receiver.
4	Alliance 8300 site.
5 - 10	Reserved for future development, not used at this time.

3. For each IP address, select options for the categories shown in *Table 2*.

Table 2.   Allowable settings

Allowable settings	OH network receiver	Alliance 8300
Protocol	TCP	UDP
Data type	Event	Polled
Event type	CID, SIA, or XSIA	V8 computer event only
Encryption	Tripe DES	Twofish or none

4. Click **Submit**.

5. Go to *Utilities | Restart communications* to update the system data.

6. Type the IP address that you assigned to the AL-1806 interface (see Program static address parameters) in Internet Explorer's address bar. *Welcome to the Universal Interface* displays in the browser to confirm a successful connection. The default IP address used earlier will no longer allow you to connect with the AL-1806 interface.

Network receiver parameters

To set the network receiver parameters, do the following:

1. Go to *Network Setup | Network receiver parameters*.

2. Enter the receiver number. A monitoring station normally has multiple network receivers passing information to it, identified by the receiver number. Up to three digits (0 to 255) are valid. Obtain this number from the monitoring/central station.

3. Enter the line number. This number identifies the line card that delivered the error message from the panel. Up to three digits (0 to 255) are valid. Obtain this number from the monitoring/central station.

4. Enter the heartbeat timeout. The heartbeat timeout is the interval between hearbeats in seconds. Up to three digits (0 to 255) are valid. The heartbeats in this case are sent by the AL-1806 interface to the OH network receiver. If the heartbeat fails, no alarm event is created at the network receiver end, and the AL-1806 interface does not appear in the network receiver log.

Messages sent from the control panel to the central station contain the network receiver number, line number, account code/circuit number (normally four digits), and the event message.

Email/TFTP parameters

As an alternative to connecting a printer to Port B of the AL-1801 Computer and Printer Interface, you can program the AL-1806 interface to output printer events as a data file and send the file to email addresses or to a TFPT (Trivial File Transfer Protocol) server address.

To set the email/TFTP parameters, do the following:

1. Go to *Network Setup | Email/TFTP parameters*.

2. To use email, enter up to three email addresses. Leave all email address blank if you do not want to send email.

3. Enter the IP address for the mail server or TFTP server, as required. Leave the server address blank if you do not want to send email or TFTP.

4. Enter a *maximum number of events before sending* value to use the logged events as a trigger for sending email or TFTP. To disable this option, enter the value 0 (zero).

5. You can also schedule email or TFTP by using the time settings. Enter the time to send scheduled email in hours and minutes and select AM or PM to schedule daily email or TFTP transmissions. If used in conjuction with a *maximum number of events before sending* value, the scheduling function will send email or TFTP even if the number of logged events has not reached the specified value.

6. Click **Submit**.

Panel setup menu

Panel parameters must always match details programmed for the control panel through the RAS keypad. After changing any communication settings, go to *Utilities | Restart communications* to update system data. Some of the menu options in the Panel Setup menu are not supported by the Alliance system. These unsupported options are not detailed in this manual. The menu options in the Panel Setup menu include:

- Event ACK timeout (not supported by Alliance)
- Heartbeat timeout (not supported by Alliance)
- Communications-lost event flag (not supported by Alliance)
- Panel physical address
- Panel security password
- Encryption key

Panel physical address

To set the control panel's physical address, do the following:

1. Go to *Panel Setup | Panel physical address*.

2. Type in the panel's system address.

3. Click **Submit**.

Panel security password

The security password programmed here must match the 10-digit password that was programmed in the Alliance control panel through the RAS keypad during panel installation. As a precaution, delete any temporary files your browser creates each time the security password is submitted.

To set the panel security password, do the following:

1. Go to *Panel Setup | Panel security password*.

2. Enter the panel's 10-digit password.

3. Click **Submit**.

Encryption key

Keep a note of your encryption key and give the key to trusted personnel only. Without encryption your data, when sent over the internet, is easily seen with the right tools.

To set the encryption key, do the following:

1. Go to *Panel Setup | Encryption key.*

2. Enter the encryption key. Entering in all zeroes disables encryption, even if enable is selected. Up to 16 numbers are accepted. Each three-digit number in each field can be from 0 to 255.

3. Select the *Enable* box.

4. Click **Submit**.

5. Go to *Utilities | Restart communications* to ensure the entire system is updated.

Firewall setup menu

Firewall rules allow you to accept or deny one or more selected communication protocols and associated data. Adding a new rule to accept a protocol does not stop communication with other protocols. To deny a protocol you need to either set up a specific rule, or use the *Set default rule to deny all connections* option.

Table 3 lists the protocols options, their purpose, and associated port numbers.

Table 3.   *Protocols*

Protocol	Purpose	Port number
TCP. Transmission Control Protocol. Guarantees data delivery.	Communications between the PC web browser and the AL-1806 interface for initial programming.	80 (web browser) 9999 (OH network receiver)
UDP. User Datagram Protocol. Few error recovery services, uses less bandwidth than TCP. Delivery guaranteed by panel computer protocol and panel backup dialer.	Communications between Alliance 8300 management software and the Alliance panel.	3001
ICMP. Internet Control Message Protocol.	Used by the ping network connectivity test. We recommend disabling all ICMP communications after commissioning a system	N/A

Show all rules

Go to *Firewall Setup | Show all rules* to view a list of the rules currently in the system.

Add a new rule

To add firewall rules, do the following:

1. Go to *Firewall Setup | Add a new rule*.

2. To add a rule so the web browser can manage the AL-1806 interface, enter the IP address of the PC with the web browser in the *Enter IP address* box. Enter *80* for the port number, select *TCP* as the protocol, and select *Accept* for the rule type. Click **Submit**.

3. Click **Clear all** and add a rule for each CID station or management software station with each IP address. For the 8300 software management address, enter *3001* for the port number, and *UDP* for the protocol. Select *Accept* for the rule type and click **Submit**.

4. Click **Clear all** and add a rule for the ping test if required using *ICMP* for the protocol. Click **Submit**. We recommend you leave ICMP permanently disabled, and only use it for testing the system.

5. Click **Submit** under *Set default to deny all connections* to exclude any other connections.

Delete a rule

Go to *Firewall Setup | Delete a rule* to remove a rule from the list of current rules for the system.

Utilities menu

Use the Utilities menu to access the following options:

- Auto enroll (not supported by the Alliance system)
- Restart communications
- Local event log
- CPU load
- System uptime
- Flash ROM version
- Reboot CPU

The utilities are tools to view and execute specific tasks and require no programming. *Table 4* explains the utility options.

Table 4.   Utility functions

Utility	Explanation
Auto enroll	Not supported by the Alliance system.
Restart communications	Restarts communications to the control panel and to all stations receiving events from the interface. Use after changing any of the communication settings.
Local event log	Reports Alliance panel events under three headings: time, Alliance panel, and message. Except for the first few events in the log, the time is always automatically synchronized to the panel.
CPU load	Displays the CPU and operating system parameters to assist when requesting technical support
System uptime	Displays the time that it has powered up in days, hours, minutes, and seconds.
Flash ROM version	Use this to check the version of the software running in the AL-1806 interface.
Reboot CPU	Restarts the CPU (momentarily replacing the jumper at J2 on the interface board does the same task). The only data lost is the current information in the local event log.

Programming cross reference checklist

Table 5 lists the AL-1806 configuration items that are programmed through the web browser and indicates which item must also be programmed using the Alliance panel RAS keypad and Alliance 8300 management software.

Table 5.   Programming checklist

Configuration item	Function	Notes	RAS keypad	Alliance 8300
All user functions	log on, log off, change user details		No	No
Alliance panel static IP address	IP address of Alliance panel/AL-1806 interface	System see this as the Alliance panel address (interface is transparent)	No	Yes
Central station parameters (stations 1, 2, and 3)	Reporting of alarm events to the OH network receiver	OH network receiver supports CID, SIA, and XSIA.	Yes	Yes
Centrol station parameters (station 4)	Reporting of V8 events to the Alliance 8300	Always gives first station connected highest priority.	No	No
Central station reporting protocol	Reporting protocol used to send events to the central station	Only when reporting to the OH network receiver.	Yes	No
Event acknowledgement timeout	Timeout for retransmission of events	Tries three times before trying the next CID station.	No	No
Heartbeat timeout	Alliance panel waits for CID stations to heartbeat the interface.	If no hearbeat is detected, the Alliance panel sends a message to the central station by backup dialing.	No	No
Communications lost event flag	Alliance detects failure of the tamper in the interface	Can be used to trigger an alarm event.	No	No
Alliance panel physical address	Number of the Alliance panel as know by the CID and management software.	Must match Alliance address stored elsewhere.	Yes	Yes
Alliance panel security password	Security feature.	Must match Alliance panel password stored elsewhere.	Yes	Yes
Encryption key	Individual key	-	No	Yes

Specifications

Table 6 lists the hardware and software specifications.

Table 6.   Specifications

Software	Description		
Configuration	Mainly web browser after initial installation.		
Reporting format	CID over IP reporting, CID/SIA over internet with OH-network receiver		
Software upgrade paths	Obtain upgradeable software from GE Security.		
Reporting options	Osborne Hoffman network receiver CID/SIA. Upload to seven Alliance 8300 management software sites.		
Reporting backup	PSTN dialer backup from Alliance for alarm events to central station.		
Encryption	128-Bit Twofish data encryption with Alliance 8300 management software Triple DES encryption with OH-network receiver.		
Typical TCP packet sizes	Traffic type	Direction	Total bytes
	Poll	Software >panel	85
	Ack, no data	Software < panel	85
	Ack, COS event	Software<panel	99
	Ack, SIA/CID event	Software<panel	107
Network primitive frame size	Ethernet frame	64 - 1522	
	IP frame	20 + data	
	TCP frame	20 + data	
	UDP frame	8 + data	
Hardware	**Description**		
Power supply	12 VDC direct from auxiliary power from Alliance panel, DGP, or other 12 VDC source.		
Backup power	Battery supply via Alliance panel		
Max. current consumption	134 mA		
Onboard status indicators	LED indicators for power, Ethernet link and activity, and RS232 data transmit and receive		
Data connection from panel to interface	RS232 port connection from AL-1806 interface to Port A connection on AL-1801 computer and printer interface mounted on the Alliance panel.		
Board size	Board size 3		
Data reset and refresh functions	CPU reset via jumper (J2) and via browser (*Reboot CPU*) Data reset to factory defaults via jumper (J8) *Restart communications* via browser.		
Operating temperature	32 to 122°F (0 to 50°C)		
Max. relative humidity	95% noncondensing		

Contacting technical support

For assistance installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, you may contact technical support and sales.

For sales and technical support assistance, we provide customers with several options (see *Table 7*).

Table 7. Sales and support contact information

	Sales	Technical support
Phone:	888-437-3287	**888-437-3287**
Fax:	503-691-7566	**503-691-7568**

Note: Be ready at the equipment before calling for technical support.

Online publication library

Another great resource for assistance with your GE Security products is our online publication library, available to all of our customers on our website. To access our publication library, go to our website at the following location:

```
http://www.gesecurity.com
```

In the **Tools** area at the top, click the *Publication Library* link. After you register and log on, you may search through our online library for the documentation you need.[1]

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1.   Many GE Security documents are provided as PDFs (portable document format). To read these documents, you will need Adobe Acrobat Reader, which can be downloaded free from Adobe's website at `www.adobe.com`.