SIEMENS

INSTALLATION & OPERATION

ARGUS EVENT RECORDER, A80311

JULY 2014

DOCUMENT NO. SIG-00-06-05
VERSION F

PRINTED IN U.S.A.

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The equipment covered in this manual has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

DOCUMENT HISTORY

Version	Release Date	Details of Change
E	March 2011	• Added Argus ordering part numbers – Tables 1-6 and 1-7. • Added MTSS & GFT to Applicable Documents. • Added references to MTSS & GFT where applicable. • Added Digital Input references and differentiated between discrete and digital signals throughout. • Added circuit diagrams for connecting MTSS & GFT to Argus. • Updated all front panel & terminal screen nomenclature to replace Change Settings>Discrete Inputs with >Digital Inputs. • Added tables to provide MTSS & GFT input descriptions. • Updated Modules screens to show new Module Type (iLOD, VHF & Linked Argus) selections. • Added Table for iLOD parameter settings & descriptions. • Added configuration information for iLOD, VHF & Linked Argus. • Added table for MTSS & GFT Discrete Input designations & indications. • Updated front panel sequence for Monitor I/O Digital Inputs. Added section for installing Argus boot code using the terminal.
E.1	April 2014	Rebrand for Siemens

F	July 2014	Add SNTP functionality description:
		• Added SNTP to Glossary
		• Pg 3-5, Fig 3-4 – added SNTP
		• Pg 3-10, paragraph 3.3.3 – removed USB from menu
		• Pg 3-11, Fig 3-7 – added SNTP to diagram
		• Replaced Change Settings menu in the following figures
		    Fig 3-10, pg 3-16
		    Fig 3-19, pg 3-24
		    Fig 3-21, pg 3-26
		    Fig 3-23, pg 3-30
		    Fig 3-25, pg 3-34
		    Fig 3-27, pg 3-37
		    Fig 3-29, pg 3-39
		    Fig 3-31, pg 3-41
		    Fig 3-33, pg 3-43 new figure for SNTP
		    Fig 3-35, pg 3-47
		    Fig 3-36, pg 3-54
		    Fig 3-37, pg 3-55
		    Fig 3-38, pg 3-56
		    Fig 3-46, pg 3-65

		Fig 3–48, pg 3-67
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		Fig 3-57, pg 3-84
		Fig 3-59, pg 3-86
		Fig 3-81, pg 3-124
		• Added new section 3.10.8 SNTP, pg 3-43
		• Added Fig 3-34, pg 3-46 – [Front Panel] SNTP Setup Sequences

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NOTES, CAUTIONS, AND WARNINGS

Throughout this manual, notes, cautions, and warnings are frequently used to direct the reader's attention to specific information. Use of the three terms is defined as follows:

⚠ WARNING	**WARNING** **INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY. WARNINGS ALWAYS TAKE PRECEDENCE OVER NOTES, CAUTIONS, AND ALL OTHER INFORMATION.**

⚠ CAUTION	**CAUTION** REFERS TO PROPER PROCEDURES OR PRACTICES WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN A POTENTIALLY HAZARDOUS SITUATION AND/OR POSSIBLE DAMAGE TO EQUIPMENT. CAUTIONS TAKE PRECEDENCE OVER NOTES AND ALL OTHER INFORMATION, EXCEPT WARNINGS.

NOTE	**NOTE** Generally used to highlight certain information relating to the topic under discussion.

If there are any questions, contact Siemens Rail Automation Corporation Application Engineering.

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

Static electricity can damage electronic circuitry, particularly low voltage components such as the integrated circuits commonly used throughout the electronics industry. Therefore, procedures have been adopted industry-wide which make it possible to avoid the sometimes invisible damage caused by electrostatic discharge (ESD) during the handling, shipping, and storage of electronic modules and components. Siemens Rail Automation has instituted these practices at its manufacturing facility and encourages its customers to adopt them as well to lessen the likelihood of equipment damage in the field due to ESD. Some of the basic protective practices include the following:

- Ground yourself before touching card cages, assemblies, modules, or components.

- Remove power from card cages and assemblies before removing or installing modules.

- Remove circuit boards (modules) from card cages by the ejector lever only. If an ejector lever is not provided, grasp the edge of the circuit board but avoid touching circuit traces or components.

- Handle circuit boards by the edges only.

- Never physically touch circuit board or connector contact fingers or allow these fingers to come in contact with an insulator (e.g., plastic, rubber, etc.).

- When not in use, place circuit boards in approved static-shielding bags, contact fingers first. Remove circuit boards from static-shielding bags by grasping the ejector lever or the edge of the board only. Each bag should include a caution label on the outside indicating static-sensitive contents.

- Cover workbench surfaces used for repair of electronic equipment with static dissipative workbench matting.

- Use integrated circuit extractor/inserter tools designed to remove and install electrostatic-sensitive integrated circuit devices such as PROM's (OK Industries, Inc., Model EX-2 Extractor and Model MOS-40 Inserter (or equivalent) are highly recommended).

- Utilize only anti-static cushioning material in equipment shipping and storage containers.

For information concerning ESD material applications, please contact the Technical Support Staff at 1-800-793-7233. ESD Awareness Classes and additional ESD product information are also available through the Technical Support Staff.

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GLOSSARY

10BASE-T   Vendor-independent standard implementation of Ethernet on twisted pair wiring providing 10 Mbit/s transfer rates.

100BASE-T   There are several standards for Fast Ethernet (100 Mbit/s) over twisted pair, collectively called 100BASE-T. The most commonly used is 100BASE-TX, which uses two pairs of a Category 5 cable, one in each direction.

ANSI/VT100   American National Standards Institute / Virtual Terminal 100 (by Digital Equipment Corporation). Throughout this document, ANSI/VT100 refers to the standard for terminal emulation.

AREMA   The American Railway Engineering and Maintenance-of-way Association.

CDL   Control Description Language. CDL is the language used to generate application programs.

DHCP   Dynamic Host Configuration Protocol. DHCP is a protocol used by networked computers (clients) to obtain IP addresses and other parameters such as the default gateway, subnet mask, and IP addresses of DNS servers from a DHCP server.

DNS   Domain Name System. Translates domain names (computer hostnames) to IP addresses.

DTMF   Dual Tone, Multi-Frequency. The signal a telephone company receives when a telephone's touch keys are pressed. Also known as Touchtone.

DTX   Digital Touch Exchange. The DTX Office Communications System is a microprocessor-based central communications control system capable of supporting up to 24 communications consoles and 240 communications lines. This system combines the latest digital switching techniques with touch-screen and color video graphics to integrate virtually all types of communication lines including two- and four-wire radio, telephone, intercom, PA, and special lines as well. All internal audio and control signals use digital technology exclusively.

Ethernet   A type of networking technology for local area networks.

Gas Gauge   A display technique used to show the progress of an activity. As the activity is completed, a gauge bar increases until the task is complete (similar to a gas gauge as gas is being added to the gas tank). Sometimes, a percentage is displayed with the gauge.

GLOSSARY - *continued*

GPS   Global Positioning System. A process which uses orbiting satellites (normally a set of three) to detect, track and communicate with a ground unit receiving a GPS signal.

I/O   Input/Output.

IP   Internet Protocol. Data-oriented protocol used for communicating data across a packet-switched network.

iLOD   Refers to the Safetran intelligent light-out detector, A80271.

Maintainer   Railroad employee responsible for performing maintenance activities on crossing and wayside systems.

OCG   Office Communications Gateway. A Safetran Systems application program that runs on Windows and is used to handle communications between an office system and the field.

RS-232   Recommended Standard-232. A TIA / EIA standard for serial transmission between computers and peripheral devices.

SEAR   Refers to the Safetran Event Analyzer and Recorder version II or IIi, A80273 / A80410.

SNTP   **S**imple **N**etwork **T**ime **P**rotocol, a simplified version of NTP (a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks). SNTP can be used when the ultimate performance of the full NTP implementation is not needed or justified.

Telnet   A network protocol commonly used to remotely access terminal based services.

USB   Universal serial bus. Throughout this document, we are referring to version 2.0 of the USB specification.

VHF Communicator Safetran's VHF Communicator (A80276) adds VHF voice-band communications capabilities to the ARGUS Event Recorder. The unit has a built-in 6-Watt VHF radio transceiver operating in the 148 – 174 MHz range, and it communicates with the ARGUS over the Echelon network.

WAMS   Wayside Alarm Management System. Safetran application software that runs in the office environment to manage alarms and other data generated in the field by Event Recorders.

Zmodem   A file transfer protocol.

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SECTION 1

INTRODUCTION

1.0   INTRODUCTION

1.1   GENERAL
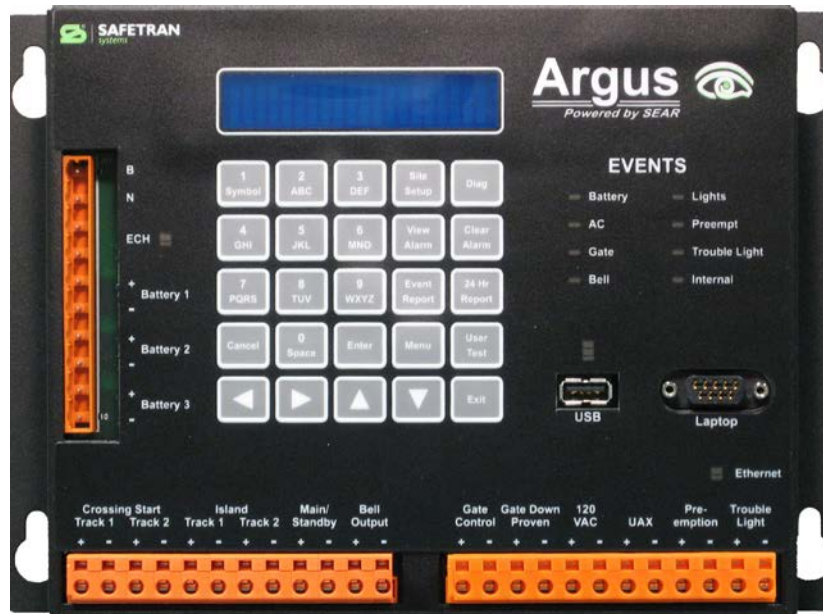
Figure 1-1. Argus Event Recorder (A80311) With Mating Connectors

The Argus Event Recorder (p/n A80311) monitors the status and records the events associated with railroad wayside and grade crossing installations.

The Argus is a compact, inexpensive, non-vital stand-alone system designed to provide basic event recording, and more. The Argus is a simple-to-install, simple-to-use device which can be used in new installations, or to replace legacy equipment in the field.

The Argus:

- Provides full monitoring, recording and reporting functions for most standard crossing configurations without the need for any other modules, except for light-out detectors or other optional supported devices (check with Siemens Rail Automation Application Engineering for which other devices are currently supported).

- Allows the railroad to have recorded proof-of-crossing operation. The log from the recorder contains anti-tampering information. Any editing of this log will be obvious to an auditor.

- Provides a user-friendly platform for site configuration and log retrieval, without the need for special hardware or software, via a USB 2.0 flash drive.

- Provides notification of alarm conditions to the Wayside Alarm Management System over a variety of communication networks (check with Siemens Rail Automation Application Engineering for the networks and protocols currently supported).

- Allows functional enhancement by adding an internal GPS receiver card (-04/-05/-06 models only). The GPS receiver card provides date/time and location information to the Argus unit.

- In "Linked I/O Mode" allows expansion of a single Argus Master with up to 4 additional Linked Argus units via the Echelon LAN.

1.2   SCOPE

This manual serves as the installation and operation guide for the Argus Event Recorder.

1.3   APPLICABLE DOCUMENTS

- iLOD, A80271 User's Guide (Document No. SIG-00-03-05-005)
- Configuration Summary – Argus basic application 9V937 (Document No. SIG-00-07-01-001)
- Configuration Summary – Argus Application 9V966 (BNSF application # SIG-00-08-20-001)
- VHF Communicator, A80276 User's Guide (Document No. SIG-00-03-05-002)
- Data Over Voice System, Installation & Operation manual (Document No. COM-00-07-10)
- Mini Trackside Sensor Package – User's Guide (Document No. SIG-00-03-05-001)
- Ground Fault Tester – User's Guide (Document No. SIG-00-03-05-003)

1.4   SYSTEM OVERVIEW

The Argus can monitor up to 12 separate discrete inputs and three analog inputs without external modules. The analog and digital digital input circuits on the Argus are brought out to front panel connectors. The Argus digital inputs can monitor discrete system I/O as well as the data signals from the A80285 Mini-Track Side Sensor (MTSS) and the A80297 Ground Fault Tester (GFT). The Argus digital inputs can monitor discrete system I/O as well as the data signals from the A80285 Mini-Track Side Sensor (MTSS) and the A80297 Ground Fault Tester (GFT).

Argus currently supports the iLOD (A80271) module, which may be used to monitor a lamp or switch circuit (30 amperes maximum peak). The iLOD interfaces to the Argus via the Echelon LAN.

The Argus design is compact and is suited for wall, shelf, or relay rail mounting. The unit provides front panel access to all controls and indicators. Each of the controls, indicators and connectors is identified in Figure 1-2. and described in Table 1-1.

Argus supports the VHF Communicator (A80276) module, which may be used to deliver alarm notifications using the Data Over Voice system (see Document No. COM-00-07-10). The VHF Communicator may also be used with the Argus to speak over the VHF audio channel and to interact with personnel or other systems using DTMF tones.

1.5   SYSTEM DESCRIPTION

The Argus can be used to monitor vital inputs (provided wiring guidelines are followed) and, depending on the model, may be loaded with a standard application program with pre-determined discrete inputs and battery wiring.

	WARNING
⚠ WARNING	**THE ARGUS EVENT RECORDER IS A NON-VITAL PRODUCT. CAUTION MUST BE TAKEN WHEN INTERFACING THE ARGUS TO ANY VITAL SIGNAL OR CROSSING EQUIPMENT AS THE ARGUS CAN NOT BE USED TO PERFORM, EITHER DIRECTLY OR INDIRECTLY, ANY VITAL FUNCTIONS. ENSURE THE ARGUS IS INSTALLED PER MANUFACTURER'S INSTRUCTIONS, AND/OR ALL EQUIPMENT INTERCONNECTIONS ARE IN COMPLIANCE WITH RAILROAD PROCEDURES AND SPECIFICATIONS.**

Like the SEAR II Event Recorder, the Argus contains the system microprocessor, real-time clock, event and program memory, display, keypad, discrete inputs, battery monitor inputs, indicator LEDs, beeper and communications interfaces. Except for the Ethernet side panel connection, all controls, indicators, and connectors are accessible from the front panel of the unit. Discrete inputs are isolated from each other and from the main Argus circuitry.

The Argus front panel contains 8 LED indicators, which are dedicated to providing indications for software-generated alarms, a 2-line X 20-character Vacuum Fluorescent Display (VFD), and a keypad matrix consisting of 25 embossed keys with tactile feedback. Also included is an RS-232 port to interface with a local laptop computer or PC.

1.5.1   Basic And Generic Argus Overlays

The Argus is currently available with two different front panel overlays. The basic overlay (as shown in Figure 1-2) is installed on A80311-01/-04 models and is imprinted with connector nomenclature as defined by the default factory installed application CDL.

The generic overlay (as shown in Figure 1-3) is installed on A80311-02/-03 and –05/-06 models and is imprinted with non-specific connector nomenclature for J12 and J7, and non-specific Event LED names. The -02/-05 model is supplied with a CDL specific to the BNSF railroad. The -03/-06 model does not contain a CDL and is generally intended for use as a basic recorder. An application CDL can be designed and created to make use of the connector inputs and Event LEDs for customer specific applications. For assistance on creating an application CDL consult Siemens Rail Automation Technical Support. Please note, although the generic discrete inputs and Event LEDs can be programmed to simulate the basic model, the bulk of information and examples contained in this manual pertain specifically to the basic model, unless otherwise indicated.
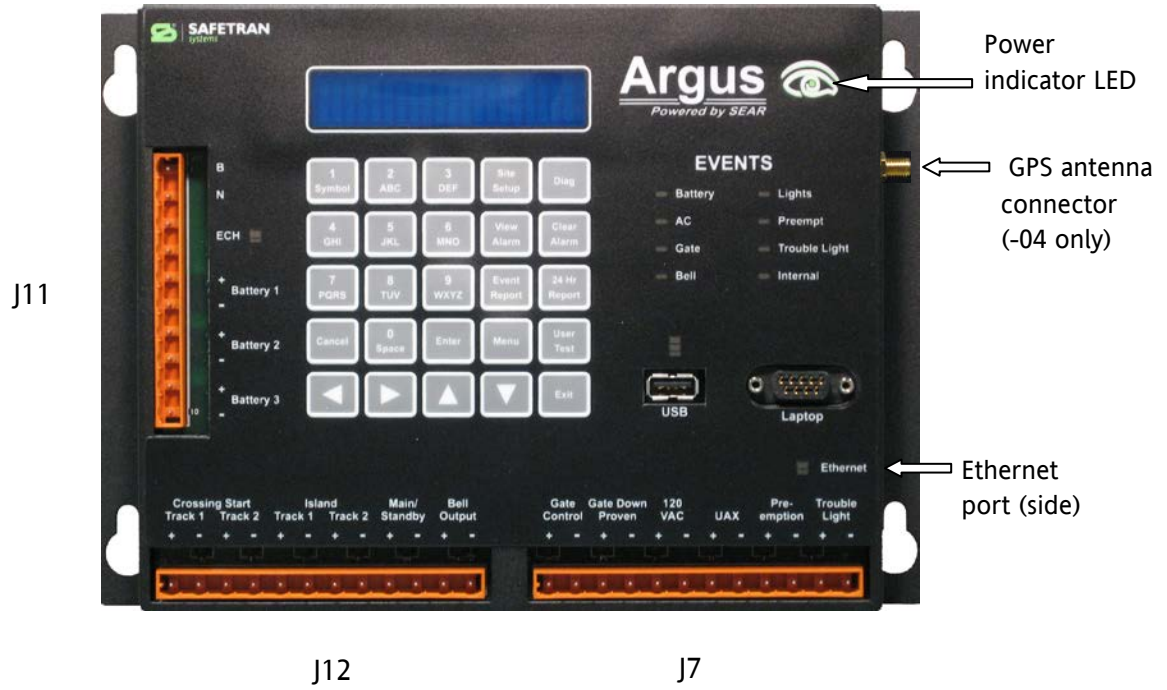
Figure 1-2. ARGUS (–01/-04) Front Panel with Basic Overlay

Figure 1-3. ARGUS (-02/–03 & -05/-06) Front Panel Generic Overlay

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Table 1-1. Control, Indicator, and Connector Functions

PHYSICAL DESCRIPTION	FRONT-PANEL NOMENCLATURE		FUNCTION
	Basic -01/-04	Generic -02/-03 & -05/-06	
2-line X 20-character VFD display	Display	Display	Displays alarms/events and site configuration data, system and I/O status.
Embossed keypad with tactile/audible feedback	25 keys with individual function text	25 keys with individual function text	Used to navigate through menu system and for entering, viewing and manipulating event and configuration data (refer to Section 3 – Operation).
J11 Power, Echelon, and battery input connections	B, N, ECH Battery 1 Battery 2 Battery 3	B, N, ECH Battery 1 Battery 2 Battery 3	Connections to power, Echelon LAN, and monitored batteries. LEDs indicate if power is applied to the unit and the transmission and reception of messages. Remaining pairs of terminals are for connection to the analog battery inputs (refer to Section 2 – Installation).
Event LEDs	Battery, AC, Gate, Bell, Lights, Preempt, Trouble Light, Internal	Event 1, Event 2, Event 3, Event 4, Event 5, Event 6, Event 7, Event 8	8 red "Event" LEDs. The LEDs can be re-assigned by changing the application program.
USB Interface	USB	USB	Used to connect to a USB flash drive. The Argus can store logs and reports on the flash drive and receive software updates from the flash drive. The 3 LEDs (red, yellow, and green) above the USB port indicate an error, a transfer is in progress, and okay to remove the flash drive, respectively.
Laptop Serial Port	Laptop	Laptop	Used to connect to a PC using a standard RS-232 cable. The Argus provides an ANSI/VT100 compliant terminal interface over this port.
Ethernet Interface	Ethernet	Ethernet	Yellow and green LEDs over the Ethernet port indicate link-up status and message activity.
J12 Digital Digital Input Connections J7	Crossing Start (Track 1, Track 2), Island (Track 1, Track 2), Main/Standby, Bell Output	Input 1 Input 2 Input 3 Input 4 Input 5 Input 6	The bottom row of connectors is for digital digital inputs. Each digital digital input has both positive and negative terminal connections. This allows for wiring of a larger variety of digital digital I/O without a common negative. It also prevents problems such as sneak paths when both terminals are wired. The Argus digital inputs can also connect to and process the data signal from the MTSS or GFT.The Argus digital inputs can also connect to and process the data signal from the MTSS or GFT.
	Gate Control, Gate Down Proven, 120 VAC, UAX, Pre-emption, Trouble Light	Input 7 Input 8 Input 9 Input 10 Input 11 Input 12	
GPS Antenna Connector	GPS (side of unit) -04 only	GPS (side of unit) -05/-06 0nly	GPS external antenna connection (can directly interface to active and passive antenna systems).

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1.5.2   Display

The vacuum fluorescent display is 2 lines of 20 alphanumeric characters and is mounted on the board. The overlay covers the display with a translucent blue cover. The translucent blue cover hides the internals of the display from view, but characters are easily visible through it.

1.5.3   Event LEDs

The basic Argus model contains eight red Event LEDs, as listed below. See Specifications Table 1-4 for details.

- Battery
- AC
- Gate
- Bell
- Lights
- Preempt
- Trouble Light
- Internal

Standard LED Conventions

- LEDs are ON (RED) when no alarm has been generated or an alarm has been cleared using the CLEAR ALARM key.

- LEDs FLASH FAST when an alarm condition exists.

- LEDs FLASH SLOW if an alarm has occurred but is currently cleared.

- The CLEAR ALARM key will not clear out alarms if they currently exist.

1.5.4   Laptop Serial Port

The laptop port is for connection to a laptop computer or PC using a standard RS-232 cable.

1.5.5   USB Interface

The USB port is used to connect to a USB flash drive. The Argus can store logs, reports, etc. on the flash drive and can receive software updates from the flash drive.

1.5.6   Echelon® LAN Interface

Pins 3 & 4 of front panel connector J11 provide an interface for the Echelon® LonTalk™ LAN. The Echelon LAN can be used to modularly expand the Argus via connection to various external intelligent modules, such as the iLOD intelligent Light Out Detector (A80271), or up to 4 additional Argus units in "Linked I/O Mode".

1.5.7 Ethernet Interface

The Ethernet port on the right side of the unit supports both 10BASE-T and 100BASE-TX Ethernet protocols, which ensures compatibility and interoperability.

1.5.8 External Expansion Modules

Argus currently supports the iLOD (A80271) Echelon module and VHF Communicator (A80276).

1.5.9 Internal GPS Receiver Expansion Card

The Argus can be expanded by adding an internal GPS receiver card (-04/-05/-06 models). The GPS receiver card provides local date/time and location information to the Argus unit. The Argus automatically detects an installed GPS receiver card, automatically sets the system local date/time from the receiver (when Argus date/time configuration is properly set – see paragraph 3.4), and stores the location coordinates. If the Argus does not detect a GPS receiver, standard date/time procedures apply (manually set or set by network messages).

The Argus prints the location coordinates (latitude and longitude) and the number of satellites in view on the configuration report, event report, version report, and other reports. If the Argus does not detect a GPS receiver, the reports indicate no GPS receiver hardware installed. If the Argus detects a GPS receiver but the receiver does not have sufficient satellites in view to trust the time and location coordinates, the reports indicate there are insufficient satellites in view.

The Argus allows the user to configure the number of satellites required to trust the location coordinates ("Minimum Satellites" setting). By default, the Argus requires a minimum of 3 satellites. The user does not normally need to adjust this setting unless the GPS receiver antenna is in an area with a limited view of the sky.

The Argus allows the user to configure the time difference, in seconds, where if the Argus' system time differs from the GPS time by that amount or greater, it will reset the system time from GPS time. By default, the Argus requires a time difference of 5 seconds between its system time and the GPS time before it will change the system clock. The user can adjust this value ("Minimum Time Difference" setting). Note that local time obtained via GPS is dependent on the Argus date/time configuration setup.

The Argus has a front panel screen and a terminal interface screen that shows the status of the internal GPS receiver. This screen shows:

- GPS receiver card status

- Last received time from GPS receiver card in GMT

- Current time difference between system clock and GPS time in seconds

- Number of satellites in view

- Latitude (in degrees decimal minutes and direction format DD. MM.MMMM C)

- Longitude (in degrees decimal minutes and direction format DD. MM.MMMM C)

1.5.10   Linked I/O Mode

To allow expansion of the number of I/O channels supported by a single Argus, the Argus supports a "Linked I/O Mode". When an Argus is in Linked I/O Mode, it reports I/O states to an Argus Master. Linked I/O Mode allows the expansion of the I/O on the Argus Master to include the discrete inputs, analog inputs, and LED outputs from the additional Linked Argus units. A single Argus Master may be expanded with up to 4 Linked Argus units via the Echelon LAN.
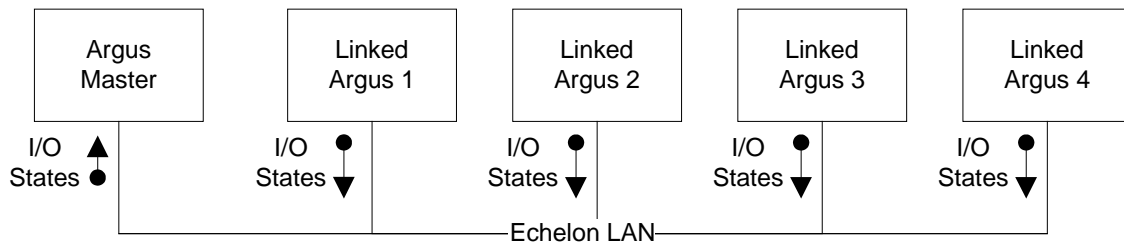
A Linked Argus reports processed I/O states to the Argus Master. On a Linked Argus, the System Mode must be set to "Linked I/O" and the Link Number must be set from 1 to 4. Advanced users may adjust the input de-bounce and sampling settings on a Linked Argus. The front panel display of a Linked Argus shows "LINKED I/O MODE" and the communication status with the Argus Master while in this mode, as well as its Linked unit number.

NOTE	**NOTE**
	When an Argus is set to Normal Mode (i.e. Master) the Argus ignores any number entered in the Link Number field.

When configured as a Linked Argus, the Argus periodically sends its I/O states to the Argus Master over the Echelon LAN. The Linked Argus immediately sends the I/O states to the Argus Master when any I/O state changes. The Argus Master receives the I/O messages and logs any changes in I/O states using the input and output names stored in the Argus Master's configuration settings. Each Linked Argus uses one Echelon module slot from the Argus Master's 16 slots.   The configuration settings (I/O names) are stored on the Argus Master, NOT the Linked Argus.

The Argus Master's CDL program can access the I/O states of each Linked Argus. The CDL program also sets the I/O names for the Linked Argus units since these are stored in the Argus Master's configuration data. The CDL program also controls each Linked Argus unit's LEDs.

The Argus Master provides terminal interface screens and front panel screens to view the current state of each Linked Argus unit's I/O. The Argus Master also provides configuration screens allowing the user to manually set the names assigned to each Linked Argus unit's I/O channel, if the CDL program doesn't name them automatically.

NOTE	**NOTE**
	Linked Argus units do not support reporting MTSS or GFT statuses to an Argus Master. Argus applications should ensure MTSS and GFT inputs are always connected to the Argus Master.

1.6   SPECIFICATIONS

This section includes specification data on the Argus and the Intelligent Light Out Detector (iLOD).

⚠ CAUTION	**CAUTION**
	FAILURE TO OBSERVE VOLTAGE AND ENVIRONMENTAL LIMITS AS SET FORTH IN THE FOLLOWING SPECIFICATIONS FOR THE ARGUS EVENT RECORDER CAN CAUSE DAMAGE TO THE EQUIPMENT.

1.6.1   Power Requirements

A80311   (Argus):

Input Voltage	9 – 30 VDC (customer supplied). Reverse polarity protection up to 16.5 VDC - isolated
Input Current	800 mA maximum 1200 mA maximum at startup

A80271   (iLOD):

Input Voltage	9 – 30 VDC (customer supplied). Reverse polarity protection up to 16.5 VDC
Input Current	200 mA maximum 300 mA maximum at startup

A80276   (VHF Communicator):

Input Voltage	9 – 30 VDC (customer supplied). Reverse polarity protection up to 16.5 VDC
Input Current	200 mA maximum 300 mA maximum at startup

1.6.2   USB Port

USB Interface	Argus conforms to the USB 2.0 host specification in full speed mode.
USB drive	Recommended: 512MB – SimpleTech STI-UFD/512 Siemens P/N Z927-00270-0000

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1.6.3   Echelon® LonTalk™ Interface

All Units:

Data Transfer Rate	1.25 Mbps
Transmission Medium	Level 4 (NEMA) twisted pair cable, shielded or unshielded, wire size #22 AWG (0.65mm) or #24 AWG (0.5mm) Category 5 cable.
Topology	Bus (direct daisy-chain), no stubs or Routers.
Number of Nodes	No more than 8 (including any terminations used) in any 16-meter (53 feet) length of transmission cable; 16 maximum total per network segment
Termination	One termination required on each end of the network. Use Safetran A80078 external termination if the end module does not provide an on-board termination option.
Network Length	53 feet (16m) recommended maximum, 430 feet (130m) absolute maximum per network segment (with certain restrictions)

CAUTION

⚠ **CAUTION**

DUE TO THE NATURE OF THE ECHELON LAN INTERFACE, THE ARGUS AND ALL DEVICES CONNECTED TO THE LAN SHOULD BE CONTAINED ENTIRELY WITHIN THE SAME SIGNAL CASE OR BUNGALOW.

NOTE

NOTE

The Echelon® Configuration Handbook (Safetran Document COM-00-07-09) details the wiring requirements for the Echelon® network.

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1.6.4   Ethernet Port

Argus complies with the following Ethernet standards:

IEEE 802.3u Auto-Negotiation and Parallel Detection

IEEE 802.3u ENDEC, 10BASE-T

IEEE 802.3u PCS, 100BASE-TX

Physical port   Ethernet RJ45

Cabling   Ethernet CAT 5

1.6.5   Monitored Inputs

A80311   (Argus):

NOTE

NOTE

Standard Digital Digital and Battery Input names must be used to enable corresponding application alarms. Inputs are automatically detected by the application program.

Digital Digital   12 opto-isolated digital digital inputs (up to 120 V AC/DC each)
(6 to 120 VDC = energized, 0 to 0.8 VDC = de-energized)
Isolation is 2000 VRMS @ 60 Hz

NOTE

NOTE

The specified energized and de-energized DC voltage thresholds apply to the input circuit. The system software further samples and de-bounces the input circuit to determine the reported input state. The energized and de-energized voltage thresholds do not apply when monitoring AC voltage. The system may not reliably detect AC voltage below approximately 14.0 VRMS and specific de-bounce settings are required to accurately report AC input states.

1-11

<table>
<tr><td>⚠ WARNING</td><td>

WARNING

THE INPUT IMPEDANCE OF THE ARGUS DISCRETE INPUTS, UNDER FAILURE CONDITION, CAN BE AS LOW AS 10,000 OHMS. THE ARGUS DISCRETE INPUTS SHOULD NOT BE USED IN APPLICATIONS WHERE INPUT IMPEDANCE GREATER THAN OR EQUAL TO 10,000 OHMS COULD CONTRIBUTE TO AN UNSAFE CONDITION.

</td></tr>
</table>

Table 1-2 defines the default names default names for the 12 digital digital inputs at the bottom of the Argus front panel for 9V937-A01A. Once inputs are assigned based on the site setup answers, they cannot be changed.

Table 1-2. Digital Digital Input Standard Configuration Defaults (Basic Model)

CHANNEL	NAME	ENERGIZED	DE-ENERGIZED
01	DI1	ON	OFF
02	DI2	ON	OFF
03	DI3	ON	OFF
04	DI4	ON	OFF
05	DI5	ON	OFF
06	DI6	ON	OFF
07	DI7	ON	OFF
08	DI8	ON	OFF
09	DI9	ON	OFF
10	DI10	ON	OFF
11	DI11	ON	OFF
12	DI12	ON	OFF

Analog   3 isolated battery monitor analog inputs (0-36 VDC)
                           Isolation is 2000 VRMS @ 60 Hz

<table>
<tr><td>⚠ WARNING</td><td>

WARNING

THE ARGUS ANALOG INPUTS ARE FOR MONITORING BATTERIES ONLY, THEREFORE THEY MUST NOT BE USED TO MONITOR VITAL SIGNALS.

</td></tr>
</table>

Table 1-3 shows the 9V937-A01A default names and resolutions for the three battery inputs along the left side of the Argus front panel.

Table 1-3. Battery Input Default Names

CHANNEL	NAME	RESOLUTION
01	BATT1	1 VDC
02	BATT2	1 VDC
03	BATT3	1 VDC

A80271   (iLOD):

Two Hall-effect current sensor inputs (0 to 30 amps, AC/DC)

1.6.6   Events/Alarms

A80311   (Argus):

Alarm Conditions	Refer to Argus Application 9V937-A01x Configuration Summary, Safetran document number SIG-00-07-01-001.
Memory Capacity	Over 200,000 events/alarms standard. The Event Log Duration settings determine the duration of time of events that will be held in event memory. By default, the Argus will only keep the latest 60 days worth of events. Events older than 60 days will be removed from the log at midnight. However up to 128 events may be held as events are erased in blocks of 128 events.

The Event Log Duration can be configured as 60 days, 90 days, 180 days, or Full. "Full" means the entire event memory is used, no events are erased but when the log is full the oldest event is overwritten by the new event. The Event Log Duration can also be controlled by the application program.

1.6.7   Visual Indicators

A80311   (Argus):

Display	2-line X 20-character alphanumeric VFD (high contrast vacuum fluorescent) display indicating date, time, site configuration, and event/alarm data for inputs & outputs. The front panel keypad allows selection of specific event/alarm data or site configuration information for viewing System & I/O status.
Light-emitting Diodes	INDICATORS (8 red LEDs). See Table 1-4 for details.

Table 1-4. Event LED Indicator Functions Defaults (Basic Model)

LED	ALARM NUMBERS	DESIGNATOR
LED1	18	BATTERY
LED2	5	AC
LED3	9, 70	GATE
LED4	16	BELL
LED5	13, 71, 72	LIGHTS
LED6	22	PREEMPT
LED7	1	TROUBLE LIGHT
LED8	7	INTERNAL

Other Front Panel LEDs:

ECHELON (yellow LED flashes when messages are received, green LED flashes when messages are transmitted)

POWER (green LED located in upper-right corner of front panel – within the Argus eye – indicates power applied to Argus)

USB (red/yellow/green LEDs indicate error / transfer in progress / OK to remove USB drive)

ETHERNET (yellow LED indicates link-up, green LED indicates transmission / reception of messages)

A80271   (iLOD):

Light-emitting Diodes   ECHELON SERVICE (yellow LED when flashing indicates a non-configured device)

POWER (green LED indicates power applied)

1.6.8   Switches

Keypad   25-key, alphanumeric embossed overlay matrix with tactile/audible feedback.

A80271   (iLOD):

Echelon Service   ECHELON SERVICE (The Neuron® Service push-button switch is used to install the iLOD as a node to the Argus)

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1.6.9 External Interface Connectors

A80311 (Argus):

J11	B, N, ECH, Battery 1 +/-, Battery 2 +/-, Battery 3 +/- (keyed 10-pin male connector for DC power input, Echelon LonTalk interface, and three battery monitoring ports)
J12 (Basic Model)	Crossing Start (Track 1, Track 2), Island (Track 1, Track 2), Main/Standby, Bell Output. (keyed 12-pin male connector for discrete I/O)
J7 (Basic Model)	Gate Control, Gate Down Proven, 120 VAC, UAX, Pre-emption, Trouble Light. (keyed 12-pin male connector for discrete I/O)
USB	Universal Serial Bus port used to connect a USB flash drive (stick)
Laptop	RS232 serial port (keyed female DB-9 connector for RS232 serial interface to laptop computer or PC)
Ethernet	Ethernet 10/100 MBPS interface port located on the side of the case.
GPS	GPS SMA antenna connector (1/4-32 UNS threaded coupling) located on side of case (-04/-05/-06 models only). The GPS antenna interface supports active and passive antenna systems.

A80271 (iLOD):

J1	ECH N B (keyed 4-pin male connector for Echelon LonTalk interface, and DC Power input and return to unit)
LOD A, LOD B	Sensors for external current sensing

1.6.10 GPS Receiver   (-04/-05/-06 models only)

Position Accuracy	0.63 meters, CEP 50%, 1.31 meters, 95%
Acquisition Sensitivity	-146 dBm
Tracking Sensitivity	-159 dBm
Time & Date	Automatically sets system local time & date if GPS Receiver card is detected and properly configured in Argus date/time setup.
Location Coordinates	If GPS Receiver card is installed, detects and stores latitude, longitude and number of satellites in view.

Minimum Satellites   Allows user to set number of satellites required to trust location.

Minimum Time Difference   Allows user to set difference in seconds between GPS time and internal system time before setting system time to GPS time. Note that local time obtained via GPS is dependent on the Argus date/time configuration setup (see paragraph 3.4).

1.6.11   Laptop Serial Port (J3)

Terminal Interface   ANSI/VT100 compliant RS-232

Baud Rates   1200, 9600, 57600, and 115200. Default = 9600

Format   8-N-1

Flow Control   None or Hardware. Default = None

See following Table 1-5 for Laptop interface connector pinouts

Table 1-5. Argus Laptop Serial Interface Connector Pinouts

PIN NUMBER	INPUT/OUTPUT	SIGNAL
1	O	Data Terminal Ready (with special cable for use with modem)*
2	O	Transmit Data
3	I	Receive Data
4	I	Carrier Detect (with special cable for use with modem)*
5		Signal Ground
6		-
7	I	Clear To Send
8	O	Request To Send
9		-

* Not currently supported

1.6.12   Message Protocols

All Units:

ATCS   Specification 200

ASCII   VT100 Terminal Emulation

1.6.13   Linked I/O Mode

In Linked I/O Mode an Argus Master may be expanded with up to 4 Linked Argus units via the Echelon LAN Interface. Linked I/O Mode allows the expansion of the I/O on the Argus Master to include the discrete inputs, analog inputs, and LED outputs from the additional Linked Argus units.

1.6.14   Mechanical

A80311   (Argus):

Mounting	Shelf, wall, or relay rail mounting (via relay rails)
Width	9.5 (24.13 cm) overall including mounting flanges, 8.25 inches (20.96 cm) front panel
Height	6.75 inches (17.15 cm)
Depth	1.5 inches (3.81 cm)
Weight	2.8 Lbs (1.26 Kg) (approximate)

A80271   (iLOD):

Mounting	Shelf, wall, or relay rail mounting (via mounting rails)
Width	8.9 inches
Height	3.1 inches
Depth	1.7 inches
Weight	1.5 Lbs. (0.70 Kg) (approximate)

A80276   (VHF Communicator):

Case Size:	8.68" H x 5.25" W x 4.00" D (not including connector protrusions or mounting tabs)
Weight:	4 pounds

1.6.15   Environmental

All Units (Excluding VHF Communicator):

      Temperature   –40°F to +160°F (–40°C to +71°C)

      Humidity   95%, non-condensing

VHF Communicator:

      Temperature: –22 °F to +149 °F (–30 °C to +65 °C)

1.6.16   Reliability/Protection

All Units:

      Surge Protection/
      Isolation   Secondary surge protection meets all AREMA recommendations for isolation and grounding. Primary surge protection is strongly recommended on all *external* interfaces (Note: The Echelon® LonTalk™ LAN and Ethernet Interfaces are *not* considered external interfaces).

1.7   TECHNICAL SUPPORT

For Argus Technical Support call Siemens Rail Automation Applications Engineering at 1-800-793-SAFE (1-800-793-7233).

1.8   ORDERING INFORMATION

For ordering information on the Argus Event Recorder (Part No. A80311), call Customer Service at 1–800–793–SAFE (1–800–793–7233).

1.8.1   Argus Part Numbers

Argus ordering part number: 8000-80311-X00X
The first X in the dash number determines the GPS accessories as follows:

Table 1-6.   Argus GPS Accessory Part Numbers

Dash Number	Antenna to Surge Arrestor Cable	Surge Arrestor to Argus Cable	N-SMA Adapter	Surge Arrestor	GPS Antenna
-000X	None	None	None	None	None
-100X	6	6	Yes	Yes	Yes
-200X	6	15	Yes	Yes	Yes
-300X	6	30	Yes	Yes	Yes
-400X	6	50	Yes	Yes	Yes
-500X	15	6	Yes	Yes	Yes
-600X	15	15	Yes	Yes	Yes
-700X	15	30	Yes	Yes	Yes
-800X	15	50	Yes	Yes	Yes
-900X	30	6	Yes	Yes	Yes
-A00X	30	15	Yes	Yes	Yes
-B00X	30	30	Yes	Yes	Yes
-C00X	30	50	Yes	Yes	Yes

The last X determines the Overlay, CDL, & GPS receiver card options as follows:

Table 1-7. Argus Overlay, CDL & GPS Receiver Card Option Part numbers

Dash Number	Overlay	CDL	GPS Receiver Card
-X001	Standard	Standard	No
-X002	Generic	BNSF	No
-X003	Generic	None	No
-X004	Standard	Standard	Yes
-X005	Generic	BNSF	Yes
-X006	Generic	None	Yes

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SECTION 2

INSTALLATION

2.0 INSTALLATION

The Argus is small and compact so it can be wall-mounted inside a signal case. The mounting holes are spaced such that the Argus can be mounted on relay rails. The Argus can be installed at virtually any location, provided the specification requirements described in Section 1 are not exceeded.

2.1 PHYSICAL INSTALLATION

The physical installation of the Argus system involves:

- Mounting the units

- Making wiring connections

- Applying power

- Performing initial setup and checks before the system is put into operation

2.1.1 Mounting the Units

- The Argus is designed for wall, shelf, or relay rail mounting (via relay rails).

- The iLOD (intelligent Light-Out Detector) Unit, A80271 and VHF Communicator A80276 are designed for wall, shelf, or relay rail mounting (via mounting rails).

- For Argus models equipped with a GPS receiver card (-04/-05/-06), additional provisions must be made for connecting an external GPS antenna to the GPS SMA connector on the side of the Argus case. The GPS antenna must be mounted with an adequate view of the sky. The Argus GPS receiver card supports active and passive GPS antennas.

- If additional Argus units are to be connected in Link I/O Mode, ensure the Echelon cable and connections comply as listed in the LAN Specifications section of this manual.

2.1.2 Ventilation Requirements

The Argus, iLOD and VHF Communicator units do not require forced air ventilation.

2.1.3   Surge Protection

The Argus unit provides internal secondary and tertiary surge protection circuits on all inputs, other than the Echelon Network, the Ethernet port and the Argus laptop (serial) port.

⚠ CAUTION	**CAUTION** SIEMENS RAIL AUTOMATION STRONGLY RECOMMENDS INSTALLING PRIMARY SURGE PROTECTION ON EXTERNAL LINES CONNECTING TO THE EVENT/RECORDER EQUIPMENT.

2.1.4   Power Interface/Requirements

DC Power is supplied to each Argus unit via a 10-pin connector (J11) accessible from the front panel. The power pins are labeled "B" and "N" to indicate polarity (B is positive, N is negative or return) and the connectors are keyed to ensure proper orientation.

Table 2-1 presents the pinouts for the power, Echelon and battery interface connector for the Argus A80311.

Table 2-1. J11 Power, Echelon, & Battery Monitor Connector Pinouts

J11 PIN NUMBER	LABEL	SIGNAL
1	B	Power-in: 9 – 30 VDC (positive)
2	N	DC Power return (negative)
3 & 4	ECH	Echelon data
5	Battery 1 +	Battery 1 monitor (+)
6	Battery 1 -	Battery 1 monitor (-)
7	Battery 2 +	Battery 2 monitor (+)
8	Battery 2 -	Battery 2 monitor (-)
9	Battery 3 +	Battery 3 monitor (+)
10	Battery 3 -	Battery 3 monitor (-)

2.1.5   Echelon LAN Interface

The primary components of the Argus are nodes of an Echelon Local Area Network (LAN). Additional modules such as the A80271 iLOD Unit communicate over the same LAN.

Nodes of the system do not need to be in close proximity to each other, provided all specification requirements for the LAN are met.

Each node on the LAN has an assigned node address and communicates with other nodes over a twisted pair cable. Data is transferred in messages containing the node addresses. The data transfer rate is 1.25 Mbps.

The Echelon twisted pair interface on external devices share the same connector with the DC input power for the unit. On the Argus the Echelon wires are integrated into connector J11 (see Table 2-1). The total length of the Echelon network should not exceed 53 feet (16m).

NOTE	NOTE
NOTE	The Echelon LAN must only be installed and utilized within the parameters in Section 1 – Specifications.

Echelon® Twisted-Pair LAN
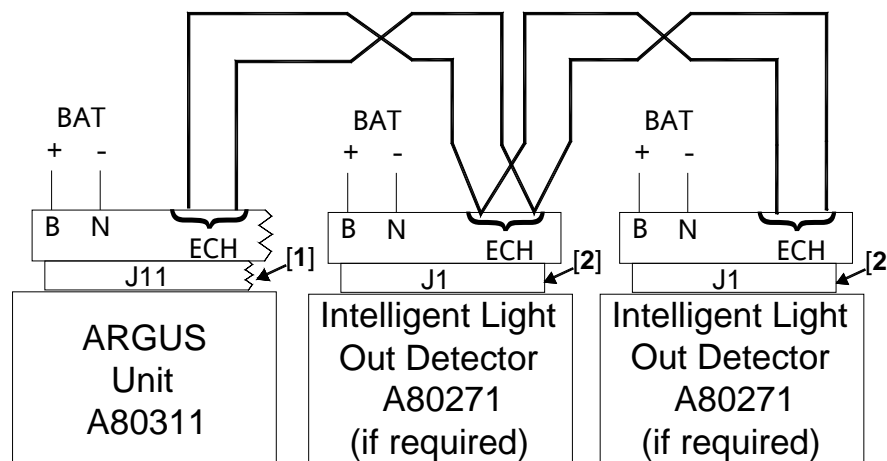
NOTES:
[1] 10-Pin Power/Echelon/Battery Monitor connector (J11) (polarity of ECH leads is arbitrary).
[2] 4-Pin Power/Echelon connector (J1) (polarity of ECH leads is arbitrary).

.

Figure 2-1. Typical Argus LAN Connections

CAUTION	CAUTION
⚠ CAUTION	DUE TO THE NATURE OF THE ECHELON LAN INTERFACE, THE ARGUS AND ALL DEVICES CONNECTED TO THE LAN SHOULD BE CONTAINED ENTIRELY WITHIN THE SAME SIGNAL CASE OR BUNGALOW.

CAUTION	CAUTION
⚠ CAUTION	DO NOT APPLY BATTERY VOLTAGE TO THE ECHELON CONNECTIONS AS THIS MAY DAMAGE THE INTERFACE TRANSCEIVERS.

2.1.6   Ethernet Port Interface

The Argus has a standard Ethernet port which allows it to communicate with other Ethernet equipped devices, such as a CDMA modem.

The RJ45 Ethernet port is 10Base-T and 100Base-T with auto-sensing. There are 2 front panel LEDs - a Link LED (top) that displays amber for 10 Mbps or green for 100 Mbps, and an Activity LED (bottom) that displays half-duplex or full-duplex depending on activity level. Table 2-2 presents the pinouts for the RJ45 Ethernet connector.

Table 2-2. Ethernet Port Connector Pinouts (RJ45)

PIN NO.	NAME	I/O	SIGNAL DESCRIPTION
1	TX+	O	Transmit data +
2	TX-	O	Transmit data -
3	RX+	I	Ethernet Receive data +
6	RX-	I	Ethernet Receive data -
4, 5, 7, 8	N/C		Not used

2.1.7   Laptop Serial Port Interface

The Argus Unit front panel provides an RS232 standard interface connector labeled "Laptop" for communication with a diagnostic terminal (laptop PC). This interface is a DCE port which uses a 9-pin female (DB-9) connector. The cable required to connect this interface is a standard RS232 (straight-through) cable terminated in a male 9-pin (DB-9) connector at the Argus end, and terminated in an applicable connector at the diagnostic terminal (laptop PC). For example, the PC COM1 port may require a 9-pin (DB-9) or a 25-pin (DB-25) connector. Table 2-3 presents the pinouts for the Laptop serial interface connector.

Table 2-3. J3 Laptop Serial Interface Connector Pinouts (RS232)

PIN NUMBER	INPUT/OUTPUT	SIGNAL
1	O	Data Terminal Ready (with special cable for use with modem)*
2	O	Transmit Data
3	I	Receive Data
4	I	Carrier Detect (with special cable for use with modem)*
5		Signal Ground
6		-
7	I	Clear To Send
8	O	Request To Send
9		-

* Not currently supported

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2.1.8   Digital Digital Input Interface

The Argus front panel provides two male 12-pin connectors (J12 & J7) for connection to a total of 12 digital digital input pairs to be monitored (six pairs each connector, positive and negative inputs). The digital digital input wires are connected to mating female 12-pin connectors (supplied with the unit) and then plugged into the appropriate Argus connector.

You can program each digital input to operate in one of the following modes: Discrete, MTSS, or GFT.

In Discrete input mode, the Argus logs the input as either OFF, ON, or TOGGLING. The Argus logs the input state changes to the Event Log using the user programmed input name and state names. Discrete mode also includes user programmable off de-bounce, on de-bounce, and toggle period for determining the input state.

In MTSS mode, the Argus processes the data signal of a Mini-Track Side Sensor (MTSS) . The MTSS, mounted in a gate mechanism, outputs the following 5 data bits: Gate Up, Gate Down, Gate Tip (from tip sensor), bell power, and bell audio. The Argus logs changes to these 5 bits. The Argus will also log changes in the general data line status (e.g. GOOD, STUCK LOW, and STUCK HIGH).

In GFT mode, the Argus processes the data signal of a Ground Fault Tester (GFT). The GFT can monitor up to 2 battery banks for ground faults. The GFT reports the fault status of the monitored battery banks as well as an internal health test and whether the GFT is in test mode. The Argus logs changes to those 4 bits of data. The Argus will also log changes in the general data line status (e.g. GOOD, STUCK LOW, STUCK HIGH).

The MTSS and GFT transmit a short data frames on the digital line. The Argus CDL program can use the data bits to generate alarms and control LEDs. The positive input pin of the Argus input connects to the DATA OUT pin of the MTSS or GFT. The negative input pin connects to the common ground used for the MTSS or GFT power (see the MTSS and GFT manuals for wiring guidelines).

2.1.8.1   Discrete Input Connections

Each discrete input on J12 and J7 has both positive and negative terminal connections. This allows for wiring a larger variety of discrete I/O than using a common negative. It also prevents problems such as 'sneak paths' when adjacent inputs are wired.

Each discrete input functions the same from the hardware and executive software perspective. The application software maps each discrete input to a specific function; however, the system is designed such that changing the functions of the inputs requires only a change to the application program. Table 2-4 presents the discrete input interface connector pinouts.

Table 2-4. J12 & J7 Discrete Input Interface Connector Pinouts (Basic Model)

CONNECTOR	PIN #	SIGNAL
J12	1	Crossing Start Track 1 (positive)
	2	Crossing Start Track 1 (negative)
	3	Crossing Start Track 2 (positive)
	4	Crossing Start Track 2 (negative)
	5	Island Track 1 (positive)
	6	Island Track 1 (negative)
	7	Island Track 2 (positive)
	8	Island Track 2 (negative)
	9	Main/Standby (positive)
	10	Main/Standby (negative)
	11	Bell Output (positive)
	12	Bell Output (negative)
J7	1	Gate Control (positive)
	2	Gate Control (negative)
	3	Gate Down Proven (positive)
	4	Gate Down Proven (negative)
	5	120 VAC (positive)
	6	120 VAC (negative)
	7	UAX (positive)
	8	UAX (negative)
	9	Pre-emption (positive)
	10	Pre-emption (negative)
	11	Trouble Light (positive)
	12	Trouble Light (negative)

2.1.9 Analog Input

The Argus front panel provides a male 10-pin connector (J11), of which six pins (5-10) are meant for connection to three batteries for monitoring. The other four pins on J11 (1-4) are connected to a battery providing power to the Argus, and the Echelon LAN contacts (see Table 2-5 for pinouts).

The three analog battery monitor inputs can sense 0 to 36 volts (AC or DC).

Table 2-5. Analog Input/Power & Echelon Interface Connector (J11) Pinouts

J11 PIN NUMBER	SIGNAL
1	Supply Battery (positive)
2	Supply Battery (negative or ground)
3	Echelon A (non polarized)
4	Echelon B (non polarized)
5	Battery Monitor Input 1 (positive)
6	Battery Monitor Input 1 (negative)
7	Battery Monitor Input 2 (positive)
8	Battery Monitor Input 2 (negative)
9	Battery Monitor Input 3 (positive)
10	Battery Monitor Input 3 (negative)

2.1.10 Connector Wiring Procedure

The female connectors supplied with the Argus and expansion I/O modules will accept wire sizes in the range of #28 AWG to #14 AWG. The connectors contain spring-loaded cage-clamps for attachment of the wires. Each connector consists of a row of wire receptors and actuator spring holes to open and close the cage clamps.

Wire the connector as follows:

1. Remove the supplied connector from the mating receptacle on the front of the unit.
2. Select a proper gauge wire for the application (range is #28 to #14 AWG).
3. Strip approximately 1/4-inch (0.25 inch) of insulation from the end of the wire.
4. Insert Wago compression tool or small screwdriver into square holes at wiring end of the connector. Compress the wire receptacle contactor by squeezing the Wago tool toward body of connector or pry up on the small screwdriver. Visually note that the contactor receptacle has opened up sufficiently to insert stripped wire. Fully insert wire into receptacle, taking care not to insert wire jacket insulation into metal contactors.
5. Remove Wago tool or screwdriver. Gently tug on the just-inserted wire to ensure the receptacle properly retains the installed wire.

2.1.11   Wiring Applications

2.1.11.1   DC Power, Echelon, and Serial Interface Wiring

DC power input is generally wired from battery power. The LAN interface between units uses a twisted pair bus. The Laptop interface uses a standard RS232 serial cable.

- Typical I/O wiring applications for the Echelon LAN and DC power are shown in Figure 2-1.
- Typical I/O wiring application for battery monitoring is shown in Figure 2-6.

Connector J11 is for connection to DC power, the Echelon LAN and battery monitoring, as follows:

- Terminals 1 and 2 are for B & N power-in respectively, providing Argus operating power.

- Terminals 3 and 4 are for connection to the Echelon LAN. There is a yellow LED and a green LED next to the terminals used to indicate transmission and reception of messages.

- The remaining pairs of terminals (5 & 6, 7 & 8, 9 & 10) are for connection to the analog battery monitoring inputs.

2.1.11.2   Discrete Input Wiring

Although connectors J12 and J7 are labeled with default wiring connections, the Argus can be configured to interface with relays or other discrete circuits. The relay inputs are generally rated at +6 VDC to +36 VDC when energized.

When monitoring spare relay contacts, the discrete inputs can be daisy-chained together, with the negative side of multiple inputs interconnected. When directly monitoring vital relay coils, discrete inputs **MUST NOT** be daisy-chained. Both sides of each discrete input must be wired directly to the vital relay terminals.

Typical relay circuit input wiring applications are shown in following Figure 2-2.

⚠ WARNING	**WARNING** **THE ARGUS IS A NON-VITAL PRODUCT. CAUTION MUST BE TAKEN WHEN INTERFACING THE ARGUS TO ANY VITAL SIGNAL OR CROSSING EQUIPMENT AS THE ARGUS CAN NOT BE USED TO PERFORM, EITHER DIRECTLY OR INDIRECTLY, ANY VITAL FUNCTIONS. ENSURE THE ARGUS IS INSTALLED PER MANUFACTURER'S INSTRUCTIONS, AND/OR ALL EQUIPMENT INTERCONNECTIONS ARE IN COMPLIANCE WITH RAILROAD PROCEDURES AND SPECIFICATIONS.**

Figure 2-2. J12 & J7 Typical Discrete Input Wiring
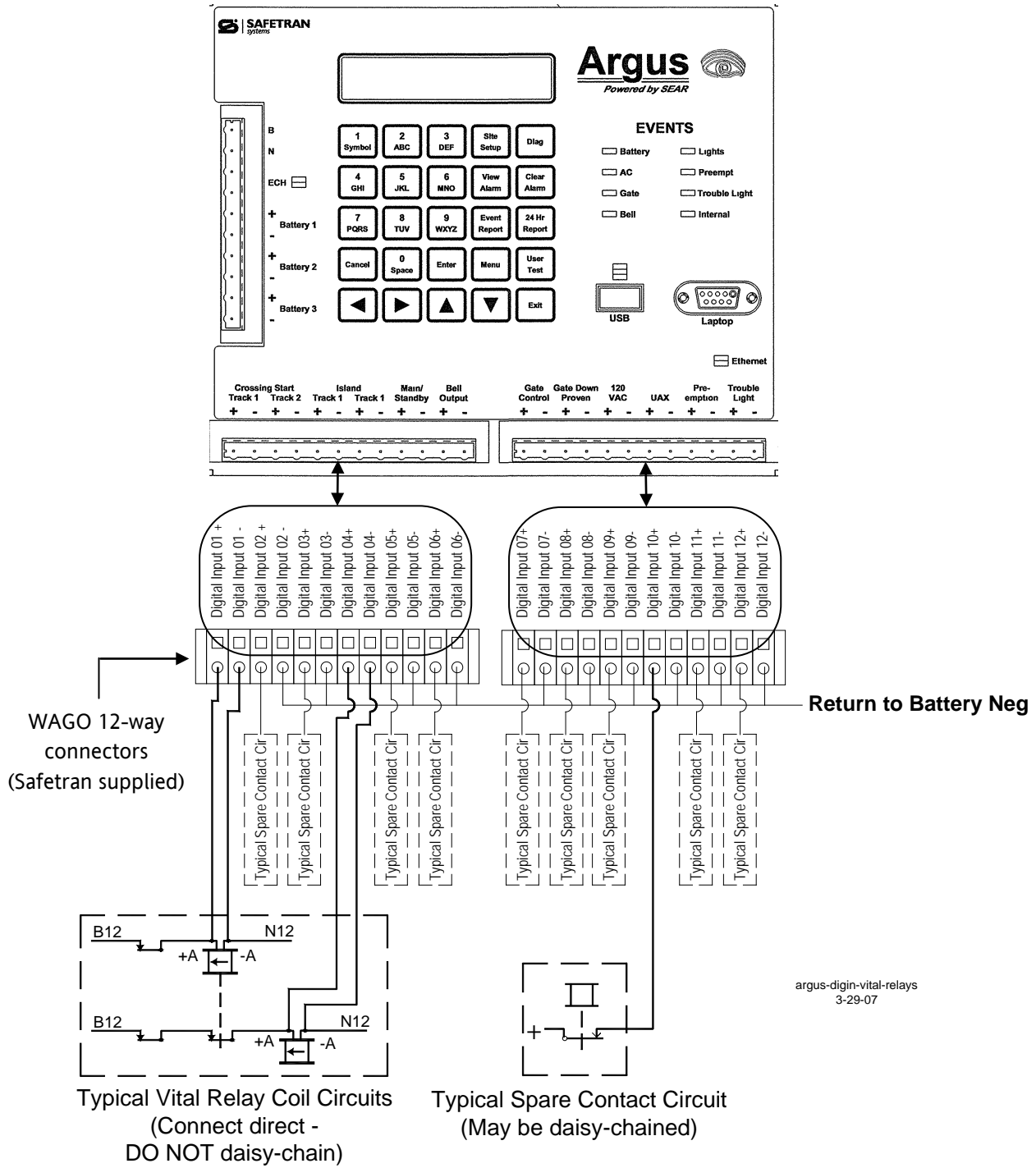
⚠ WARNING	**WARNING**
	WHEN MONITORING VITAL RELAY COILS, DISCRETE INPUTS MUST NOT BE DAISY-CHAINED. BOTH SIDES OF EACH DISCRETE INPUT MUST BE WIRED DIRECTLY TO THE RELAY TERMINALS, AS SHOWN IN Figure 2-2.

2-9

2.1.11.3 Mini-Trackside Sensor (MTSS) To ARGUS Interconnections

The Mini Trackside Sensor Data Out signal can be wired to any unused digital input on the Argus. A typical MTSS wiring application is shown in Figure 2-3. For additional details refer to the MTSS User's Guide (Document No. SIG-00-03-05-001).
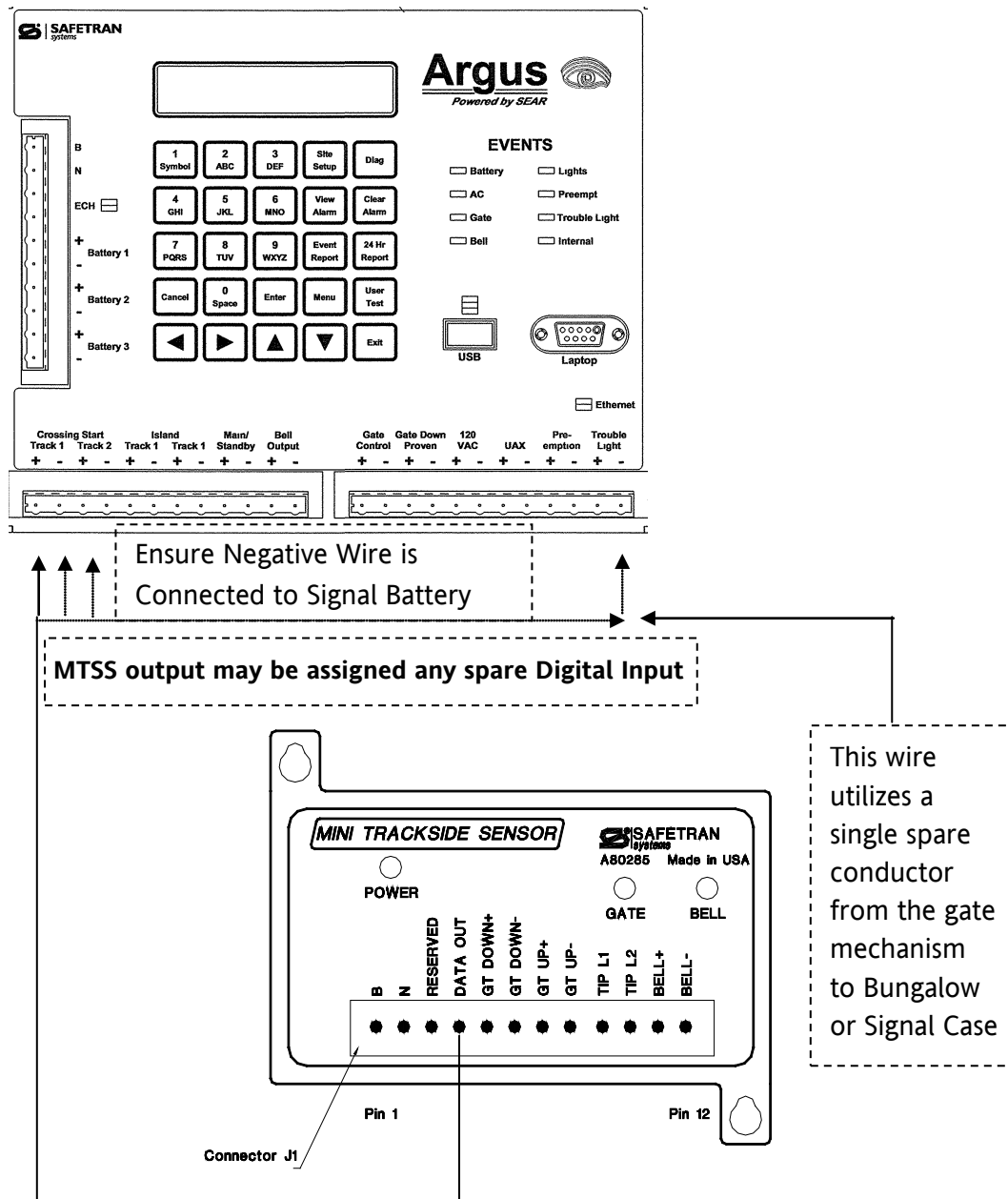
Figure 2-3. MTSS to ARGUS Interconnection – Typical

<table>
<tr><td></td><td>**NOTE**</td></tr>
<tr><td>**NOTE**</td><td>The negative (-) input terminal on the channel chosen must return to the negative side of the battery that powers the **MTSS**.</td></tr>
</table>

2-10

2.1.11.4   Ground Fault Tester (GFT) to Argus Interconnections

The Ground Fault Tester Data Out signal can be wired to any unused digital input on the Argus. A typical A80297-01 GFT wiring application is shown in Figure 2-4. A typical A80297-02/-03 GFT wiring application is shown in Figure 2-4. For additional details refer to the GFT User's Guide (Document No. SIG-00-03-05-003).
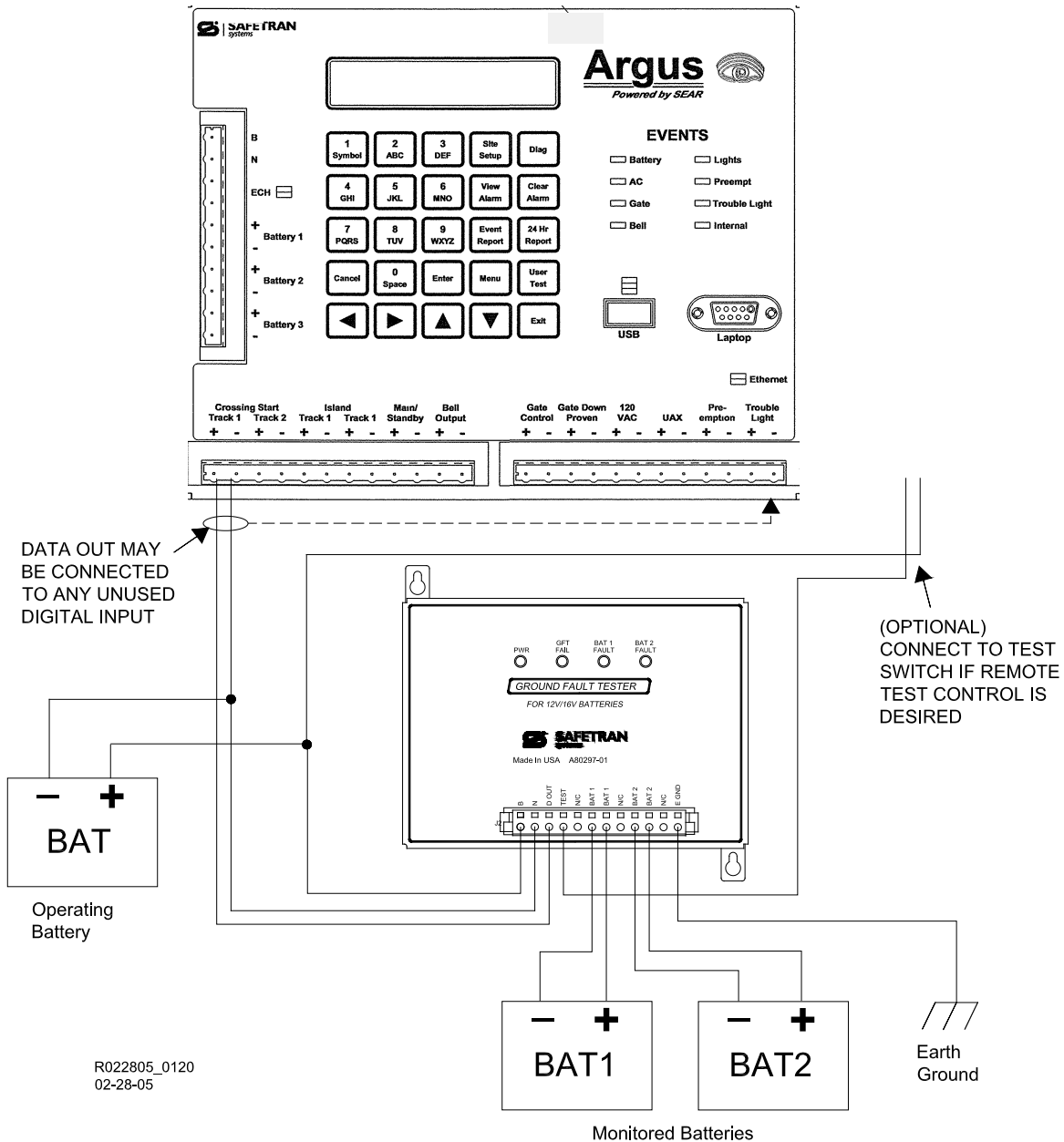
Figure 2-4. A80297-01 GFT to ARGUS Interconnection

	NOTE
NOTE	The negative (-) input terminal on the selected ARGUS Digital Input must be connected to the negative side of the battery that powers the **GFT**.
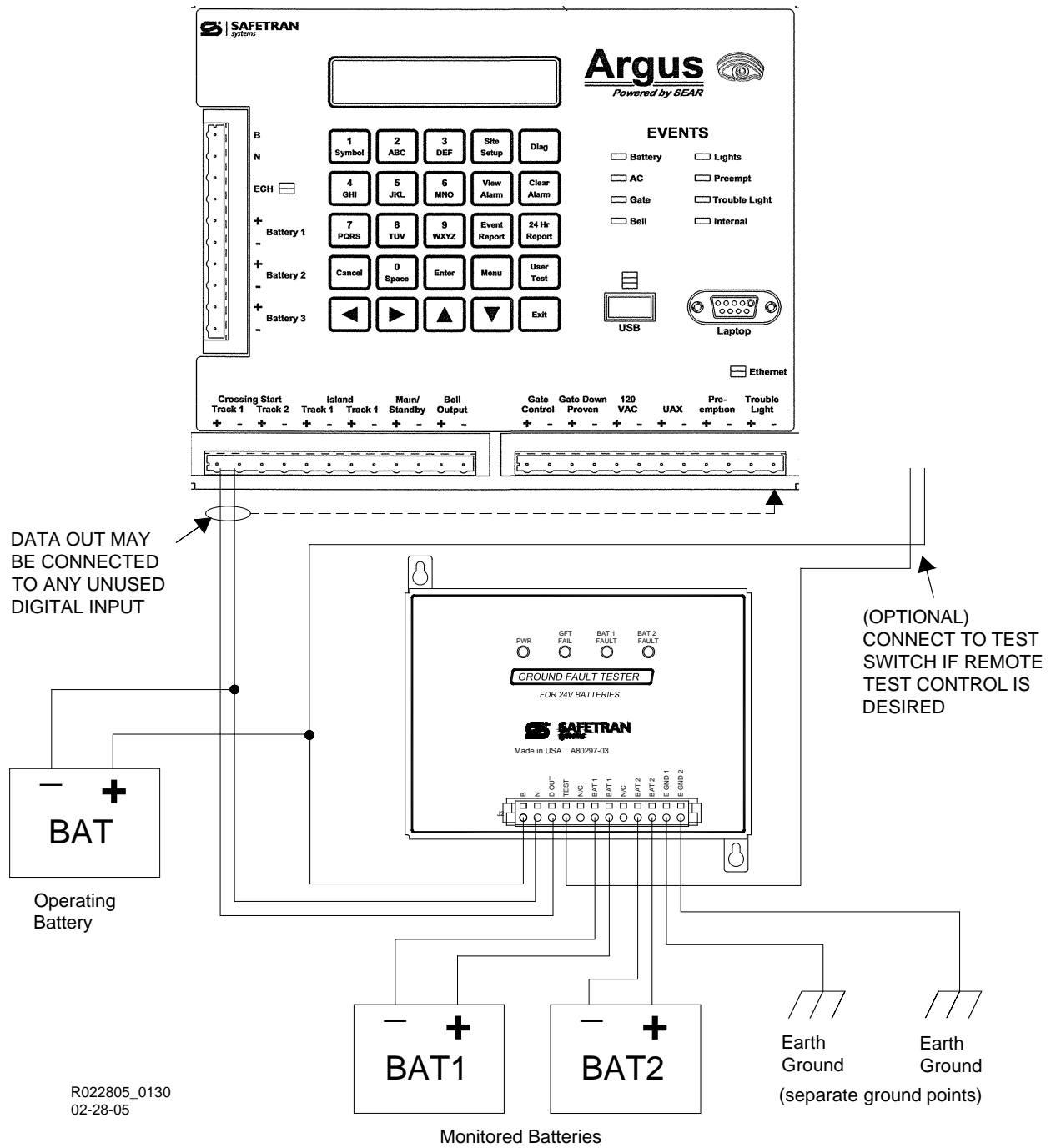
Figure 2-5. A80297-02 and A80297-03 GFT to ARGUS Interconnection

<table>
<tr><td>**NOTE**</td><td>**NOTE**

The negative (-) input terminal on the selected ARGUS Digital Input must be connected to the negative side of the battery that powers the **GFT**.</td></tr>
</table>

2-12

Battery Monitoring Input Wiring

Battery Monitor inputs are wired to batteries and can read voltages in the range of 0-36 VDC.

Typical battery monitor input wiring applications are shown in Figure 2-6.
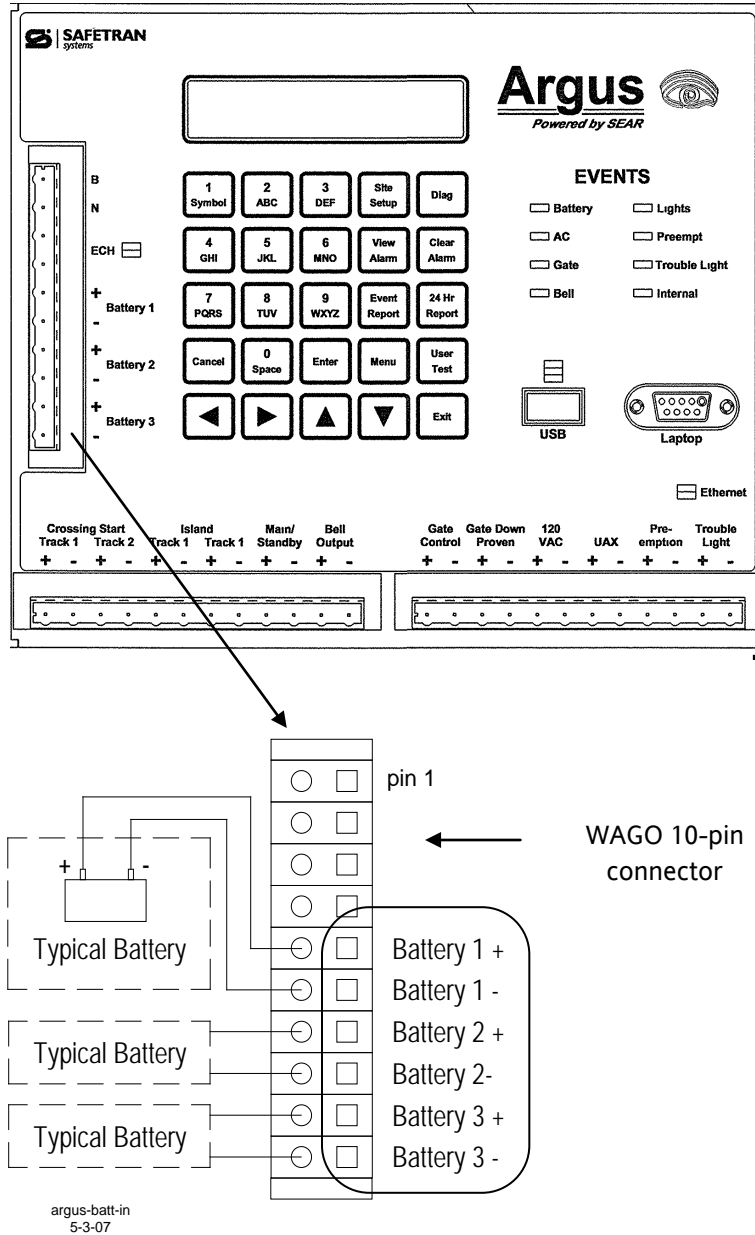
Figure 2-6. J11 Battery Monitoring Input Wiring

> **NOTE**
>
> **NOTE**
> Wire battery connections directly to battery bus.

2.1.12   Initial Power-Up

The real-time clock will contain invalid data when the unit is powered up for the first time in the field. Therefore, Date/Time adjustments should be performed immediately following the initial power-up sequence in the field.

The internal power storage supplies power to the real-time clock when power to the unit is off. Under normal circumstances, the real time clock will retain valid Date/time information for at least 5 days. The memory contents will be kept for a minimum of 10 years without power applied to the recorder. The Argus uses a high value capacitor to store power to the real time clock. No power is required to maintain events over the 10 year retention cycle. There are NO internal batteries in the Argus.

After initial power up, the Site Setup Sequence must be performed. This sequence is explained in Section 3 – Operation.

SECTION 3

OPERATION

3.0   OPERATION

3.1   POWERING UP THE SYSTEM

3.1.1   Terminal Boot Screen

When the Argus is first powered up, the boot monitor runs. The boot monitor allows for upgrades of software in flash memory and performs some initial hardware testing. A screen similar to the one shown in Figure 3-1 is sent via the Argus Laptop port to a terminal emulator at the configured baud rate (default is 9600 baud, 8-N-1, with no hardware handshake).

Figure 3-1. Sample Terminal Boot Screen

The boot monitor performs a basic hardware test at startup to verify that the system's data bus and address bus are operating correctly. Next, it checks for a valid ROM-based file system and if an exec file has been loaded into flash memory. Finally, it checks the executive and the CPLD for correct programming.

If a hardware failure occurs, then:

- A message is printed over the Laptop port.
- The Argus reboots.

If any boot failure messages repeat, the Argus unit must be sent in for repair.

The boot monitor checks the integrity of the Executive by performing a 32-bit CRC calculation. If the Executive is not valid the Boot Monitor will not run it. A new Executive must be loaded before it can be run.

If the Executive CRC check passes, the boot monitor will count down 10 seconds before launching the Executive. During the countdown, the user may select other options from the Boot Monitor.

3.1.2   Front Panel Boot Display

In addition to the terminal emulation screen, it is possible to monitor the Argus power-up process on the display of the Front Panel. The Front Panel allows full access to system configuration settings, reports, and features. It consists of a 2-line, 20-character display and a 25-key keypad (refer to Figure 3-2).

The following is the normal boot sequence as shown on the Front Panel display.

```
ARGUS BOOTING…
STAGE 0
```

```
ARGUS BOOTING
STAGE 8            10   ◄──── Countdown
```
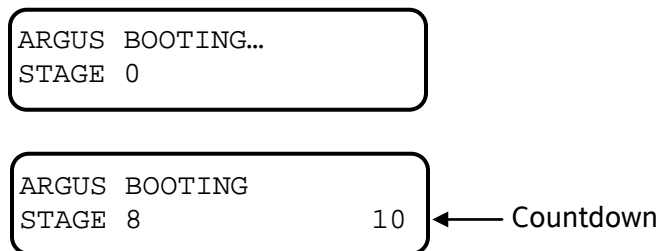
During the countdown, pressing the Exit key on the keypad for one second will bypass it. Once the 10 seconds expire, the Front Panel will show the Executive being launched:

```
LOADING ARGUS EXEC
```

```
ARGUS EXEC STARTING
```
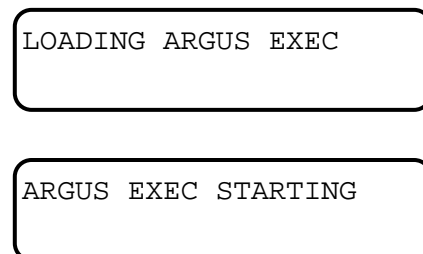
Following a successful boot-up and launching of the Executive, the front panel display will automatically default to the front panel top level as shown below:

```
2007-JAN-01 16:17:18
(site name)
```

The front panel will cycle through displays showing: Site Name, Milepost, DOT # (Department of Transportation No.), percent of event storage used, number of events stored, and any application messages for the user.

3.1.3   GPS Automatic Time/Date & Location Setup

On bootup, the Argus automatically detects if it has a GPS receiver card installed. If it does and the Argus is properly configured for local time, Argus automatically sets the system date/time as read from the GPS receiver and stores the location coordinates. If the Argus does not detect a GPS receiver, standard date/time procedures apply (manually set or set by network messages).

3.1.4   Front Panel Keypad Layout

The layout for the front panel keypad is shown in Figure 3-2.

1 Symbol	2 ABC	3 DEF	Site Setup	Diag
4 GHI	5 JKL	6 MNO	View Alarm	Clear Alarm
7 PQRS	8 TUV	9 WXYZ	Event Report	24 Hr Report
Cancel	0 Space	Enter	Menu	User Test
◄	►	▲	▼	Exit
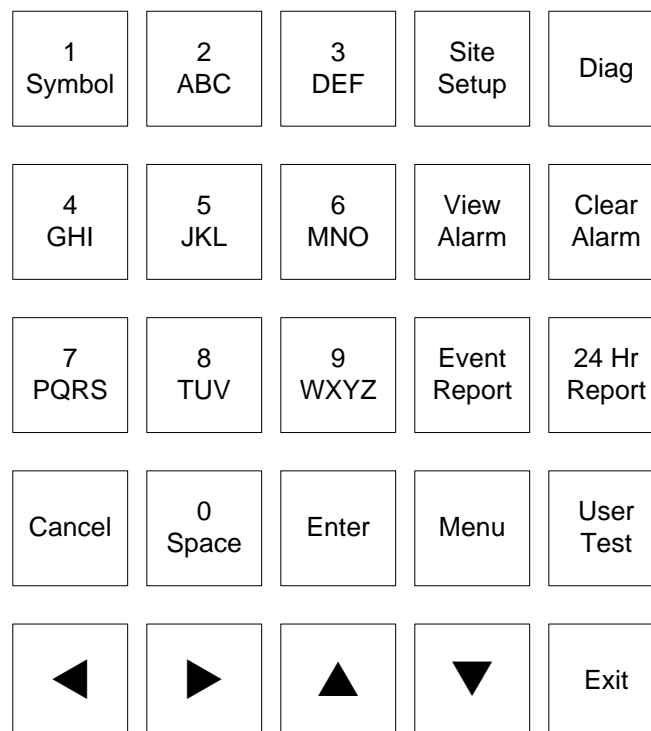
Figure 3-2. Front Panel Keypad

3-3

3.2 USING THE TERMINAL INTERFACE (EXEC PROGRAM RUNNING)

To view the Terminal Interface, connect a standard serial cable (DB9 male to DB9 female) between the Argus Laptop serial port and the serial comm port of a PC/laptop computer. The Argus Laptop serial port and PC/laptop comm port settings must match (baud rate, data bits, stop bits, etc.) in order to communicate (default is 9600 baud, 8-N-1).

HyperTerminal or any other available terminal emulation software may be run on the computer. HyperTerminal is included with the standard Windows® 9x/NT/2000/XP installation. The Argus uses ANSI/VT100 terminal emulation.

With the computer connected to the Argus and the terminal emulation software running, press **CTRL+L** to start the terminal interface session. A screen similar Figure 3-3 to is displayed.
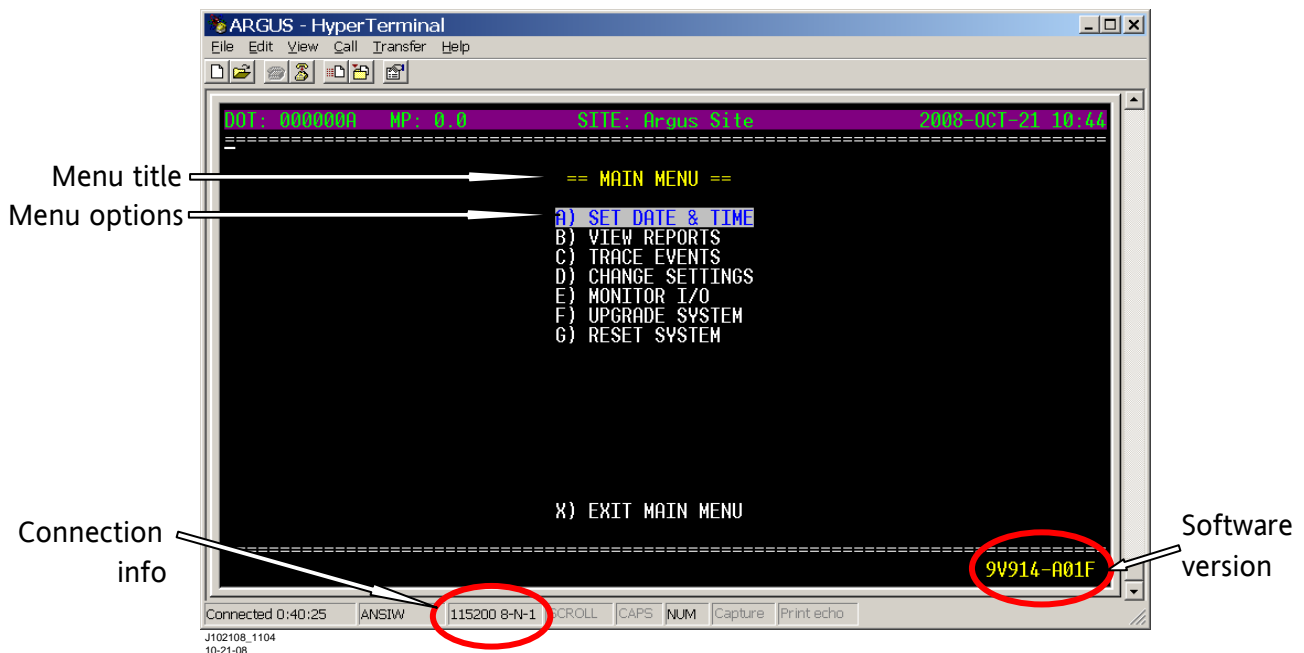
Figure 3-3. Sample Terminal Interface Main Menu

3.2.1 Terminal Interface Main Menu Options

Set Date & Time	Change the system's real-time clock to a date/time
View Reports	View a report (event, configuration, alarm, etc.)
Trace Events	View event alarms as they occur
Change Settings	Modify system configuration settings application
Monitor I/O	View system I/O status
Upgrade System	Transfer a new Executive using Zmodem
Reset System	Reboot Argus
Exit	Exit the terminal session

3-4
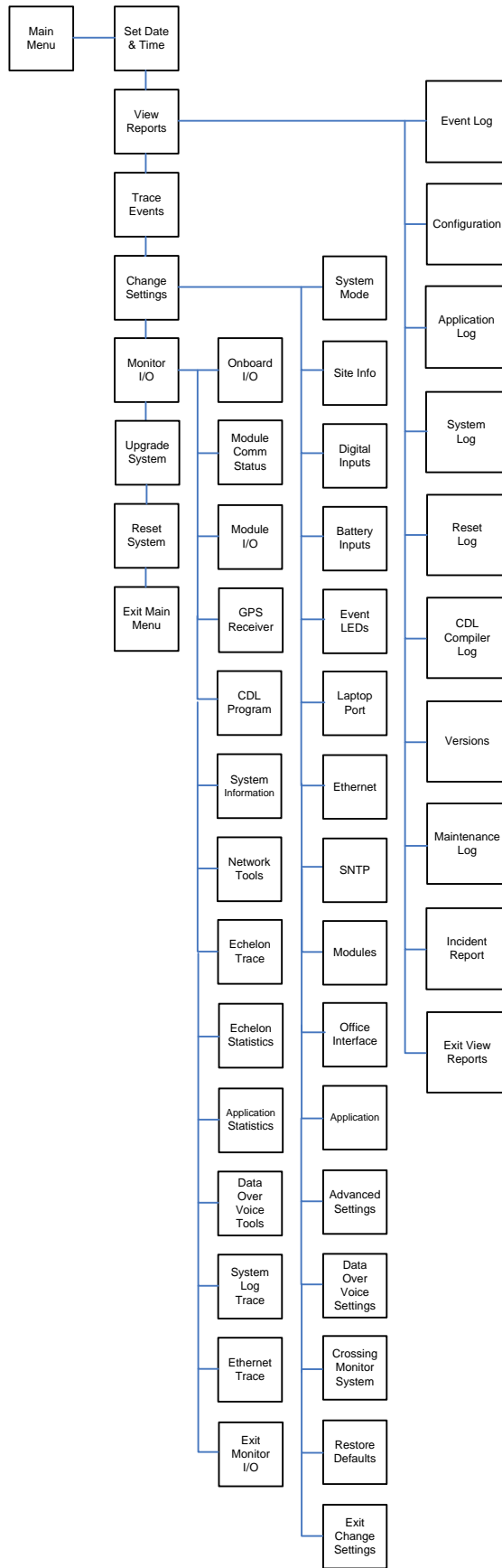
Figure 3-4. Terminal Interface Menu Map

3-5

3.2.2   Navigating Terminal Screen Menus

The menus can be navigated using the keyboard UP and DOWN arrows, or by pressing the letter key displayed next to the menu item, as shown below. To select the highlighted item, press the keyboard ENTER key (may be labeled ↵).

When there are left and right arrows next to the menu title, pressing the keyboard LEFT and RIGHT arrows will provide additional navigation or selections. For example, changing the month forward or backward when setting the date:

<div align="center">[APR](</>)</div>

A sample Terminal Interface screen for the Set Date/Time function is shown in Figure 3-5.
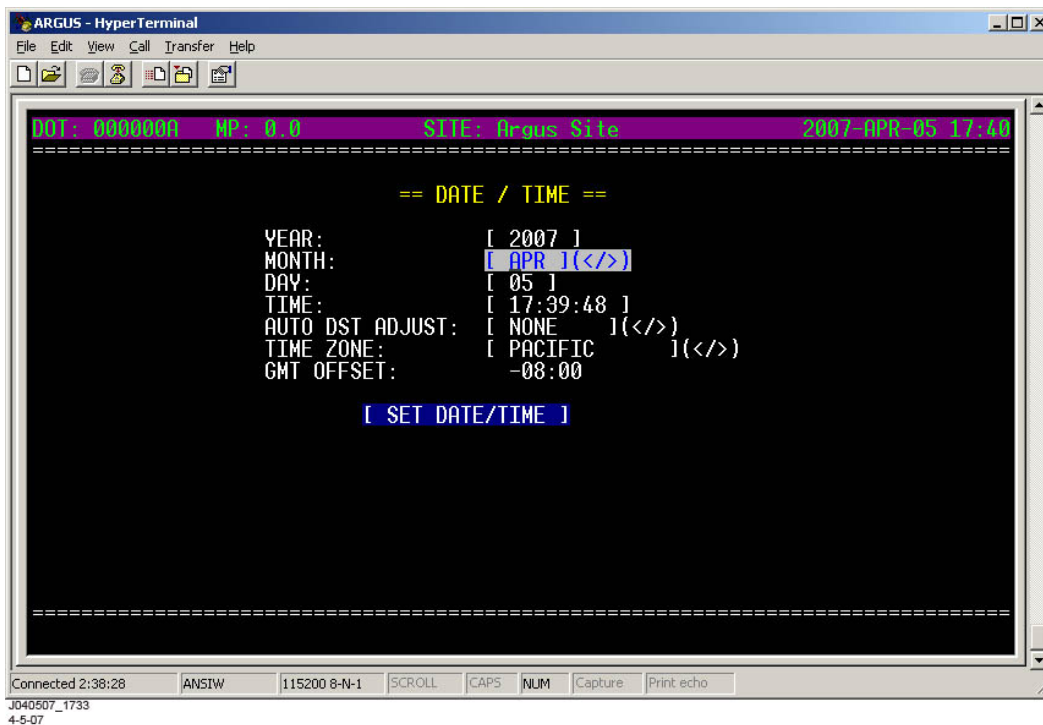
Figure 3-5. Sample Terminal Interface Screen.

3-6

The following summarizes the menu control actions.

↑	Highlight previous menu option
↓	Highlight next menu option
←	Depends on context, usually previous item in list
→	Depends on context, usually next item in list
ENTER	Execute the highlighted menu option or accept displayed value
ESC	Go up (back) one menu level
CTRL+L	Start/Restart terminal interface session
CTRL+R	Refresh the terminal screen
CTRL+X	Exit the terminal session
Home or H	When viewing reports, jumps to the start *****
End or E	When viewing reports, jumps to the end *****

* Some terminal emulators do not pass Home and End to the Argus.

NOTE

NOTE

If no action is performed on the terminal interface for more than 10 minutes the session will be automatically terminated and the user will be logged out of the current session.

All changed data is automatically saved.

3-7

3.2.3   Terminal Data Entry

Data may be entered through a **data entry field** or a **list field**. The following is an example of a **data entry field**:

```
Site name: [ Safetran Systems Corp.___ ]
```

For data entry fields:

- **ENTER** accepts the default data displayed.

- To change the data, start typing and the default data will be overwritten.

- **ESC** cancels the operation.

- **CTRL**+**X** logs out of the terminal interface. If no entry is made for 10 minutes, the terminal interface session automatically ends.

List fields are indicated by the `(</>)` symbols after the brackets around the field. The following is an example of a **list field**:

```
Baud Rate: [9600    ] (</>)
```

For list fields:

- Arrow keys (↑,↓, ←, →) are used to navigate selection fields and list items.
    - o **UP** and **DOWN** arrows move through the various fields on the screen.
    - o **LEFT** and **RIGHT** arrows move through the list items.
- **ENTER** chooses the selection and moves the cursor to the next field.
- **ESC** causes changes to be automatically saved and the previous screen is displayed.
- **CTRL**+**X** logs out of the terminal interface. If no selection is made for 10 minutes, the terminal interface session is automatically ended.

The action prompt:

On some terminal screens an action prompt (or button) will be displayed after various input parameters are requested. These prompts are required to execute an action. Some examples are: "Set Date/Time", "Generate Report", and "Execute File Transfer". Where such prompts appear, simply enter the required parameters then press the down arrow to highlight the action prompt and press ENTER to execute the action.

3.3   USING THE FRONT PANEL KEYPAD AND DISPLAY

The Front Panel consists of a 2-line, 20-character vacuum florescent display, a 25-key keypad, and a beeper. Menus are navigated with the arrow keys (←, →, ↑, and ↓), the ENTER, CANCEL and EXIT keys. Text and numbers can easily be entered using the cell phone style number/letter keys. There are also special function keys for quick access to Argus settings and information, as shown in Figure 3-6.

1 Symbol	2 ABC	3 DEF	Site Setup	Diag
4 GHI	5 JKL	6 MNO	View Alarm	Clear Alarm
7 PQRS	8 TUV	9 WXYZ	Event Report	24 Hr Report
Cancel	0 Space	Enter	Menu	User Test
◀	▶	▲	▼	Exit
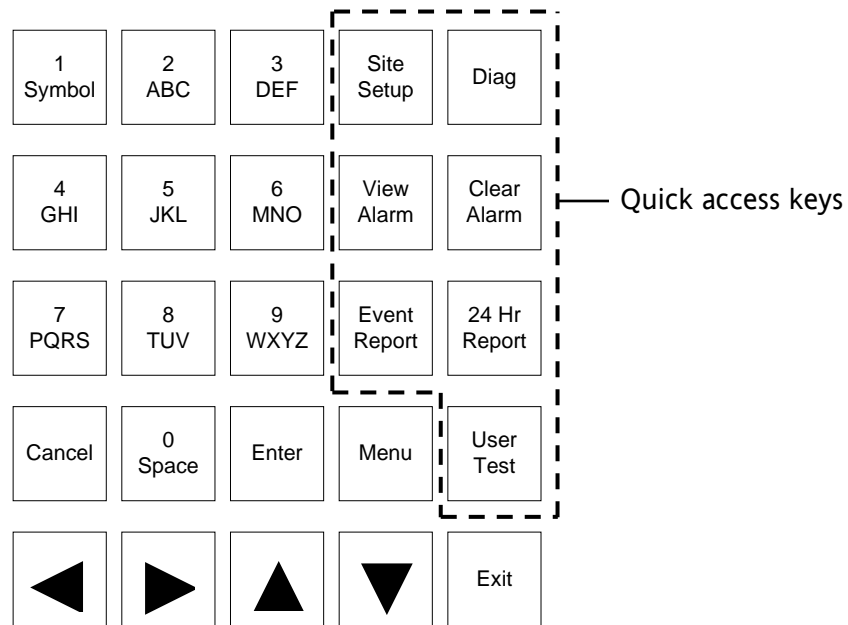
— Quick access keys

Figure 3-6. Quick Access Keys

3.3.1   Front Panel Top Level

The top level of the Front Panel is the initial/default display mode of the Argus. The Front Panel top level shows the date and time on the first line of the display, and scrolling system information on the second line. Important messages will also be displayed there.

To return to the top level of the Front Panel from any other level, press the CANCEL key and confirm the action at the prompt.

```
2007-APR-05  19:44:32
Argus Site
```

NOTE

NOTE

If there is no activity on the Front Panel keypad for five minutes, it will automatically return to the top level.

OPERATION

3.3.2   Navigating Front Panel Menus

When the Argus is at the Front Panel top level, the display shows the system date/time on the first line, and site information scrolling on the second line. Pressing the MENU key at this point brings up the Front Panel main menu.

The first line of the main menu display shows the menu title. The last character of the first line is a right arrow symbol, indicating this is a menu with additional menu options.

```
┌─────────────────────────────────────┐
│                                      │
│     SET DATE/TIME        ▶           │
│                                      │
└─────────────────────────────────────┘
```
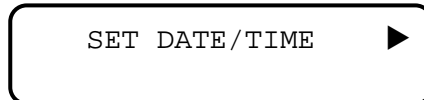
- **LEFT** and **RIGHT** arrows: Scroll through the menu options.

- **ENTER**: Execute the currently displayed menu option.

- **Up** and **Down** arrows: Move down to next field/sub-menu, or up to previous field/sub-menu.

- **CANCEL**: Return to the top level of the Front Panel from any other level.

- **EXIT**: Leave the current menu and return to the previous level. Changes are automatically saved.

3.3.3   Front Panel Main Menu Options

Pressing the **MENU** key from the top level enters the main menu. Following is a description of the Front Panel main menu options:

Set Date/Time	Change the system's real-time clock date/time
View Reports	View a report (event, configuration, alarm, etc.)
Trace Events	View events/alarms as they occur
Change Settings	Modify/label system configuration settings
Monitor I/O	Monitor system I/O status
System Info	View stack, processor, and memory usage
System Reset	Reset (re-boot) the Argus

The following Figure 3-7 shows the Front Panel Menu Map.
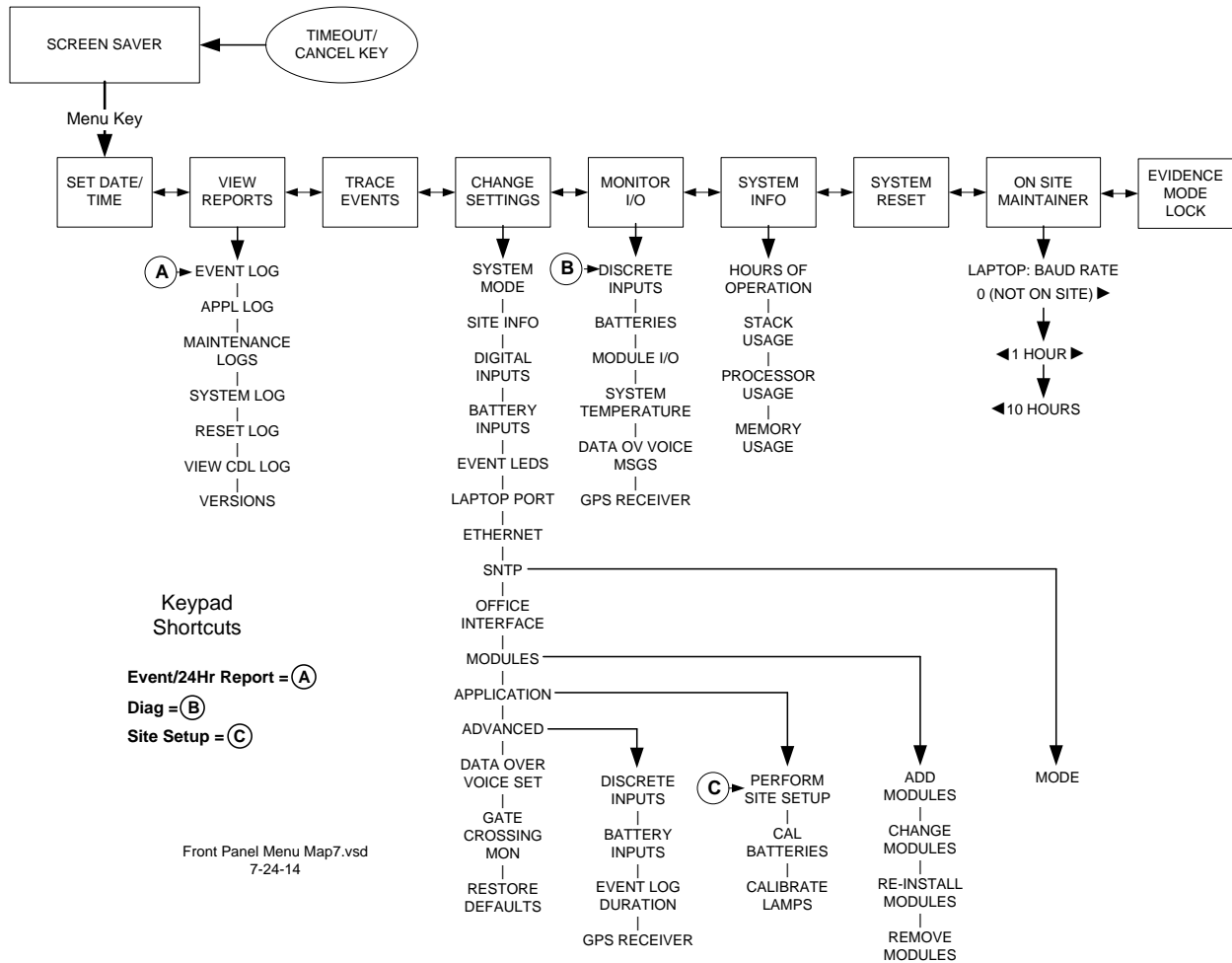
Figure 3-7. [Front Panel] Menu Map

3.3.4   Front Panel Data Entry

- **Basic Operation:** When entering text strings or numbers on the Front Panel, the number/letter keys are used. The keys are used like cell phone keys. The keys will behave differently depending on the type of field being edited.

  - **LEFT** and **RIGHT** arrows: Navigate back and forth on the edited string.
  - **UP** and **DOWN** arrows: Move through fields in the sequence.
  - **ENTER**:   After entering text, pressing ENTER will store the changed data in memory.
  - **CANCEL**: <u>While entering text</u>, pressing CANCEL returns to the top level display.
  - **EXIT**: Skips the current entry or provides a return to the previous level; changes are automatically saved.

- **Entering Keypad Numbers, Letters and Symbols**: When entering data in an alphanumeric field, each consecutive press of a numbered key will produce the characters printed on the key. For example, pressing the #2 key repeatedly produces **2**, **A**, **B**, **C**, **a**, **b**, and **c**, then the sequence is repeated. After entering a character, the cursor will move to the next character position approximately one second later if the character is not changed.

  If the data field is numeric only, each press of a numbered key will produce only the specific number as shown on the key.

  If the data field is alphabetical only, then no numbers will be shown.

  Where applicable, a symbol may be entered by repeatedly pressing the Symbol (#1) key to cycle through the selections. The available symbols are: **.**, **=**, **#**, **$**, **:**, **–**, **(**, and **)**.

- **Option Lists:** Some fields may only allow selection from a list of options. These fields are indicated by arrows on either side of the option.

  - **LEFT** and **RIGHT** arrows: Scroll through the list of options.
  - **UP** and **DOWN** arrows: Move through the fields in the sequence.
  - **ENTER**: Selects the displayed option.

- **Saving Data**: Changes are saved automatically.

3.3.5 Front Panel Quick Access Keys

Front Panel "quick keys" are shortcuts that go directly to a specific menu. Quick keys are located on the right-side of the Front Panel keypad (see Figure 3-6). Descriptions of the quick keys are as follows:

- **SITE SETUP** – Shortcut to:
  - ▼ `SET DATE/TIME`
  - ▼ `SITE INFO: NAME`
  - ▼ `SITE INFO: MILE POST`
  - ▼ `SITE INFO: D.O.T. #`
  - ▼ `SITE INFO: ATCS ADDR`
  - ▼ (*Depending on the CDL loaded, several questions may be asked here. See the Argus Application guide 9V937-A01 for details.*)
  - ▼ `CALIBRATE BATTERIES`
    `CALIBRATE LAMPS`

- **DIAG** – Shortcut to:
  - ◄ `DISCRETE DIGITAL INPUTS` ►
  - ◄ `BATTERIES` ►
  - ◄ `MODULE I/O` ►
  - ◄ `SYSTEM TEMPERATURE` ►
  - ◄ `DATA OV VOICE MSGS`

- **VIEW ALARM** – Shortcut to: `EVENT LOG` (*Showing only alarm entries*)

- **CLEAR ALARM** – Operation of this key is application-program dependent.

- **EVENT REPORT** – Shortcut to: `EVENT LOG`

- **24 HR REPORT** – Same as the EVENT REPORT quick key, except the date/time range of the report is automatically set to the last 24 hours. No date/time is entered.

- **MENU** – Opens main menu options screen.

- **USER TEST** – Operation of this key is application-program dependent.

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3.4   SET DATE/TIME

3.4.1   Terminal Screens

From the Terminal keyboard use the down and up arrow keys to scroll the Main Menu and highlight the Set Date & Time option, then press ENTER. Alternatively, you may just press the corresponding selection letter "A" on the keyboard.

After selecting the Set Date & Time option a setup screen will display, as shown in Figure 3-8. Use the down and up arrow keys to select a field. Where indicated by (<>) use right and left arrow keys to scroll through the option list for that field. Note that YEAR, DAY and TIME are numerical values that must be entered manually. To manually enter data for these fields use the right and left arrows to position the underscore cursor below the number to be changed, then type the desired number. The cursor will automatically advance to the next position. Note also, that if "Other" is selected in the Time Zone field, then the GMT Offset must be entered manually as well.

When finished, press the down arrow to highlight the SET DATE/TIME option at the bottom of the screen and press ENTER. The date and time are saved and you are returned to the main menu.

Figure 3-8. [Terminal] Set Date/Time Screens

3.4.2   Front Panel Display

Enter date and time. They will format exactly as entered. Use the 24-hour format when entering the hour. Refer to the Front Panel Set Date/Time Sequence shown in Figure 3-9.

On the Front Panel, a prompt is provided for the automatic daylight saving adjustment setting and the time zone of the unit. The new settings can then be saved or discarded.

After the time has been entered, the system time and real-time clock is updated. Two events are logged in the event buffer: one event with the old time as a time stamp and one event with the new time as the time stamp. An event report will show entries similar to the following example:

```
B041 ONBD TEXT 2007-APR-02 18:41:53.00 Date/Time set was 2007-MAR-29 13:21:27
```

3-14

```
                    ┌─────────────────────────┐
              ┌────►│   SET DATE/TIME  ▶      │
              │     └─────────────────────────┘
              │                 │ ENTER KEY
              │                 ▼
        EXIT  │     ┌─────────────────────────┐
        ◄─────┤     │      SET DATE           │      First two digits are locked
        KEY   │     │   YEAR :[20Ø7]          │      Only allowed to modify last two digits
              │     └─────────────────────────┘
              │       DOWN/ENTER      UP KEY
              │          KEY            ▲
              │           ▼             │
        EXIT  │     ┌─────────────────────────┐
        ◄─────┤     │      SET DATE           │      Use left/right key to select Jan to Dec
        KEY   │     │   MONTH:◄JAN▶           │
              │     └─────────────────────────┘
              │       DOWN/ENTER      UP KEY
              │          KEY            ▲
              │           ▼             │
        EXIT  │     ┌─────────────────────────┐      Make sure that Feb in non-leap year
        ◄─────┤     │      SET DATE           │      cannot have more than 28 days and
        KEY   │     │   DAY  :[Ø7]            │      leap year cannot have more than 29
              │     └─────────────────────────┘
              │       DOWN/ENTER      UP KEY
              │          KEY            ▲
              │           ▼             │
        EXIT  │     ┌─────────────────────────┐      24 hours not allowed and
        ◄─────┤     │      SET TIME           │      60 minutes or seconds not allowed
        KEY   │     │   TIME :[Ø9:36:43]      │
              │     └─────────────────────────┘
              │       DOWN/ENTER      UP KEY
              │          KEY            ▲
              │           ▼             │
        EXIT  │     ┌─────────────────────────┐      None, US-2007 or US-1986 rules
        ◄─────┤     │  SET DST TIME ADJUST    │
        KEY   │     │  AUTO:◄US-2ØØ7▶         │
              │     └─────────────────────────┘
              │       DOWN/ENTER      UP KEY
              │          KEY            ▲        Eastern, Central, Mountain, Pacific, Alaska,
              │           ▼             │        Hawaii, Atlantic (Canada), Saskatchewan,
        EXIT  │     ┌─────────────────────────┐    Newfoundland, Other *
        ◄─────┤     │   SET TIME ZONE         │
        KEY   │     │   ◄PACIFIC▶             │    * If Other is selected you will be prompted
              │     └─────────────────────────┘      to enter the GMT OFFSET manually
              │       DOWN/ENTER      UP KEY
              │          KEY            ▲
              │           ▼             │
        EXIT  │     ┌─────────────────────────┐
        ◄─────┘     │   SAVING CHANGES        │
        KEY         │   PLEASE WAIT           │
                    └─────────────────────────┘
```

Figure 3-9. [Front Panel] Set Date/Time Sequence

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3.5   SITE SETUP

The site setup sequence provides a step-by-step guide through the configuration settings. The sequence can be initiated by pressing the "Site Setup" button on the front panel, or by selecting it from the `Change Settings > Application` menu on either the Terminal or front panel.

Observe that the last <u>Terminal</u> screen only provides basic prompts for specific equipment. These prompts are the result of the **CDL Application** installed. Refer to Figure 3-10 and Figure 3-11.

<table>
<tr><td>**NOTE**</td><td>**NOTE**

Site Setup on the Terminal is primarily used by remote users and provides only basic options. For the initial site setup (and whenever a detailed site setup is required) <u>use the front panel sequence</u>.</td></tr>
</table>

3.5.1   Terminal Screens
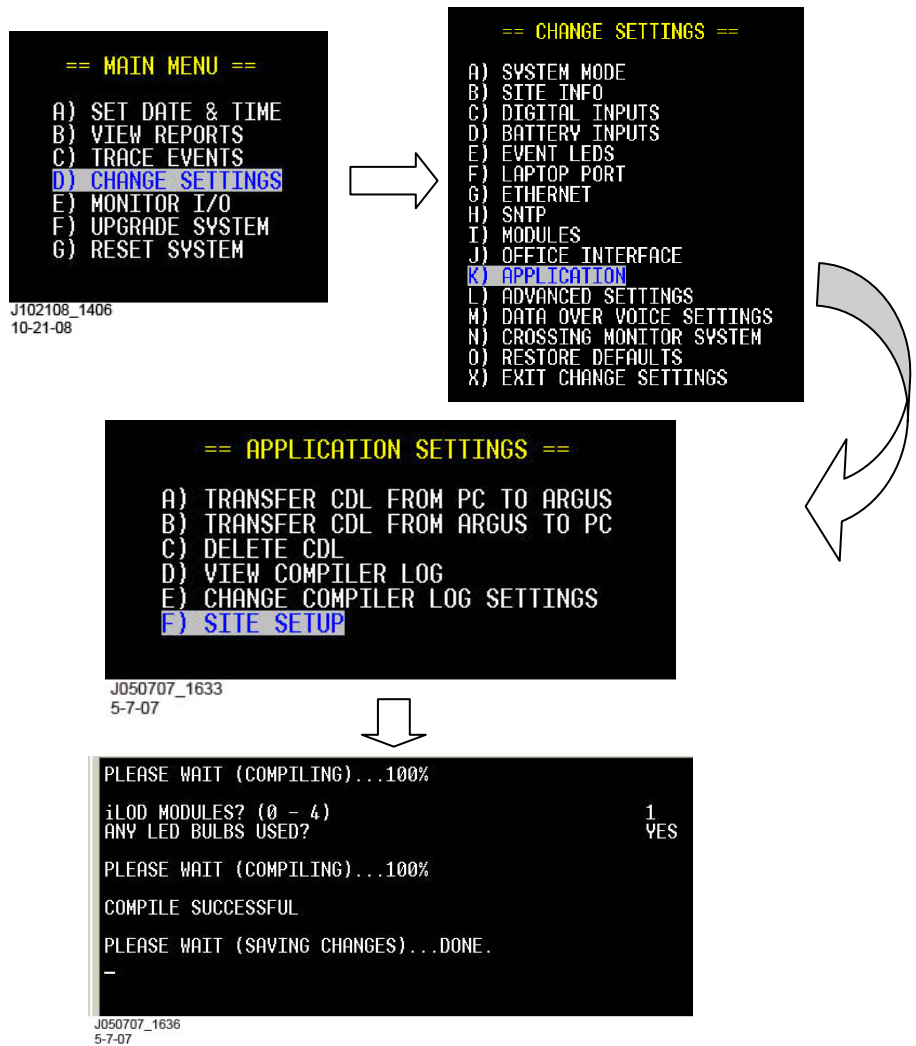
Figure 3-10. [Terminal] Site Setup Sequence

3.5.2   Front Panel Display

```
                          ┌──────────────────────┐
                          │      SITE SETUP       │
                          └──────────────────────┘
                                    │ ENTER
                          (option)
                   ┌──────────────────────┐        ┌──────────────────────┐
                   │  SYSTEM MODE         │        │   SYSTEM MODE        │
                   │  NORMAL ▶            │        │  ◀ LINKED I/O        │── ENTER/DOWN
                   └──────────────────────┘        └──────────────────────┘
            ENTER/DOWN/EXIT      UP
                   ┌──────────────────────┐                    ┌──────────────────────┐
      ◀─ EXIT      │  SET DATE/TIME       │── YES ─ See the SET │   LINK NUMBER        │
                   │  NO ▶                │       DATE/TIME     │  [1]                 │
                   └──────────────────────┘       sequence      └──────────────────────┘
             ENTER/DOWN          UP                                   │ ENTER/DOWN
                   ┌──────────────────────┐                    ┌──────────────────────┐
      ◀─ EXIT      │  SITE INFO: NAME     │                    │  PLEASE WAIT         │
                   │  [ARGUS SITE] ▶      │                    │  SAVING CHANGES      │
                   └──────────────────────┘                    └──────────────────────┘
             ENTER/DOWN          UP                                   │
                   ┌──────────────────────┐                    ┌──────────────────────┐
      ◀─ EXIT      │  SITE INFO: MILE POST│                    │  LINKED              │
                   │  [Ø.Ø] ▶             │                    │  I/O MODE            │
                   └──────────────────────┘                    └──────────────────────┘
             ENTER/DOWN          UP                             Remains in LINKED I/O MODE
                   ┌──────────────────────┐                     continuously until interrupted by
      ◀─ EXIT      │  SITE INFO: D.O.T. #  │                        pressing SITE SETUP
                   │  [ØØØØØØA] ▶          │
                   └──────────────────────┘
             ENTER/DOWN          UP
                   ┌──────────────────────┐
      ◀─ EXIT      │  SITE INFO: ATCS ADDR│
                   │  [7.62Ø.1ØØ.1ØØ.98] ▶│
                   └──────────────────────┘
             ENTER/DOWN          UP
                   ┌──────────────────────┐
                   │  PLEASE WAIT         │
                   │  COMPILING      20%  │
                   └──────────────────────┘
             ENTER/DOWN          UP
                   ┌──────────────────────┐       Depending on the application.
      ◀─ EXIT      │   (Application       │── ── See the Argus Application guide
                   │    Questions)        │            9V937-A01
                   └──────────────────────┘
             ENTER/DOWN          UP
                   ┌──────────────────────┐
                   │  PLEASE WAIT         │
                   │  COMPILING      20%  │
                   └──────────────────────┘
             ENTER/DOWN          UP
                   ┌──────────────────────┐
      ◀─ EXIT      │  INSTALL iLOD?       │── YES ─▶ See INSTALL MODULES sequence
                   │  NO ▶                │
                   └──────────────────────┘
             ENTER/DOWN          UP
                   ┌──────────────────────┐
      ◀─ EXIT      │  CALIBRATE BATTERIES │── YES ─▶ See CALIBRATE BATTERIES sequence
                   │  NO ▶                │
                   └──────────────────────┘
                NO                 UP
                   ┌──────────────────────┐
      ◀─ EXIT      │  CALIBRATE LAMPS     │── YES ─▶ See CALIBRATE LAMPS sequence
                   │  NO ▶                │
                   └──────────────────────┘
                NO                 UP
                   ┌──────────────────────┐
                   │  PLEASE WAIT         │    All possible key strokes are not shown
                   │  SAVING CHANGES      │
                   └──────────────────────┘
```

Figure 3-11. [Front Panel] Site Setup Sequence

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When the front panel site setup sequence is performed, a prompt asks whether or not the date/time of the system needs to be set. If yes is chosen, the SET DATE/TIME sequence in paragraph 3.4 will be followed.

After the date/time is set or skipped, the system will compile the CDL program. This phase of the compilation only compiles the menu question commands in the CDL program. After the compilation, each relevant menu question is then presented, as shown in Figure 3-12.
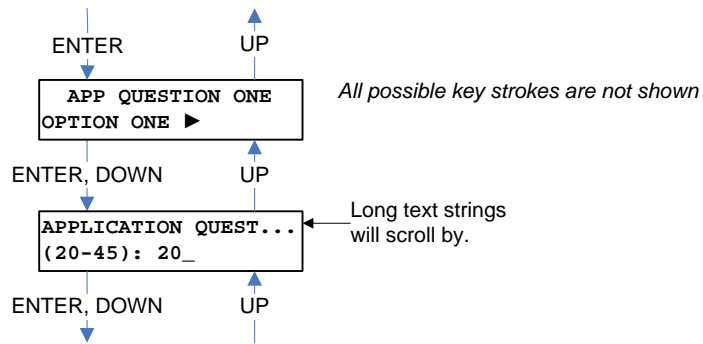
Figure 3-12. [Front Panel] Application Menu Sequence

1. After all the menu questions are answered, the remaining CDL program is compiled.

2. Any uninstalled configured modules may be installed, as shown in Figure 3-13.

3. Once the modules are installed, field battery calibration is performed. If Yes is selected, the field battery calibration sequence in Figure 3-14 will be followed.

4. The field lamp calibration (if any iLODs are installed) is performed after field battery calibration. If Yes is selected, the sequence in Figure 3-15 will be followed. After the field lamp calibration, site setup is complete.
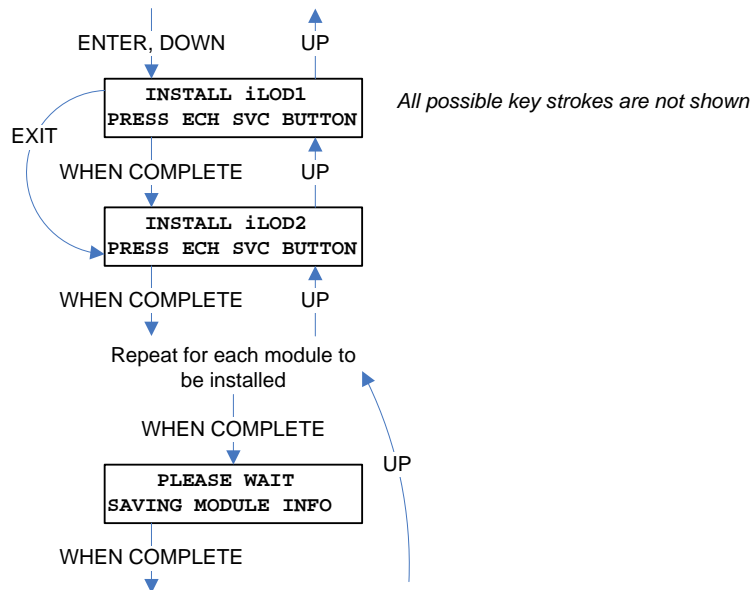
Figure 3-13. [Front Panel] Module Installation Sequence

3.6   BATTERY CALIBRATION

3.6.1   Front Panel Display

The sequence for field calibration of the battery voltage levels is shown below in Figure 3-14.
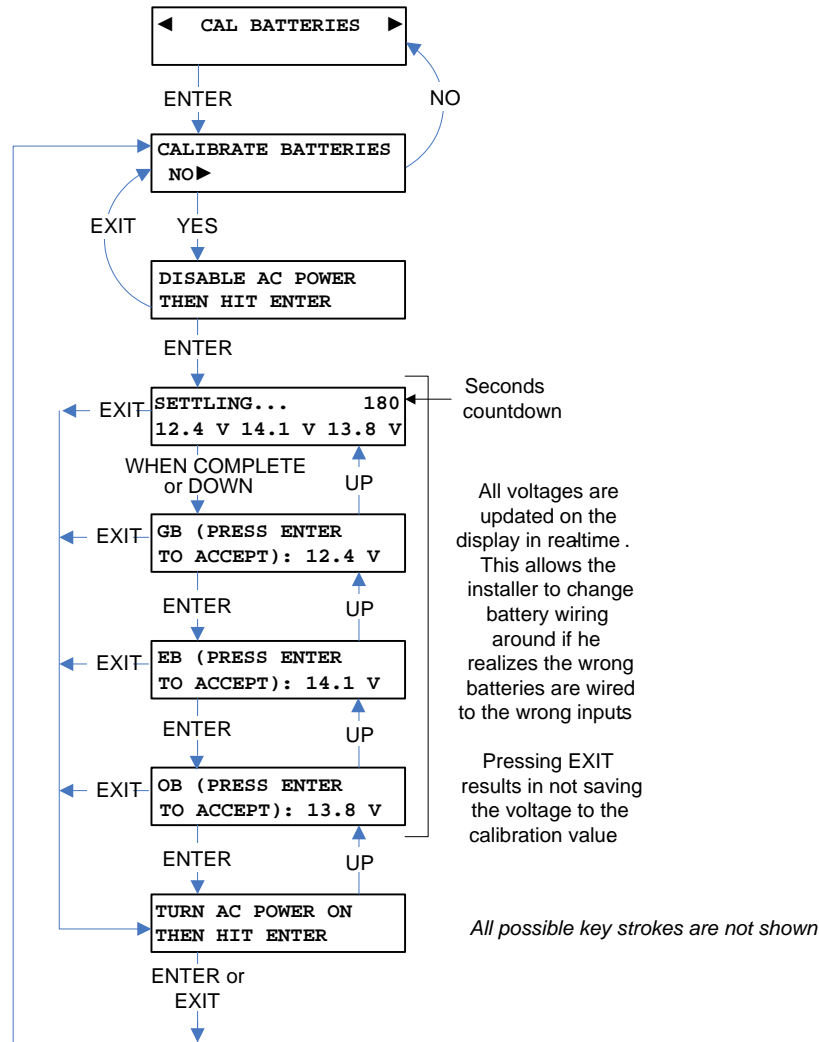
Figure 3-14. [Front Panel] Battery Calibration Sequence

The voltages displayed during this sequence are updated in real-time. This allows the installer to know whether the correct battery is connected to the correct input, and adjustments to the wiring can be made as necessary before accepting the values. The AC power is disabled to shut off any battery chargers and the settle period of 180 seconds allows any float caused by the battery chargers to dissipate before the calibrated value is determined.

NOTE
NOTE
The settle period can be skipped by pressing the DOWN arrow; however, this may result in invalid calibration values for the batteries.

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3.7 LAMP CALIBRATION

3.7.1 Front Panel Display

The sequence for the field calibration of lamp current levels is shown below in Figure 3-15.
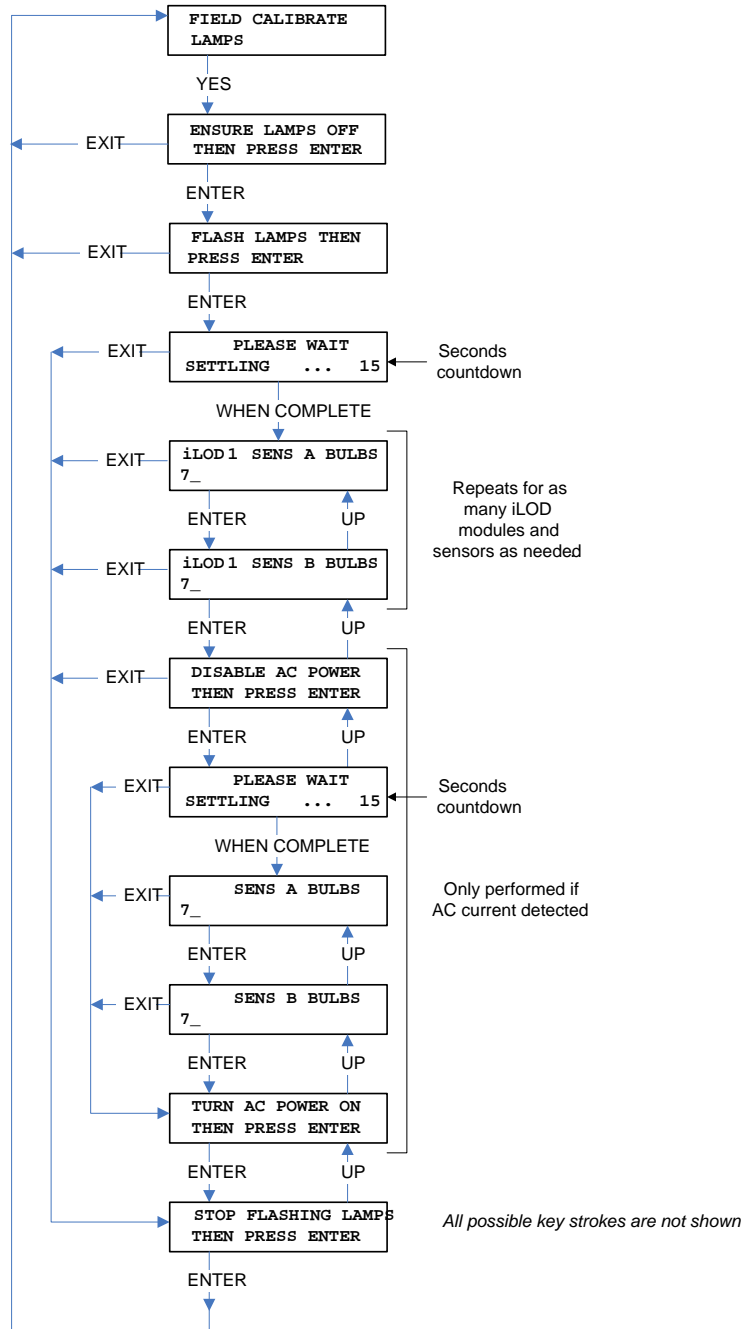
Figure 3-15. [Front Panel] Lamp Calibration Sequence

The number of bulbs on the display is calculated assuming that one bulb draws 1.8 A of current. This value can then be overwritten with the actual count. The last logged current reading after the settle period is used to calculate the estimated bulb count. That current reading is also saved as the calibrated current for the sensor.

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3.8   VIEW REPORTS

The following reports can be accessed using the terminal screen or front panel menus. (see descriptions below):

Terminal Screen	Front Panel Display
EVENT LOG	EVENT LOG
CONFIGURATION	APPL LOG
APPLICATION LOG	MAINTENANCE LOGS
SYSTEM LOG	SYSTEM LOG
RESET LOG	RESET LOG
CDL COMPILER LOG	VIEW CDL LOG
VERSIONS	VERSIONS
MAINTENANCE LOG	
INCIDENT REPORT	

- **EVENT LOG**: Displays prompt to enter the start date/time and the end date/time. The parameter defaults are set to view the previous 24 hours.

- **CONFIGURATION:** Displays system configuration, including: Site setup information, serial port settings, software applications, module status, discrete and analog input status, event LED status, Echelon status, Ethernet setup, office interface, and internal board information.

- **APPLICATION LOG/APPL LOG:** Event Log entries logged by the application program.

- **SYSTEM LOG:** Messages needed to troubleshoot the system.

- **RESET LOG:** History of the last 10 resets the unit has performed.

- **CDL COMPILER LOG/VIEW CDL LOG:** Displays application compilations.

- **VERSIONS:** Displays current version of the system executive and the application software.

- **MAINTENANCE LOG:** Exactly like a standard Event Log, except those digital inputs that have had their "filtered" setting enabled, are not shown in this report. Can be pulled from terminal, viewed on front panel, or downloaded on a USB stick.

- **INCIDENT REPORT:** A standard event report that has been encrypted such that it cannot be read without using a PC program to decrypt the report. Can be pulled from terminal, or downloaded on a USB stick. Can validate data unchanged using CRC included in report.

In addition to viewing reports on the terminal screen, some reports can be captured and printed as a text file. This requires enabling text to be captured on the terminal emulator. Depending on the emulation software, text can be captured and saved to a disk file, then sent to a printer.

3.8.1   Terminal Screens

Figure 3-16. [Terminal] View Reports Selection Screens

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Figure 3-17 shows examples of Terminal screens used to create the various reports. Use the arrow keys to traverse the fields and/or to select options where applicable. After the report criteria have been entered, press ENTER or the down arrow key to highlight the GENERATE REPORT action prompt, then press ENTER to create the report.

NOTE	**NOTE** At the FORMAT selection use left and right arrow keys to select ON SCREEN, PRINT/CAPTURE, or USB STICK output option.
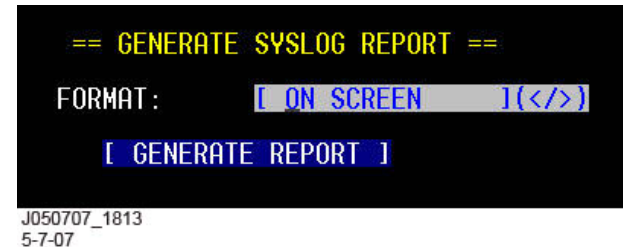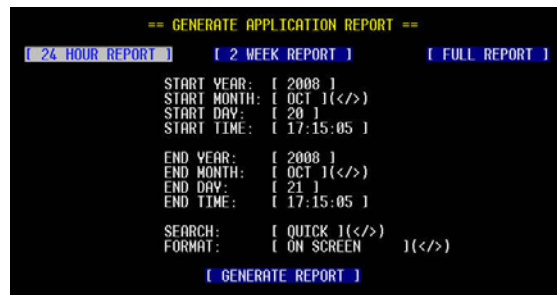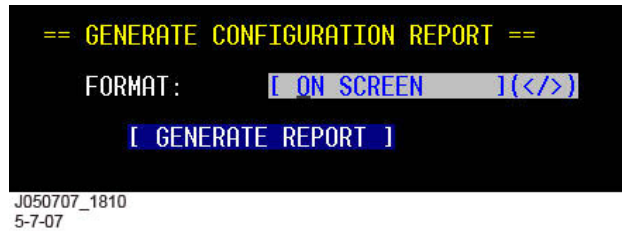
Figure 3-17. [Terminal] Report Creation Screens

3.8.2   Front Panel Display

Press the Menu key on the keypad, then press the right arrow to advance from the SET DATE/TIME display to the VIEW REPORTS display, as shown below, then press ENTER.

```
◀        VIEW REPORTS        ▶
```
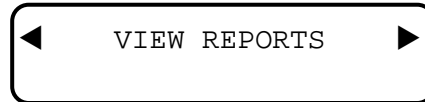
When viewing reports on the front panel, use the ARROW and ENTER keys to access the various sub-menus.

3.9   TRACE EVENTS

The display can be monitored as a train moves, and the events are reported in real time.

3.9.1   Terminal Screens

To view the trace data on screen, press any key to start tracing, and press Esc (ESCAPE) to stop. To save trace data to the computer the Terminal Emulation program (e.g. HyperTerminal) must have text capturing enabled. If necessary, refer to your computer software user guide or Help system for assistance on enabling text capturing.

```
== MAIN MENU ==

A) SET DATE & TIME
B) VIEW REPORTS
C) TRACE EVENTS
D) CHANGE SETTINGS
E) MONITOR I/O
F) UPGRADE SYSTEM
G) RESET SYSTEM

J102108_1749
10-21-08
```

```
Enable text capturing then hit any key.

J050707_1823
5-7-07
```
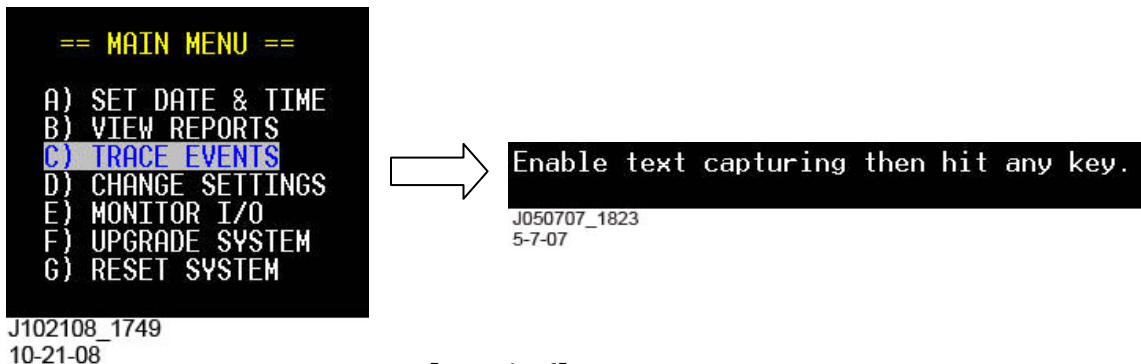
Figure 3-18.   [Terminal] Trace Events Screens

3.9.2   Front Panel Display

```
◀        TRACE EVENTS        ▶
```

Press ENTER

```
TRACE EVENTS
WAITING FOR AN EVENT
```
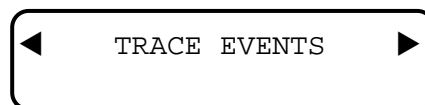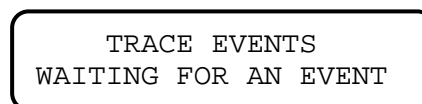
Press Cancel/Enter key to stop

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3.10 CHANGE SETTINGS

3.10.1 System Mode

Use the System Mode settings to configure an Argus unit as a Master or a Linked I/O unit. If the Argus is set to Normal, it will take the roll of the Master unit which can send/receive data to/from up to 4 Argus units. In Normal Mode any Link Number entered will be ignored. To set an Argus as a Linked unit, select Linked I/O in the System Mode window and enter a unit number from 1 to 4.

3.10.1.1 Terminal Screens

On the Terminal, select Change Settings from the Main Menu, then the System Mode sub-menu. You are then presented with the System Mode screen where the data can be entered/modified (see Figure 3-19).

Use the right and left arrow keys to select either the Normal or Linked I/O System Mode. If the Linked I/O Mode is selected, press either the keyboard Enter key or down arrow key to move to the Link Number setting, then enter the desired link number (1-4) for this Argus unit.

When done with selections, press the Esc (ESCAPE) key to save the changes and return to the Change Settings menu.
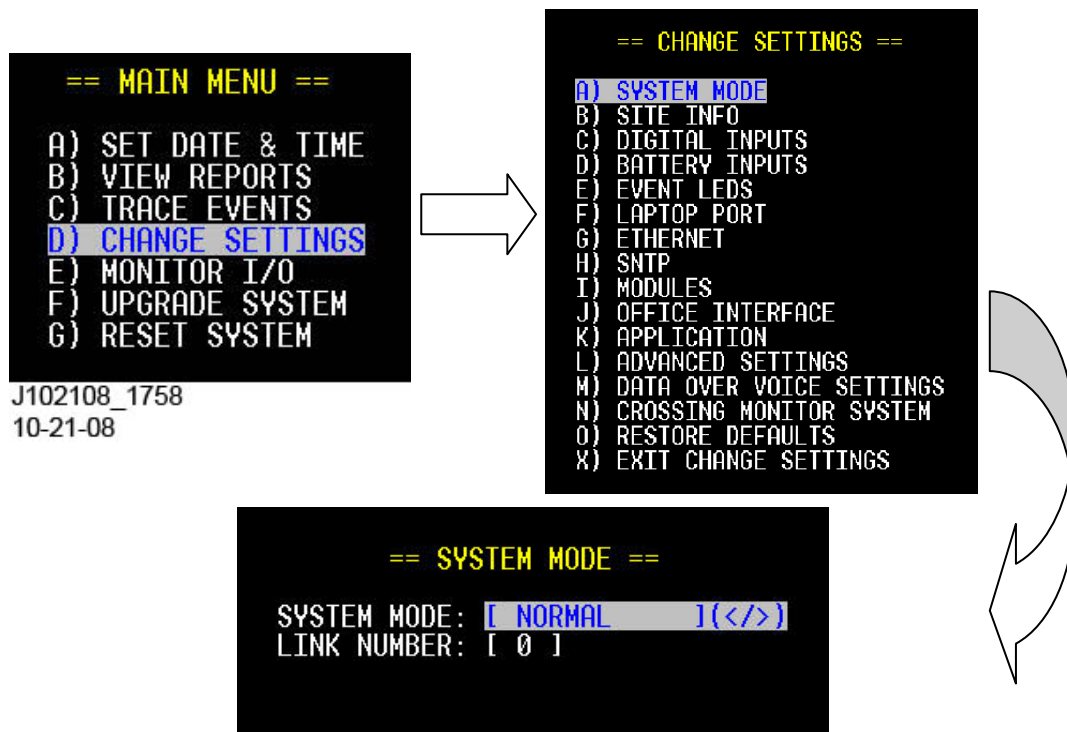
Figure 3-19. [Terminal] System Mode Screens

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3.10.1.2 Front Panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. The first sub-menu is titled System Mode. Press ENTER to select it and the System Mode options will be displayed as shown in Figure 3-20.

Press the right or left arrow key to display either Normal or Linked I/O in the System Mode. window. To select the Linked I/O Mode, press the Enter key or down arrow key on the front panel when Linked I/O is displayed in the window. In the Link Number window, enter the desired number for this Argus unit. When done, press the Enter or Exit key to save the settings.

◄   CHANGE SETTINGS   ►

Press ENTER

SYSTEM MODE   ►

Press ENTER

Use left or right arrow to select mode

SYSTEM MODE
NORMAL►

Press Exit

SYSTEM MODE
◄LINKED I/O

Press ENTER or down arrow

LINK NUMBER
[1]

Enter number (1-4), press ENTER or Exit
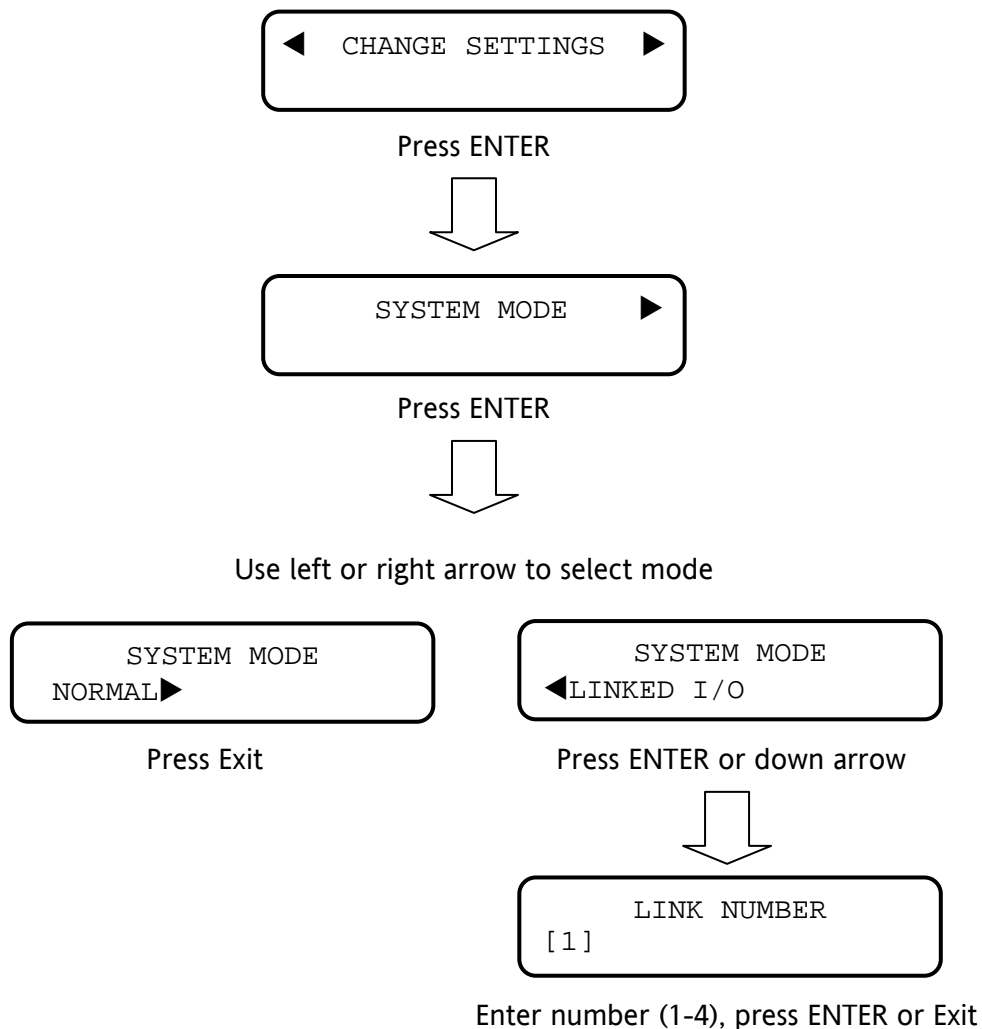
Figure 3-20. [Front Panel] System Mode Sequence

3.10.2   Site Information

Use the Site Info option to modify the site name, milepost, DOT number, and ATCS Address.

3.10.2.1   Terminal Screens

On the Terminal, select Change Settings from the Main Menu, then the Site Info sub-menu. You are then presented with the Site Information screen where the data can be entered/modified (see Figure 3-21).

Use the right and left arrow keys to position the underscore cursor below the character you wish to change. Use the down arrow or ENTER key to jump down to the next field. Use the up arrow to move up to a previous field.

When done press the Esc (ESCAPE) key to save the changes and return to the Change Settings menu.
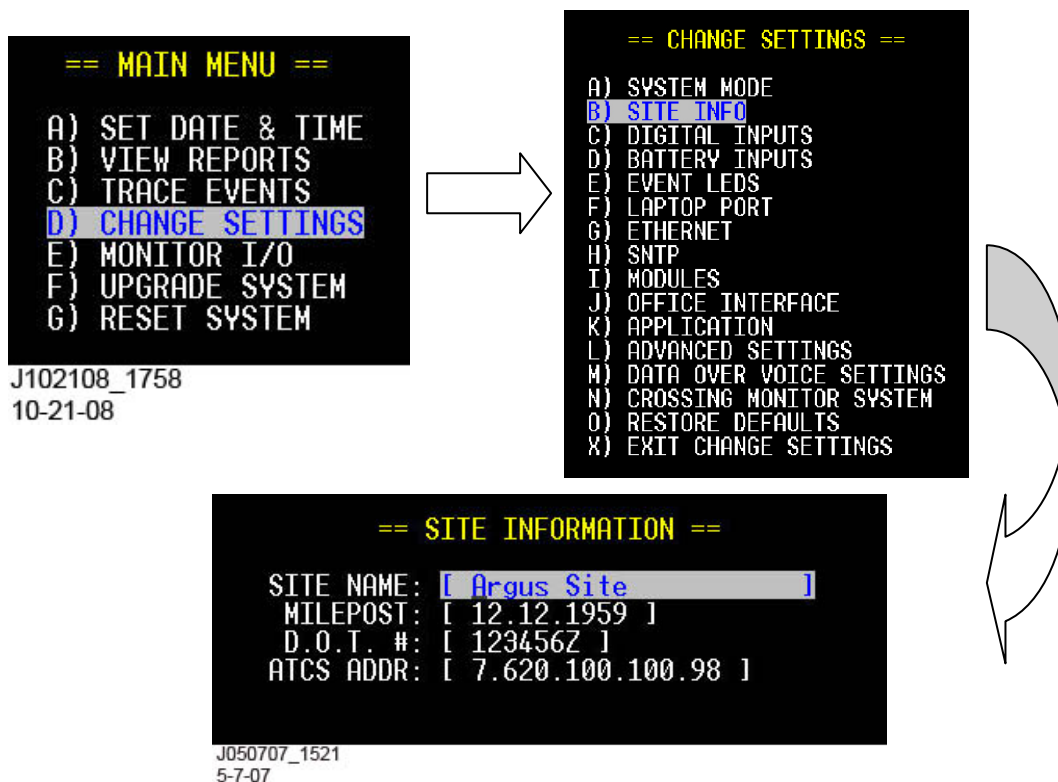
Figure 3-21. [Terminal] Site Info Screens

3.10.2.2 <u>Front Panel Display</u>

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. The next sub-menu is titled Site Info. Press ENTER to select it and the first data field will be displayed.
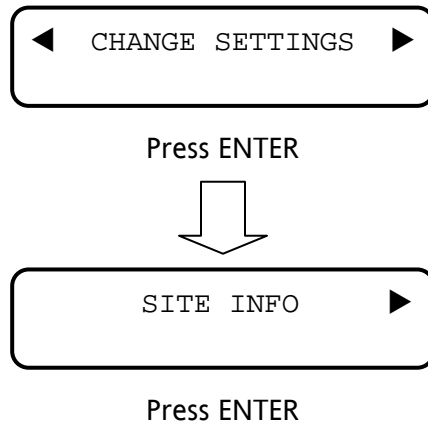
```
◄    CHANGE SETTINGS    ►
```

Press ENTER

```
SITE INFO          ►
```

Press ENTER

Press the right and left arrow keys to position the underscore cursor below the character you wish to change. Use the front panel keypad in a cell phone style manner to change the data (as detailed in paragraph 3.3.4). Use the down arrow or the ENTER key to move to the next field. Use the up arrow key to return to a previous field. When finished with the last data field, press ENTER or the down arrow to save the changes and return to the Site Info sub-menu.

Figure 3-22 shows the Site Info data entry sequence.

```
                    SITE INFO        ►

                    ENTER KEY

EXIT         SITE INFO: NAME
KEY          [Argus Site]          ►        (20 characters max)

             DOWN/ENTER          UP KEY
             KEY

EXIT         SITE INFO: MILE POST
KEY          [12.12.1959]                   (10 characters max)

             DOWN/ENTER          UP KEY
             KEY

EXIT         SITE INFO: D.O.T #
KEY          [123456Z]                      (7 characters max)

             DOWN/ENTER          UP KEY
             KEY

EXIT         SITE INFO: ATCS ADDR
KEY          [7.620.100.100.98]             (16 characters max)
```
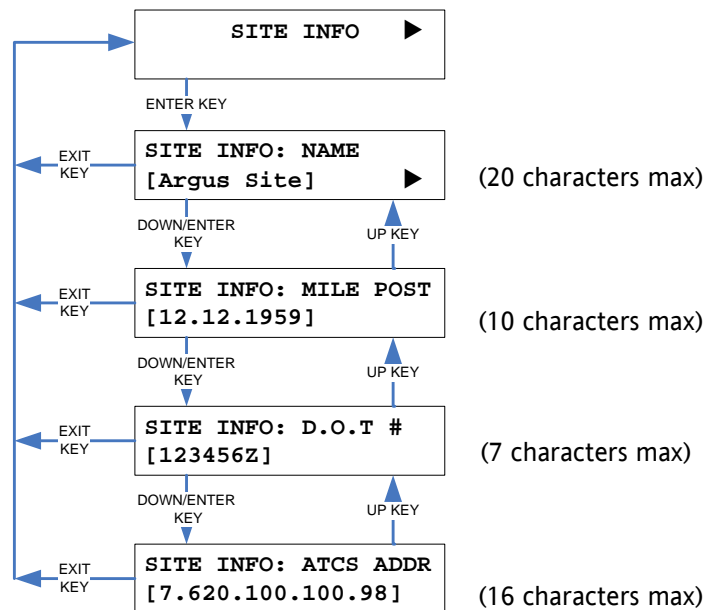
Figure 3-22. [Front Panel] Site Information Sequence

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3.10.3   Discrete Digital Inputs

Digital inputs can operate in one of the following modes: Discrete, MTSS, or GFT.

3.10.3.1   <u>Discrete Input Mode</u>

A discrete input can be in one of three states: OFF, ON, or TOGGLING.

- **OFF**: The voltage on the input has been less than 0.8 VDC (or AC peak) for the user-defined OFF de-bounce period or greater.

- **ON**: The voltage on the input has been above 6.0 VDC (or AC peak) for the user-defined ON de-bounce period or greater.

- **TOGGLING**: If the voltage changes state four or more times within the user-defined toggle period.

Discrete Input settings and descriptions are described in Table 3-1.

Table 3-1. Discrete Inputs Descriptions

SETTING	DESCRIPTION
NAME	Up to 10 characters in length and used to identify the discrete input in event reports and on local menus.
State names: **OFF**, **ON**, **TOGGLE**	Up to 9 characters in length for each state name, and displayed in event reports and local menus.
* OFF DE-BOUNCE (mSecs)	Number of milliseconds an input must be de-energized before it is declared OFF.
* ON DE-BOUNCE (mSecs)	Number of milliseconds an input must be energized before it is declared ON.
* TOGGLE PERIOD (mSecs)	Number of milliseconds within an input changing state 4 or more times is declared TOGGLING.
* FILTERED	Discrete Inputs that have their FILTERED setting enabled will not be shown in the Maintenance report.

* Advanced settings

3.10.3.2 MTSS Input Mode

In MTSS mode, the Argus processes the data signal of a Mini-Track Side Sensor (MTSS) . The MTSS, mounted in a gate mechanism, outputs the following 5 data bits: Gate Up, Gate Down, Gate Tip (from tip sensor), bell power, and bell audio. The Argus logs changes to these 5 bits. The Argus will also log changes in the general data line status (GOOD, STUCK LOW, and STUCK HIGH).

The only setting for inputs in MTSS mode is the "Name" settings used in the Event Log entries as shown in Table 3-2.

Table 3-2. MTSS Inputs Descriptions

SETTING	DESCRIPTION
NAME	Up to 10 characters in length and used to identify the MTSS input in event reports and on local menus.

3.10.3.3 GFT Input Mode

In GFT mode, the Argus processes the data signal of a Ground Fault Tester (GFT). The GFT can monitor up to 2 battery banks for ground faults. The GFT reports the fault status of the monitored battery banks as well as an internal health test and whether the GFT is in test mode. The Argus logs changes to those 4 bits of data. The Argus will also log changes in the general data line status (GOOD, STUCK LOW, STUCK HIGH).

A GFT input has 3 settings, the input name and the name for each monitored battery bank, used in the Event Log entries. See. See Table 3-3.

Table 3-3. GFT Inputs Descriptions

SETTING	DESCRIPTION
NAME	Up to 10 characters in length and used to identify the GFT input in event reports and on local menus.
Batt 1 Name	Up to 9 characters in length, name for the battery bank connected to B1 of the GFT. Displayed in event reports and local menus.
Batt 2 Name	Up to 9 characters in length, name for the battery bank connected to B2 of the GFT. Displayed in event reports and local menus.

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3.10.3.4   Terminal Screens

On the Terminal Main Menu select the Change Settings function, then the Digital Digital Inputs option from the sub-menu. You will then be presented with a screen showing all the digital input modes, names, and state names digital input modes, names, and state names (see Figure 3-23). All fields can be edited as required.

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move back to a previous field. Use the right and left arrow keys to select a Mode, or to select a Mode, or to position the underscore cursor below a character you wish to change. After entering a character the cursor will automatically move to the next character position. When done press the Esc (ESCAPE) key to save the changes and return to the Change Settings menu.

Note that Modes can be mixed between Discrete, MTSS and GFT on the same screen.Note that Modes can be mixed between Discrete, MTSS and GFT on the same screen.
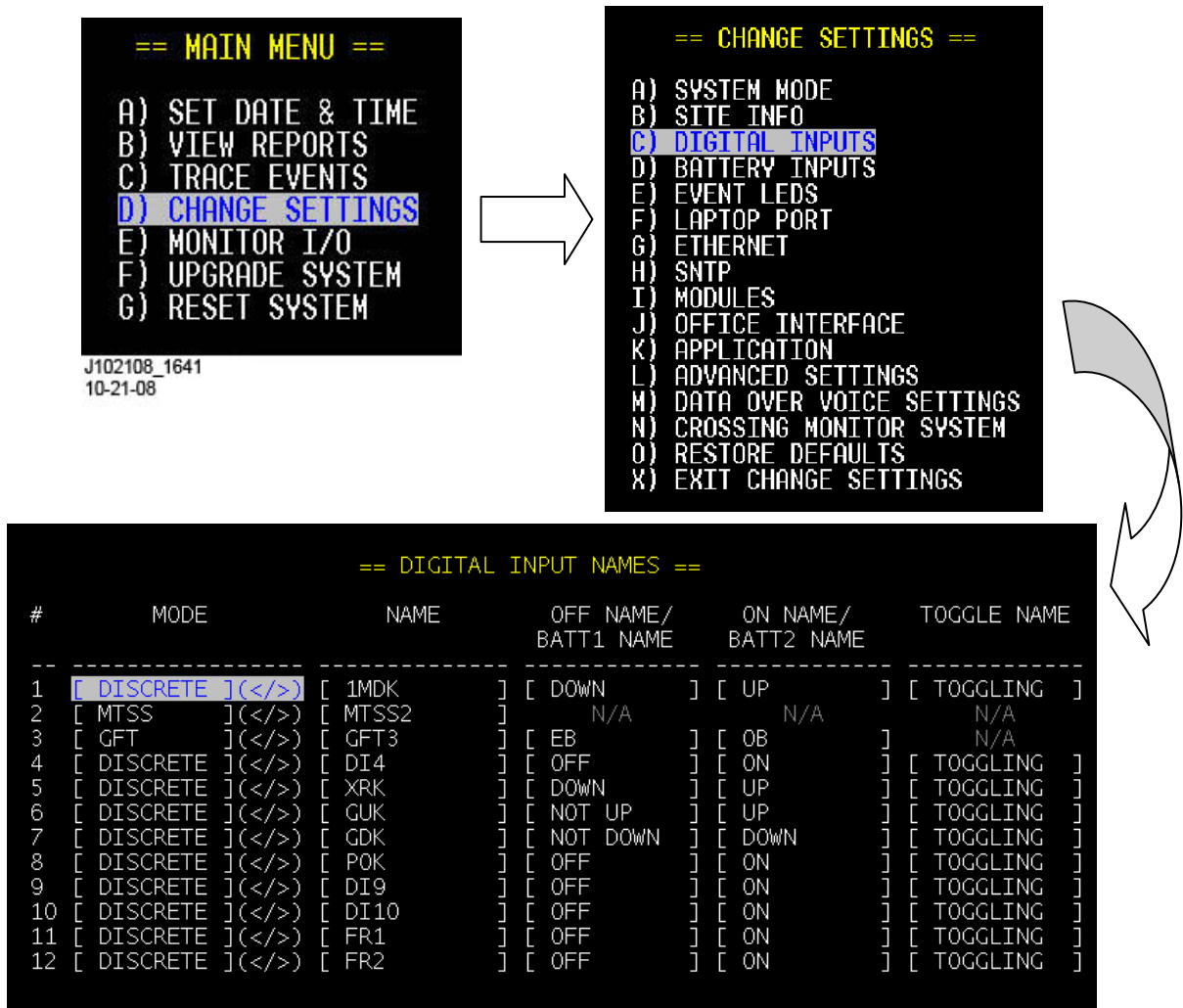
Figure 3-23. [Terminal] Digital Inputs Screens

3.10.3.5 Front panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. Press the right arrow key to scroll to the sub-menu titled Discrete Digital Inputs. Press ENTER to select it and the first data field will be displayed as shown below.

```
◄   CHANGE SETTINGS   ►
```

Press ENTER

```
◄   DIGITAL INPUTS   ►
```

Press ENTER

```
MODE 01
OPTIONS: DISCRETE►
```

Press ENTER Press ENTER

Selected Mode will be shown

```
DISCRETE Ø1 INPUT
NAME:[DI1        ]
```

Press the right and left arrow keys to position the underscore cursor below the character you wish to change. Use the front panel keypad in a cell phone style manner to change the data (as detailed in paragraph 3.3.4).

Use the down arrow or the ENTER key to move to the next field. Use the up arrow key to return to a previous field. When finished with the last data field, press ENTER or the down arrow to save the changes and return to the Digital Inputs sub-menu.

The following Figure 3-24 shows the Discrete Digital Inputs data entry sequence.

```
                    ┌──────────────────────────┐
              ┌────►│  ◄ DIGITAL INPUTS ►       │
              │     └──────────────────────────┘
              │              │ ENTER KEY
              │              ▼
              │     ┌──────────────────────────┐
         EXIT │     │ MODE 01                   │
         KEY  ◄─────│ OPTIONS: DISCRETE►        │
              │     │          ◄MTSS►           │
              │     │          ◄GFT             │
              │     └──────────────────────────┘
              │      DOWN/ENTER        UP KEY
              │        KEY │             ▲
              │            ▼             │
              │     ┌──────────────────────────┐
         EXIT │     │ DISCRETE 01 INPUT         │
         KEY  ◄─────│ NAME:[DI1        ]        │
              │     └──────────────────────────┘
              │      DOWN/ENTER        UP KEY
              │        KEY │             ▲
              │            ▼             │
              │     ┌──────────────────────────┐
         EXIT │     │ DISCRETE 01 OFF           │
         KEY  ◄─────│ NAME:[OFF        ]        │
              │     └──────────────────────────┘
              │      DOWN/ENTER        UP KEY
              │        KEY │             ▲
              │            ▼             │
              │     ┌──────────────────────────┐
         EXIT │     │ DISCRETE 01 ON            │
         KEY  ◄─────│ NAME:[ON         ]        │
              │     └──────────────────────────┘
              │      DOWN/ENTER        UP KEY
              │        KEY │             ▲
              │            ▼             │
              │     ┌──────────────────────────┐
         EXIT │     │ DISCRETE 01 TOGGLE        │
         KEY  ◄─────│ NAME:[TOGGLING   ]        │
              │     └──────────────────────────┘
              │      DOWN/ENTER        UP KEY
              │        KEY │             ▲
              │            ▼             │
              │     ┌──────────────────────────┐
         EXIT │     │ MODE 02                   │
         KEY  ◄─────│ OPTIONS:◄MTSS►            │
              │     └──────────────────────────┘
              │      DOWN/ENTER        UP KEY
              │        KEY │             ▲
              │            ▼             │
              │     ┌──────────────────────────┐
         EXIT │     │ MTSS 02 INPUT             │
         KEY  ◄─────│ NAME:[DI2        ]        │
              │     └──────────────────────────┘
              │      DOWN/ENTER        UP KEY
              │        KEY │             ▲
              │            ▼             ┆
              │     Cycle repeats for Inputs 02 – 12
              │            DOWN/ENTER
              │               KEY
              │                │
              └────────────────┘
```

Figure 3-24. [Front Panel] Discrete Digital Inputs Naming Sequence

3.10.4   Battery Inputs

There are three battery monitoring channels. Battery inputs can be used to monitor the voltage on standard 12 VDC and 24 VDC batteries. They may also be used to monitor any DC voltage from 0 to 36 VDC.

The settings for each Battery Input are described in Table 3-4.

Table 3-4. Battery Input Settings

SETTING	DESCRIPTION
Name	Up to 10 characters long and used to describe the input in event reports.
Resolution	Specifies the change in voltage required before an event will be logged into the Argus event log. The voltage is calculated as the average of the number "Samples to Average".
*Sample Period	Number of milliseconds between raw samples of the input. The average of the last "Samples to Average" readings is taken at this point and compared to the last logged value to determine if a new event needs to be logged.
* Samples to Average	Specifies the number of consecutive samples to average together to determine the voltage present on the input. A list of the last "Samples to Average" samples is kept as the voltage readings are taken. At each sample period, the list of voltage readings is averaged together to determine the voltage value.
Re-read Period	The number of milliseconds after an event is logged, when one more comparison of voltage to the last logged value will be taken. This function has a non-accessible fixed value of 500 ms.
Re-read Resolution	The voltage difference required to log another event after the re-read comparison is performed. This function has a non-accessible fixed value of 0.2 VDC.

      * Advanced setting

The *Sample Period* setting determines how often the Argus will average the samples to determine if an event is logged. The number of samples that are averaged is determined by the *Samples to Average* setting. If this calculated average results in a voltage that differs by more than the value defined by *Resolution* from the previously logged voltage, then a new event is logged.   Once a new event is logged, a "re-read timer" is started and the input will be sampled again after the *Re-read Period* expires. If the difference between the new re-read sample and the last logged voltage is more than the value of the *Re-read Resolution*, another event will be logged.

The purpose of the "Re-read" function is to provide a more accurate logged voltage after a sudden change in voltage occurs from a gate motor or switch machine. See following example.

Re-read function example: Following is a detailed example of input event logging, including the re-read function. The default settings for this example are: *Resolution* = 0.5v; *Sample Period* = 100 ms; *Samples to Average* = 10; *Re-read Period* = 500 ms; *Re-read Resolution* = 0.2V.

If a steady voltage of 13.8V quickly drops to 13.3V, the input sampling may result in an event logged at 13.3V (.5V difference from last logged value- per the *Resolution* setting). However, after this event was logged the voltage continued to decline down to 13.0V. Without *Re-read*, the last logged value would remain at 13.3V, since the difference between 13.3V and the settled voltage of 13.0V is only .3V (less than the *Resolution* setting of .5V). But with *Re-read*, another sample will be taken 500 ms after the logged 13.3V event. At this point the battery voltage has stabilized at 13.0V, a difference of .3V from the last logged value. Since .3V is greater than the *Re-read Resolution* of .2V, a new event will be logged indicating a voltage of 13.0V. This process then, more accurately reflects the last logged value of the voltage.

3.10.4.1   Terminal Screens

On the Terminal Main Menu select the Change Settings function, and then the Battery Inputs option from the sub-menu. You will then be presented with a screen showing all the battery input settings with their names and resolutions (see Figure 3-25).

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move back to a previous field. Use the right and left arrow keys to position the underscore cursor below the character you wish to change. After entering a character the cursor will automatically move to the next character position.

When done press the Esc (ESCAPE) key to save changes and return to the Change Settings menu.
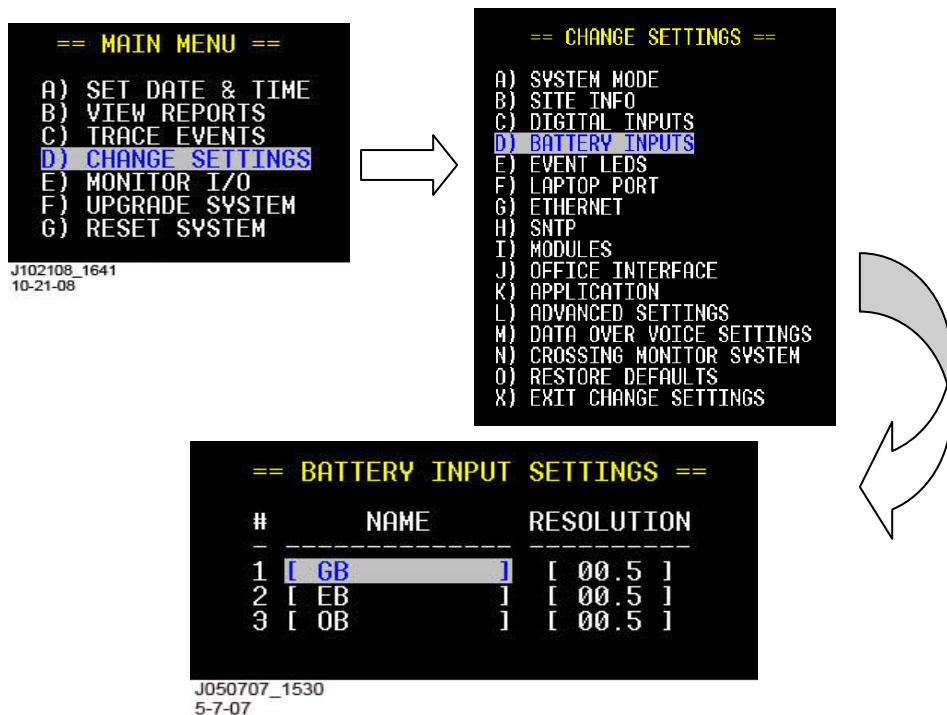

Figure 3-25. [Terminal] Battery Inputs Screens

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3.10.4.2   Front Panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. Press the right arrow key to scroll to the sub-menu titled Battery Inputs. Press ENTER to select it and the first data field will be displayed as shown below.

```
◄    CHANGE SETTINGS    ►
```

Press ENTER

```
◄    BATTERY INPUTS    ►
```

Press ENTER

```
BATTERY 1 SETTINGS
NAME:[GB         ]
```

Press the right and left arrow keys to position the underscore cursor below the character you wish to change. Use the front panel keypad in a cell phone style manner to change the data (as detailed in paragraph 3.3.4).

Use the down arrow or the ENTER key to move to the next field. Use the up arrow key to return to a previous field. When finished with the last data field, press ENTER or the down arrow to save the changes and return to the Battery Inputs sub-menu.

Figure 3-26 shows the Battery Inputs data entry sequence.

◄ **BATTERY INPUTS** ►

ENTER KEY

EXIT KEY ← **BATTERY 1 SETTINGS NAME:[ana1   ]**

DOWN/ENTER KEY   UP KEY

EXIT KEY ← **BATTERY 1 SETTINGS RES:[00.5V]**

DOWN/ENTER KEY   UP KEY

EXIT KEY ← **BATTERY 2 SETTINGS NAME:[ana2   ]**

DOWN/ENTER KEY   UP KEY

EXIT KEY ← **BATTERY 2 SETTINGS RES:[01.0V]**

DOWN/ENTER KEY   UP KEY

EXIT KEY ← **BATTERY 3 SETTINGS NAME:[ana3   ]**

DOWN/ENTER KEY   UP KEY

EXIT KEY ← **BATTERY 3 SETTINGS RES:[01.0V]**
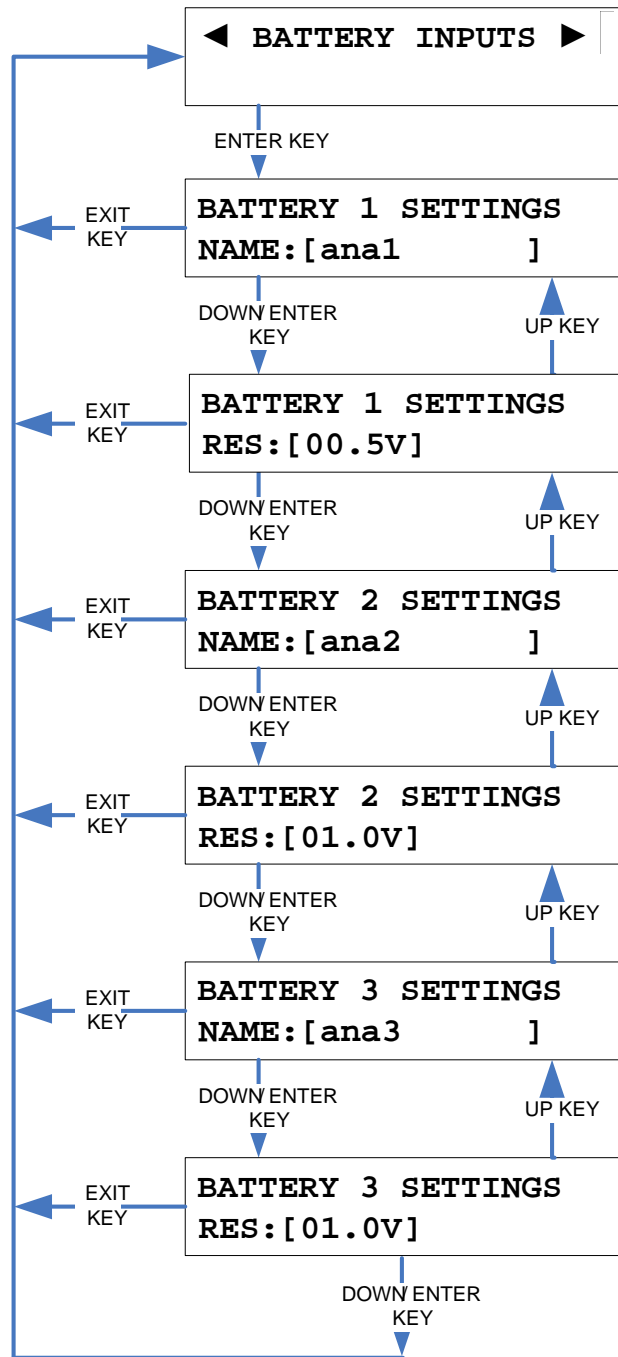
DOWN/ENTER KEY

Figure 3-26. [Front Panel] Battery Inputs Sequence

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3.10.5 Event LEDs

The eight event LEDs are used to show the state of application defined alarm conditions. The event LEDs indicate status through four states: OFF, ON, SLOW FLASH, and FAST FLASH. The LEDs are primarily used to indicate the status of Battery, AC, Gate, Bell, Lights, Preempt, Trouble Light, and Internal. All fields can be edited as required.

3.10.5.1 Terminal Screens

On the Terminal Main Menu select the Change Settings function, and then the Event LEDs option from the sub-menu. You will then be presented with a screen showing all the Event LEDs with their names and state names (Figure 3-27).

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move back to a previous field. Use the right and left arrow keys to position the flashing underscore cursor below the character you wish to change. After entering a character the cursor will automatically move to the next character position.

When done, press the Esc (ESCAPE) key to save the changes and return to the Change Settings menu.

Figure 3-27. [Terminal] Event LEDs Screens
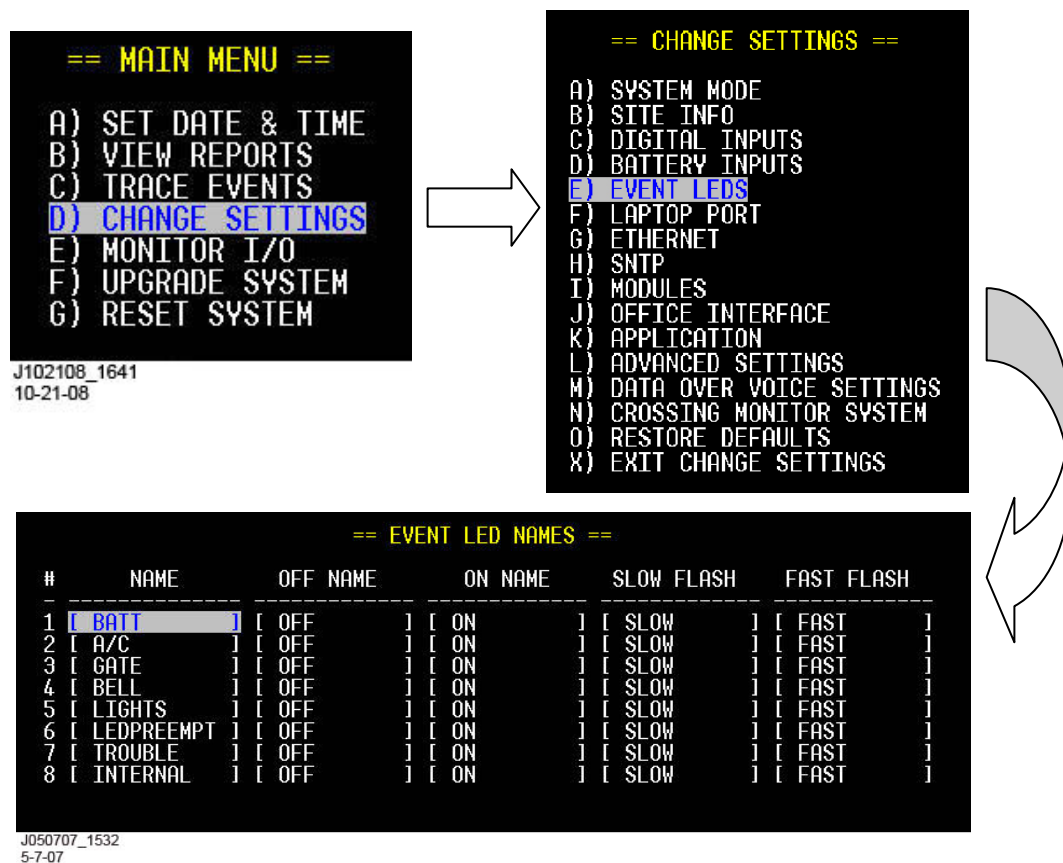
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3.10.5.2 Front Panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. Press the right arrow key to scroll to the sub-menu titled Event LEDs and press ENTER to select it. Refer to the Event LEDs Sequence shown in Figure 3-28.
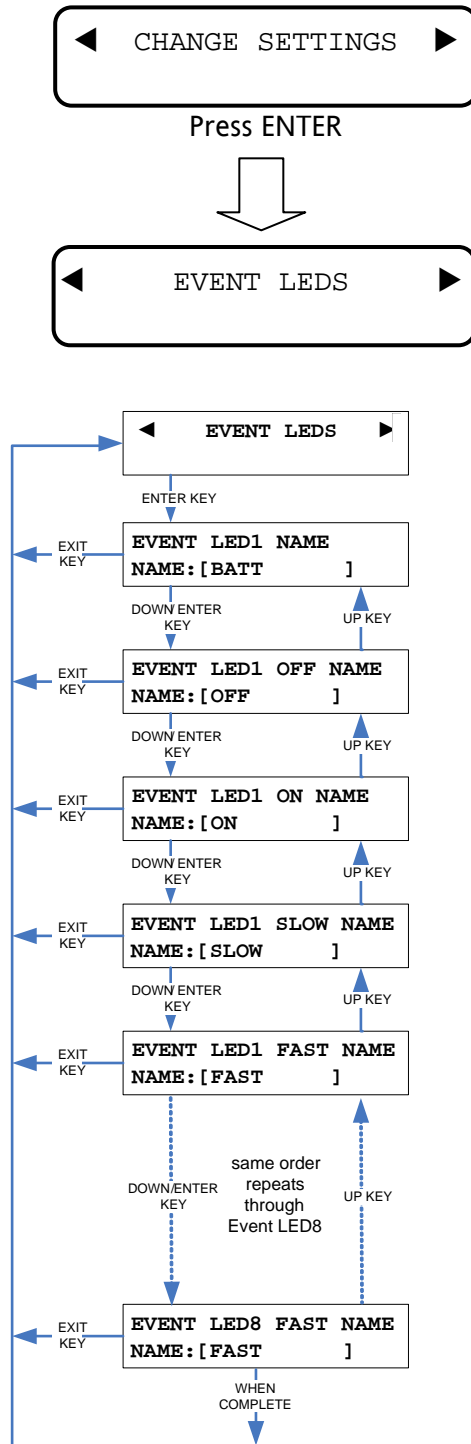

Figure 3-28. [Front Panel] Event LEDs Sequence

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3.10.6   Laptop Port

Enter the baud rate for the laptop; default is 9600. Other selectable baud rates are 1200, 57600, and 115200. Parity is always NONE and stop bits is always 1 (these are not changeable). Flow Control is selectable between NONE and HARDWARE (default is NONE).

3.10.6.1   Terminal Screens

On the Terminal Main Menu select the Change Settings function, and then the Laptop Port option from the sub-menu. You will then be presented with a screen showing the Laptop Port interface settings (Figure 3-29).

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move back to a previous field. As indicated by (<>), use the right and left arrow keys to select a different baud rate or flow control option.

When done, press the Esc (ESCAPE) key to save the changes and return to the Change Settings menu.

Figure 3-29. [Terminal] Laptop Port Settings Screens

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3.10.6.2   Front Panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. Press the right arrow key to scroll to the sub-menu titled Laptop Port and press ENTER to select it. Refer to the Laptop Port Sequence shown below.

```
        ◄    CHANGE SETTINGS    ►
```

Press ENTER

⬇

```
        ◄      LAPTOP PORT      ►
```

ENTER KEY

```
        LAPTOP: BAUD RATE
        ◄9600►
```
Default: 9600
Options: 1200, 9600, 57600, 115200

EXIT KEY
DOWN/ENTER KEY   UP KEY

```
        FLOW CONTROL
        NONE►
```
Default: NONE
Options: NONE, HARDWARE

EXIT KEY
DOWN/ENTER KEY

Figure 3-30.   [Front Panel] Laptop Port Sequence

3.10.7   Ethernet

The Ethernet port is used to connect the Argus system into a network. The Argus may report health status and alarm information to the Wayside Alarm Management System (WAMS) through this network. The Argus may also be remotely accessed through this network using Telnet. A Telnet user will be presented with the same terminal based menu system they would get locally using the serial port. A Telnet user must enter the correct password to log into the Argus. See paragraph 3.10.12.3 for password details.

3.10.7.1   <u>Terminal Screens</u>

On the Terminal Main Menu select the Change Settings function, and then the Ethernet option from the sub-menu. You will then be presented with a screen showing the Ethernet interface settings (Figure 3-31).

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move up to a previous field. Use the right and left arrow keys to position the flashing underscore cursor below the character you wish to change, or to scroll through options where selectable options are shown (<>). After entering a character the cursor will automatically move to the next character position.

When done, press the Esc (ESCAPE) key to save the changes. You will be queried if you wish to restart the unit. The unit must be restarted for any changes to take effect. If connected via Telnet the unit will restart automatically.

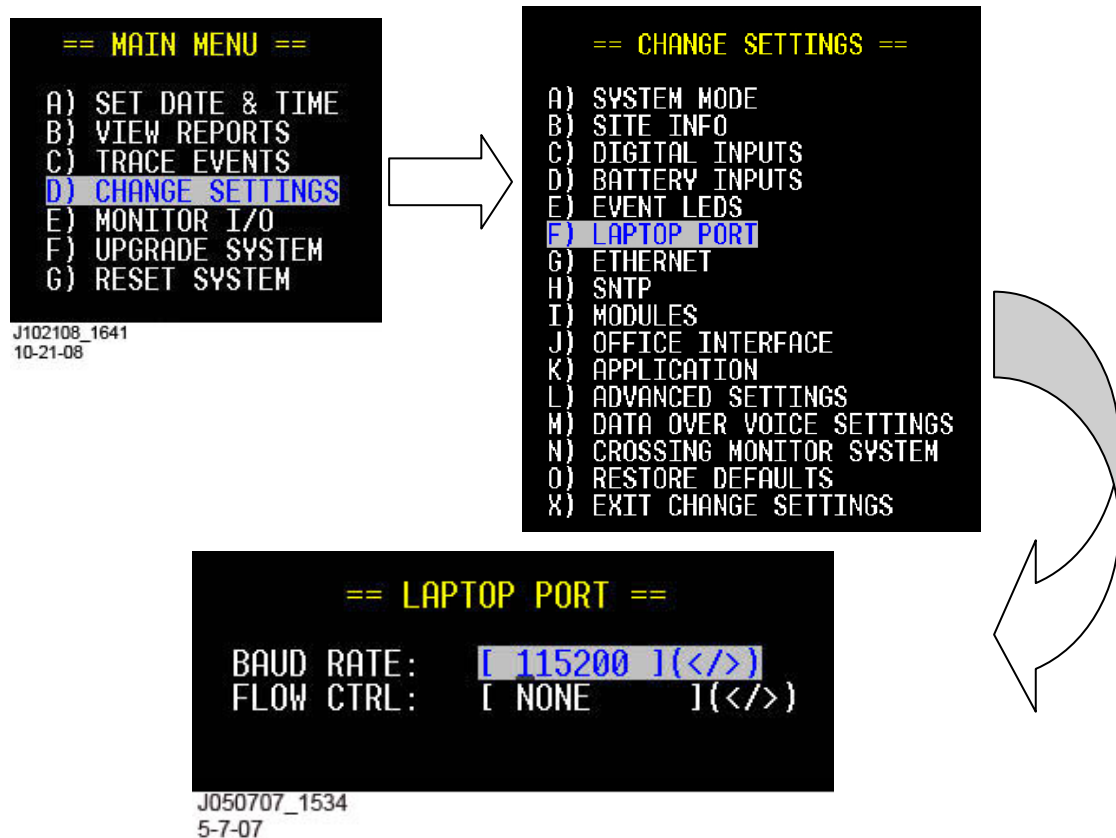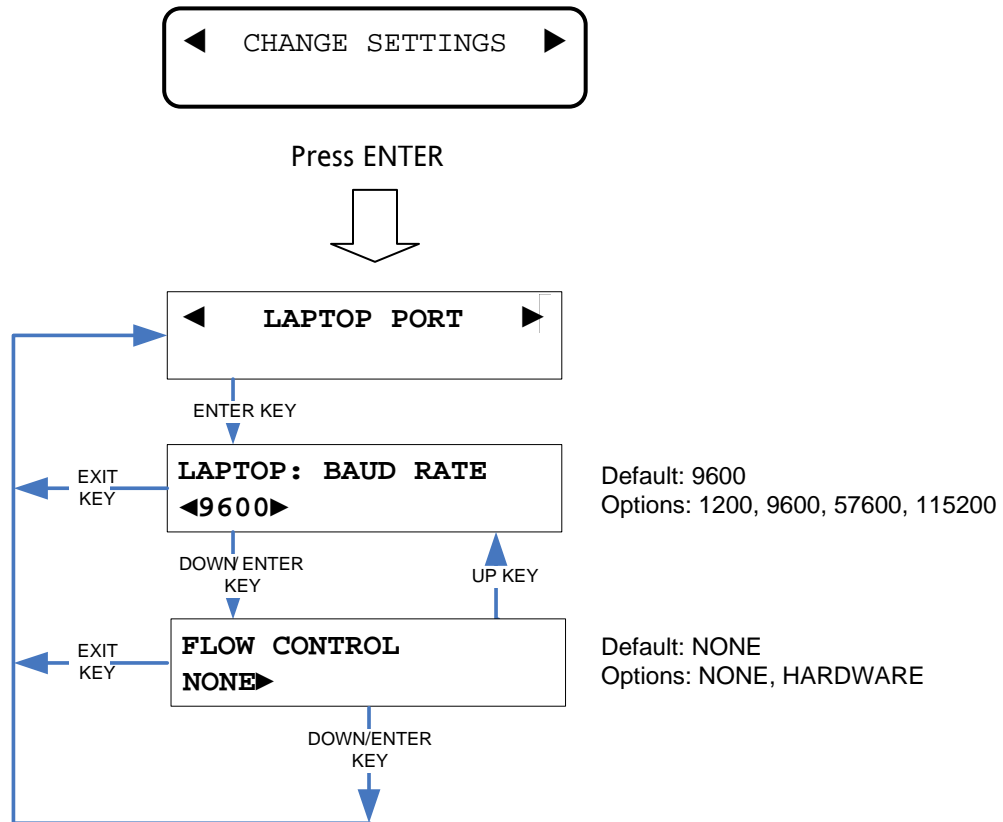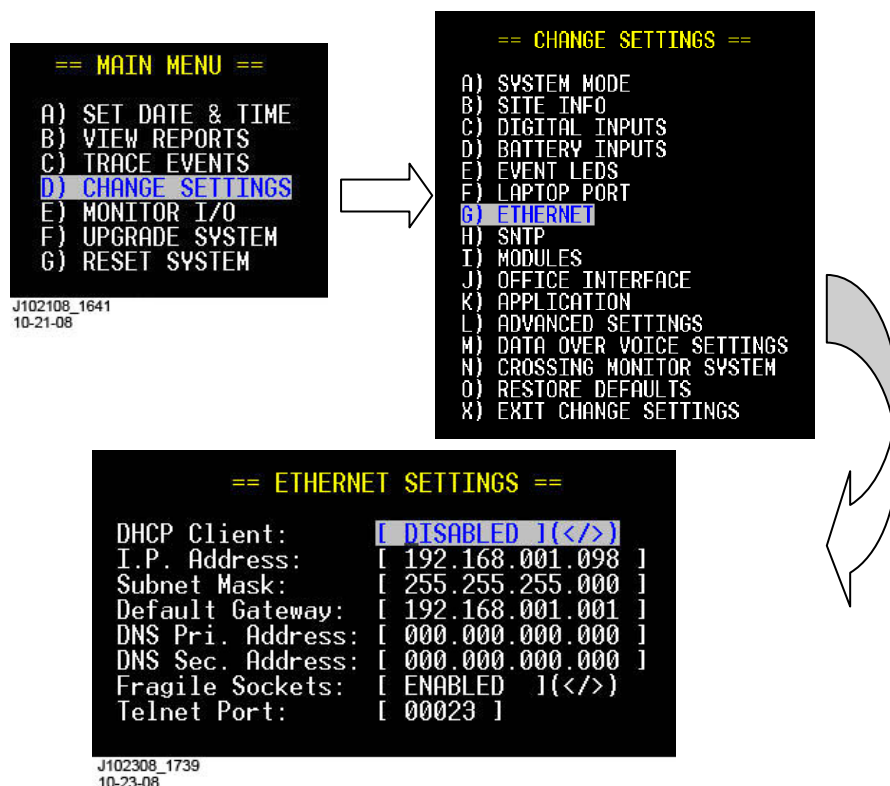**Figure 3-31. [Terminal] Ethernet Screens**

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3.10.7.2 Front Panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. Press the right arrow key to scroll to the sub-menu titled Ethernet and press ENTER to select it. Enter data as required. Refer to the Ethernet setup sequence shown below.
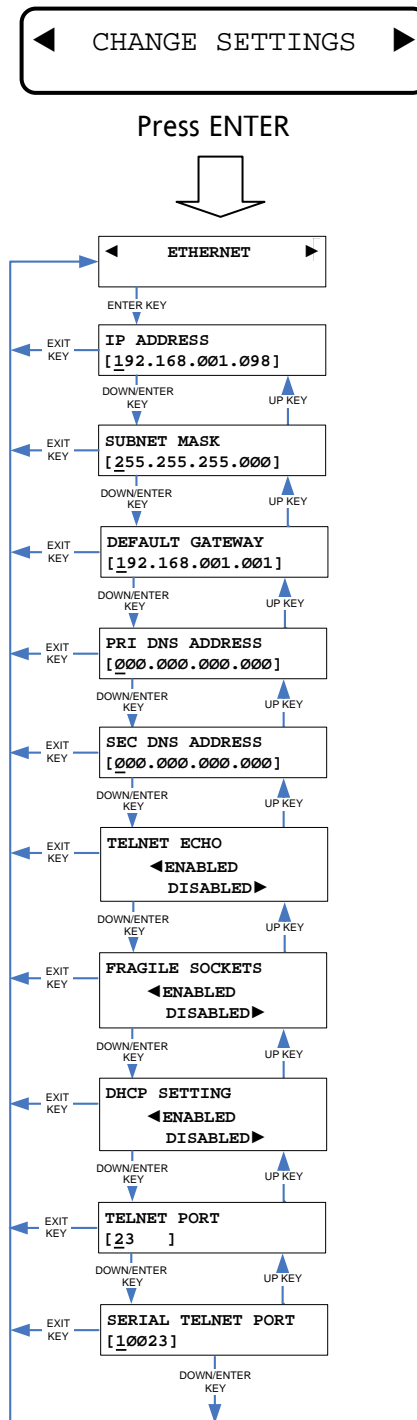
```
◄        CHANGE SETTINGS        ►
```

Press ENTER

```
◄        ETHERNET        ►
```
ENTER KEY

```
EXIT       IP ADDRESS
KEY        [192.168.001.098]
```
DOWN/ENTER KEY   UP KEY

```
EXIT       SUBNET MASK
KEY        [255.255.255.000]
```
DOWN/ENTER KEY   UP KEY

```
EXIT       DEFAULT GATEWAY
KEY        [192.168.001.001]
```
DOWN/ENTER KEY   UP KEY

```
EXIT       PRI DNS ADDRESS
KEY        [000.000.000.000]
```
DOWN/ENTER KEY   UP KEY

```
EXIT       SEC DNS ADDRESS
KEY        [000.000.000.000]
```
DOWN/ENTER KEY   UP KEY

```
EXIT       TELNET ECHO
KEY          ◄ENABLED
             DISABLED►
```
DOWN/ENTER KEY   UP KEY

```
EXIT       FRAGILE SOCKETS
KEY          ◄ENABLED
             DISABLED►
```
DOWN/ENTER KEY   UP KEY

```
EXIT       DHCP SETTING
KEY          ◄ENABLED
             DISABLED►
```
DOWN/ENTER KEY   UP KEY

```
EXIT       TELNET PORT
KEY        [23    ]
```
DOWN/ENTER KEY   UP KEY

```
EXIT       SERIAL TELNET PORT
KEY        [10023]
```
DOWN/ENTER KEY

Figure 3-32. [Front Panel] Ethernet Setup Sequence

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3.10.8   SNTP

The Argus product supports the Simple Network Time Protocol (SNTP) version 4. Using SNTP, the Argus can synchronize its time from a time server on the network. The Argus supports two modes of SNTP time synchronization: Unicast and Broadcast/Multicast.

In Unicast mode, the Argus periodically sends a time update request to a server and awaits the response. When the response arrives, the Argus sets its time from the server. The user can specify up to two servers, a primary and a backup. The user can also specify an IP address or a symbolic name and the Argus will resolve the name using the Domain Name System (DNS).

In Broadcast/Multicast mode, the Argus passively listens for time updates on the network and when received, sets the time from the network broadcast. The Argus can subscribe to a multicast group to receive the time updates, if the user provides a multicast address.

3.10.8.1   Terminal Screens

On the Terminal Main Menu select the Change Settings function, and then the SNTP option from the sub-menu. You will then be presented with a screen showing the current SNTP settings.

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move up to a previous field. Use the right and left arrow keys to position the flashing underscore cursor below the character you wish to change, or to scroll through options where selectable options are shown (<>). After entering a character the cursor will automatically move to the next character position. When done, press the Esc (ESCAPE) key to save the changes and return to the Change Settings Menu.
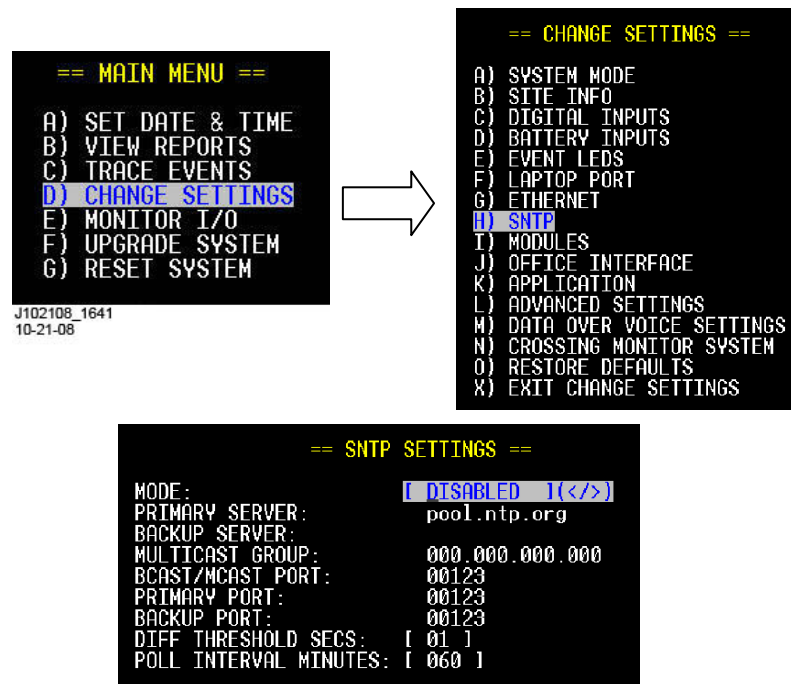

Figure 3-33. (Terminal) SNTP Screens

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NOTE	**NOTE** The following fields are not accessible unless the MODE field is set to either UNICAST or BRAODCAST: 　　　PRIMARY SERVER 　　　BACKUP SERVER 　　　MULTICAST GROUP 　　　BCAST/MCAST PORT 　　　PRIMARY PORT 　　　BACKUP PORT

NOTE	**NOTE** It is recommended to disable SNTP if the Argus has the GPS card installed or is receiving time updates from other sources. The Argus System Log contains helpful information for troubleshooting SNTP problems.

3.10.8.2   Configuration Settings

Table 3-5 lists the user programmable configuration settings for SNTP.

Table 3-5. SNTP Programmable Configuration Settings

Setting	Range or Options	Default	Applicable Mode	Description
Mode	Disabled, Unicast, Broadcast	Disabled	n/a	Selects the mode of SNTP operation. If set to disabled, the Argus will not make SNTP requests or process SNTP broadcasts.
Primary Server	IP address or symbolic name	pool.ntp.org	Unicast	In Unicast mode, the Argus sends the SNTP time request to this address first. If the field is blank, the Argus will not send requests to the primary server. This setting is not used in Broadcast mode.
Backup Server	IP address or symbolic name	<blank>	Unicast	In Unicast mode, the Argus will send an SNTP time request to this address if no response was received from the primary server. If the field is blank, the Argus will not send requests to the backup server. This setting is not used in Broadcast mode.

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Setting	Range or Options	Default	Applicable Mode	Description
Multicast Group	Multicast IP Address	0.0.0.0	Broadcast	In Broadcast mode, if this field contains an IP address other than 0.0.0.0, the Argus will subscribe to this multicast group to listen for SNTP time broadcasts. The user need not specify a multicast group address if the server is sending time updates as a subnet broadcast. This field is not used in Unicast mode.
Bcast/Mcast Port	0 – 65535	123	Broadcast	In Broadcast mode, this is the UDP port the Argus will listen on for SNTP broadcasts. This field is not used in Unicast mode.
Primary Port	0 – 65535	123	Unicast	In Unicast mode, this is the UDP port the Argus will send SNTP requests to when sending to the primary address. This field is not used in Broadcast mode.
Backup Port	0 – 65535	123	Unicast	In Unicast mode, this is the UDP port the Argus will send SNTP requests to when sending to the backup address. This field is not used in Broadcast mode.
Diff Threshold (sec)	0 - 99	1	Unicast and Broadcast	The Argus will only set the system time from the SNTP time response if the difference between the current time and the SNTP is greater than or equal to this value.
Poll Interval (min)	0 - 999	60	Unicast	In Unicast mode, the Argus will request a time update from the primary or backup server every Poll Interval minutes. This field is not used in Broadcast mode.

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3.10.8.3 Time Update Message Format

When the Argus processes an SNTP time update and sets the time from the time update message, it creates Event Log entries similar to the following:

```
9A59 ONBD TEXT 2014-JUL-24 12:43:31.03 Setting time from NTP (2.0s diff)
FDDE ONBD TEXT 2014-JUL-24 12:43:33.00 Date/Time set was 2014-JUL-24 12:43:31
```

The first entry has a timestamp from before the time was changed. The second entry has a time stamp from after the time was changed. The first entry indicates the time difference between the Argus system clock and the SNTP time update.

3.10.8.4 Front Panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. Press the right arrow key to scroll to the sub-menu titled SNTP and press ENTER to select it. Enter data as required. Refer to the SNTP setup sequences (one for each mode) shown below.
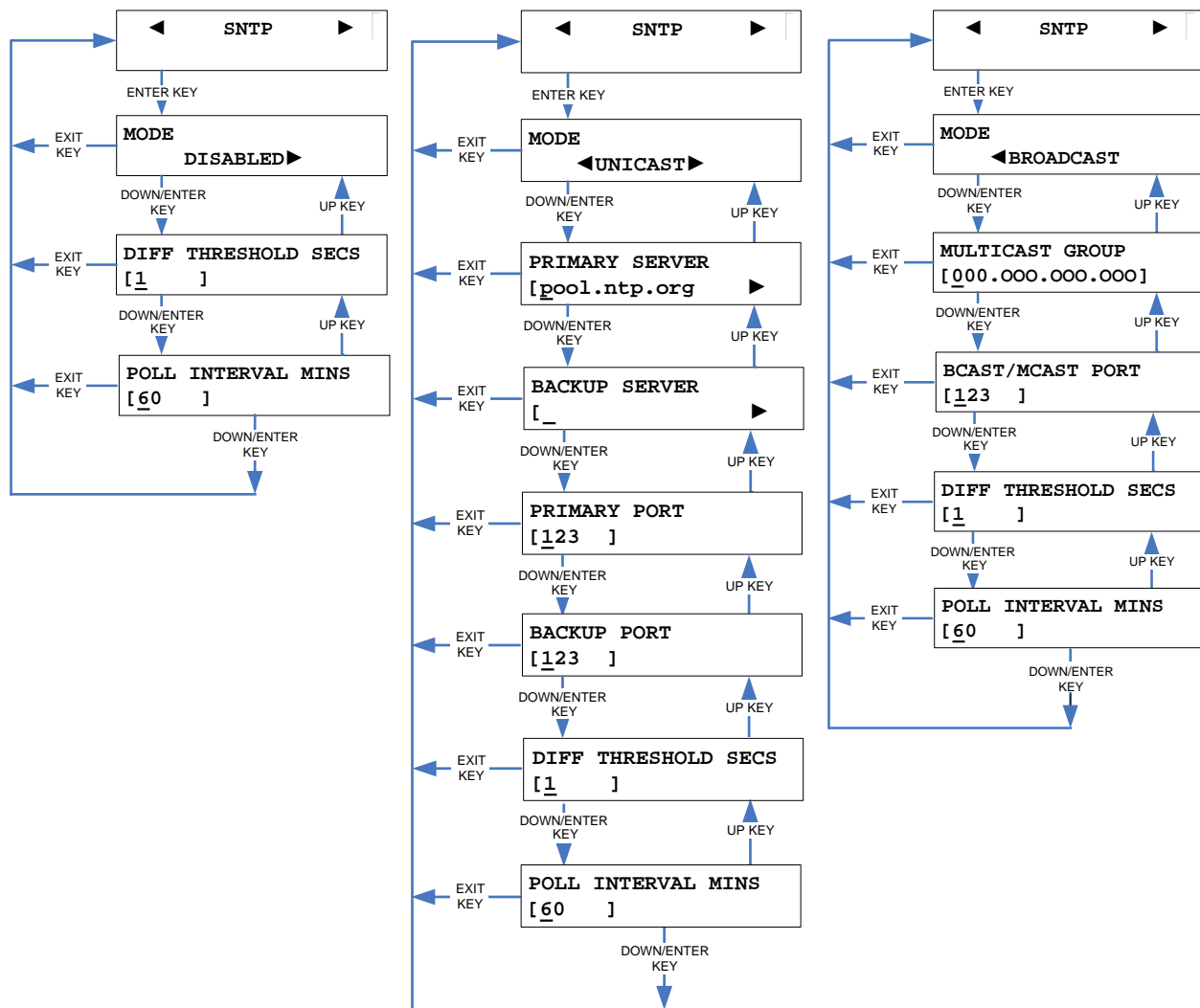

Figure 3-34. [Front Panel] SNTP Setup Sequences

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3.10.9   Modules

If additional I/O features are required for the application, the system can be expanded through the Echelon LonTalk LAN. For example, connection of an Intelligent Light Out Detector (iLOD), a or VHF radio or a Linked Argus unit can be added. Each module can be named and the modules' I/O can also have user-defined names, tags, and states. Note that, by default, there are no Echelon modules interfaced to the Argus.

3.10.9.1   Terminal Screens

On the Terminal Main Menu select the Change Settings function, and then the Modules option from the sub-menu. You will then be presented with an editable Modules screen (see Figure 3-33). If no modules have been added the screen will look like Figure 3-35 (A). If modules have been previously added the screen may look like the examples in Figure 3-35 (B).

Use the down or right arrow keys to move to the next field. Use the up or left arrow keys to move back to a previous field. Press ENTER to select an option, e.g. ADD, EDIT, INSTALL or REMOVE. Selecting the ADD option presents a screen for choosing a module type. Selecting the EDIT option presents a screen to modify/enter module data. Selecting the INSTALL option prompts you to press the Echelon Service button on the device you are installing. **After adding a module you must select its INSTALL option and press the Echelon Service button or the module will not be actively connected.** If the REMOVE option is selected the module will be removed and its slot number will show <EMPTYNONE>.
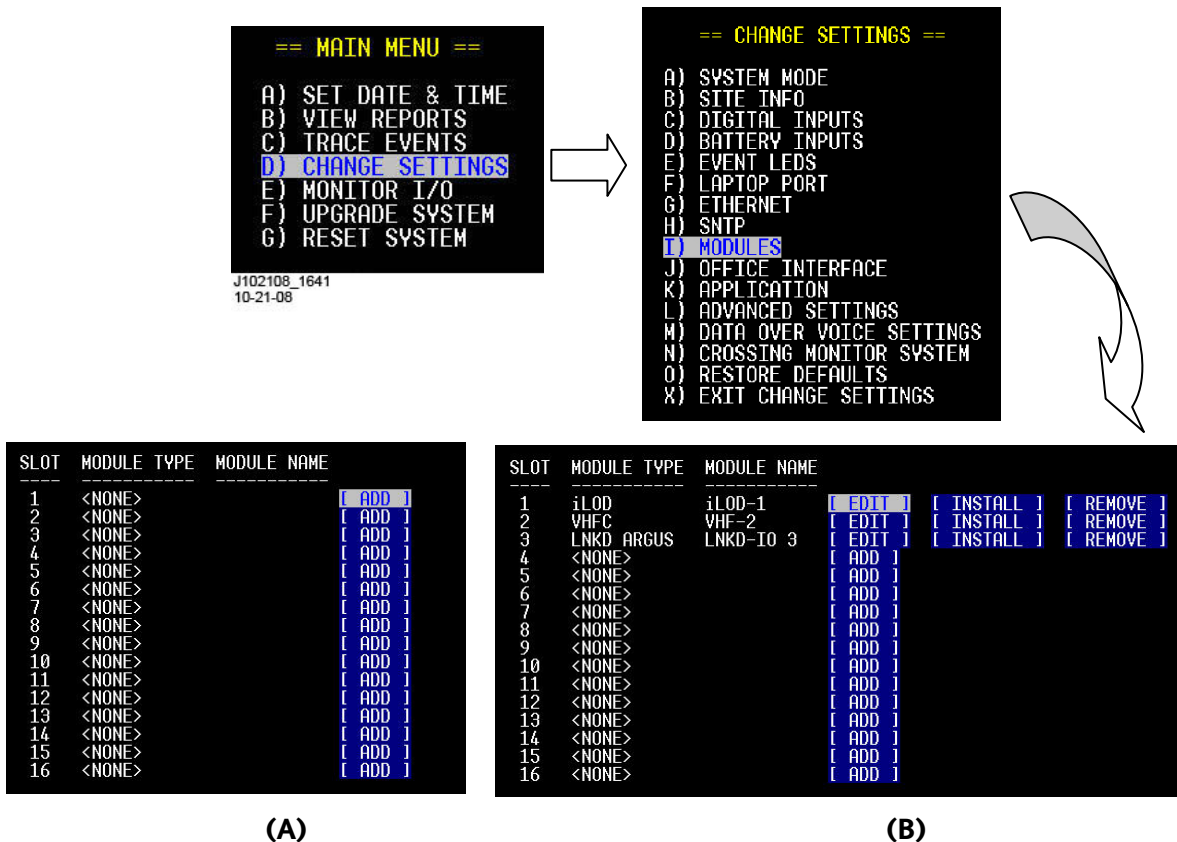

(A)   (B)

Figure 3-35. [Terminal] Modules Screens

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3.10.9.1.1 Add (Modules)

In most cases modules are automatically installed by the CDL application. Additional modules can be manually installed using the following sequences. To add a networked module, it must first be wired into the Echelon network and powered on. Once a module has been added to the Echelon configuration it can only be removed using the REMOVE option.

To add a module, use the arrow keys to highlight the ADD option for the slot number you wish to use (see Figure 3-35) The following screen is displayed. Use left and right arrows to cycle through the module types: iLOD, VHF RADIO or LINKED ARGUS. When the desired module type appears, press ENTER or the down arrow.

```
Module Type [ <EMPTY>      ]</>
```

If **iLOD Module Type** is selected, the following parameter screen will appear. Use the down/up arrow keys to traverse the menu options. Enter parameters via the keyboard or use left and right arrows for selection options where applicable. Refer to Table 3-6 for iLOD parameter details.

```
            == iLOD MODULE EDIT ==

              NAME: [ iLOD-1      ]
       RETRY COUNT: [ 04 ]
    RETRY INTERVAL: [ 48    ](</>)
   RISING THRESHOLD: [ 1.2 ]
    ZERO OFFSET DIFF: [  0.7 ]
  ZERO OFFSET PERIOD: [ 8    ](</>)
  ZERO OFFSET DELAY: [ 08 ]
   LAMP FLASH DELAY: [ 04 ]

        [ SENSOR A ]   [ SENSOR B ]
```

After the initial settings are complete, select the corresponding **SENSOR (A or B)** and press Enter. The following parameter screen will appear (example screen is Sensor A). Refer to Table 3-5 for iLOD parameter details. Use down/up arrow keys to traverse the menu options. Enter parameters via the keyboard or use left and right arrows for selection options where applicable. When done press Escape to return to the iLOD MODULE EDIT screen. Select SENSOR B (per example) and enter its parameters. When done press Escape to return to the iLOD MODULE EDIT screen, then press Escape again to return to the module selection screen. If there are no more modules to add, select the INSTALL option for the module and press its Echelon Service button when prompted. When done, press Escape to save all selections and return to the Change Settings menu.

```
          == iLOD CHANNEL EDIT ==

            NAME: [ iLOD-1.A    ]
        ALGORITHM: [ LIGHT OUT       ](</>)
   CURRENT DELTA: [  1.0 ]
      WIRE LOOPS: [ 1 ]
     ZERO OFFSET: [ Argus Update  ](</>)
   TRIGGER LEVEL: [  1.0 ]
       FPM DELTA: [ 4 ]
   SAMPLE PERIOD:   4
     SAMPLE SIZE:   16
```

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Table 3-6. iLOD Parameter Settings and Descriptions

SETTING	DEFAULT	iLOD SFW VERSION	DESCRIPTION
Name	iLOD-X	Any	The name assigned to the iLOD module used in Event Log entries and reports. The name may be up to 10 characters in length.
Echelon Retry Count	4	K or greater	The number of tries the iLOD will use to report event messages to the Argus.
Echelon Retry Interval (ms)	48	K or greater	The number of milliseconds between event message retries.
Rising Threshold (A)	1.2	K or greater	Rising edge threshold for Lamp on determination. (in amps)
Zero Offset Max Delta (A)	0.7	K or greater	Maximum zero offset change (in amps).
Zero Detection Count	8	K or greater	Number of zero offset samples to average in 20ms increments
Zero Offset Delay (ms)	8	K or greater	Number of most recent samples to ignore in zero offset calculation.. The purpose of this is to account for delay from the Sears zero offset update request and the actual time the iLOD receives and performs the operation.
Lamp Flash Delay (ms)	4	K or greater	Number of lamp flash periods to wait prior to transmitting lamp current data.
For each iLOD Sensor Channel (Sensor A and Sensor B)			
Sensor Name	iLOD-X.Y	Any	The name assigned to the iLOD sensor used in Event Log entries and reports. The name may be up to 10 characters in length.
Algorithm	Light Out	Any	Either "Light Out" or "Steady Current". The iLOD uses the "Light Out" algorithm to determine the current and flash rate on flashing crossing lamps. The iLOD uses the "Steady Current" algorithm to monitor a steady current signal that isn't flashing.

SETTING	DEFAULT	iLOD SFW VERSION	DESCRIPTION
Current Delta (A)	1.0	Any	The required difference, in amps, from the previously reported current before the iLOD will report a new current to the Argus.
Zero Offset Mode	Argus Update	K or greater	The mode the iLOD uses to determine when to update the zero offset. Can be commanded to update from the Argus or it can be turned off
Wire Loops	1	K or greater	The number of times the lamp wire has been looped through the iLOD sensor.
Trigger Level (A)	1.0	K or greater	The current required, in amps, for the iLOD to consider energy present on the lamp wires.
For each sensor using the "Light Out" Algorithm			
FPM Delta	4	Any	The required difference, in flashes per minute, from the previously reported flash rate before the iLOD will report a new flash rate to the Argus.
For each sensor using "Steady Current" Algorithm			
Sample Size	16	Any	The number of current samples the iLOD will average together to determine the stead current value.
Sample Period (ms)	40	Any	The time period, in milliseconds, between samples.

If **VHF Module Type** is selected the following parameter screen will appear. Use the down/up arrow keys to traverse the menu options. Enter parameters via the keyboard or use left and right arrows for selection options where applicable. When done press Escape to return to the module selection screen. If there are no more modules to add, select the INSTALL option for the module and press its Echelon Service button when prompted. When done, press Escape to save all selections and return to the Change Settings menu. Refer to VHF Communicator, A80276 User's Guide (SIG-00-03-05-002) for additional details.

```
            == VHF MODULE EDIT ==

NAME:             [ VHF-2     ]
RX TYPE:          [ Framed    ](</>)
STX LIST:         [ F9 F5 FB F1 00 ]
ETX LIST:         [ F6 00 00 00 00 ]
DATA/DTMF CHAN:   [ 1 ](</>)
VOICE CHAN:       [ 1 ](</>)
TONE LENGTH:      [ 00250 ]
TONE SPACE:       [ 00250 ]
KEY UP DELAY:     [ 00200 ]
KEY DOWN DELAY:   [ 00250 ]
FSK TX MODE:      [ 150 BPS   ](</>)
FSK RX MODE:      [ 150 BPS   ](</>)
```

If **LINKED ARGUS Type** is selected the following parameter screen will appear. Use the down/up arrow keys to traverse the menu options. Highlight a menu option and press Enter.

LINKED ARGUS – EDIT LINKED ARGUS NAME:

```
     == LINKED ARGUS SETTINGS ==

A) EDIT LINKED ARGUS NAME
B) EDIT LINK NUMBER
C) EDIT DISCRETE INPUT NAMES
D) EDIT BATTERY INPUT NAMES
E) EDIT LED NAMES
```
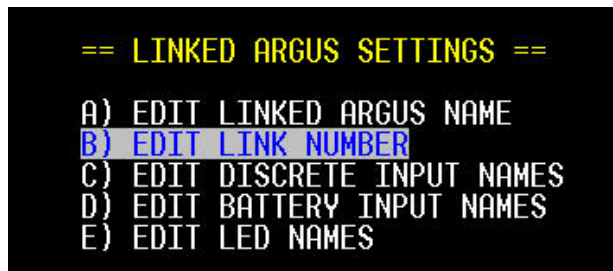
If option A) EDIT LINKED ARGUS NAME is selected the following screen is displayed. Enter a name for the Linked Argus, or leave the default name and press Escape to save the name and return to the LINKED ARGUS SETTINGS screen.
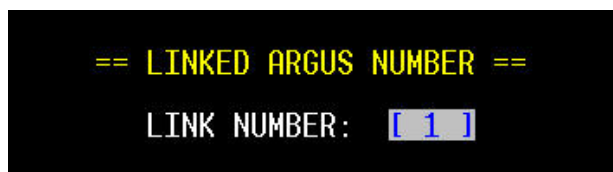
```
        == LINKED ARGUS NAME ==

        NAME: [ LNKD-IO 3  ]
```

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LINKED ARGUS – EDIT LINK NUMBER:

```
== LINKED ARGUS SETTINGS ==

A) EDIT LINKED ARGUS NAME
B) EDIT LINK NUMBER
C) EDIT DISCRETE INPUT NAMES
D) EDIT BATTERY INPUT NAMES
E) EDIT LED NAMES
```

If option B) EDIT LINK NUMBER is selected the following screen is displayed. Enter a number for the Linked Argus unit, or leave the default number and press Escape to save the number and return to the LINKED ARGUS SETTINGS screen.

```
== LINKED ARGUS NUMBER ==

LINK NUMBER:   [ 1 ]
```

LINKED ARGUS – EDIT DISCRETE INPUT NAMES:

```
== LINKED ARGUS SETTINGS ==

A) EDIT LINKED ARGUS NAME
B) EDIT LINK NUMBER
C) EDIT DISCRETE INPUT NAMES
D) EDIT BATTERY INPUT NAMES
E) EDIT LED NAMES
```
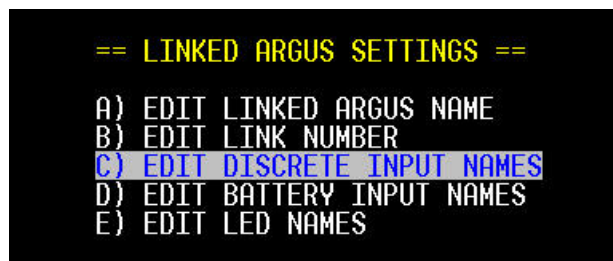
If option C) EDIT DISCRETE INPUT NAMES is selected the following screen is displayed. Press the Enter or down arrow key to move to the next field. Press the up arrow to backtrack. Enter the desired discrete input function names and press Escape when done to save the names and return to the LINKED ARGUS SETTINGS screen.

```
== LINKED ARGUS DISCRETE INPUT NAMES ==

 #      NAME        OFF NAME       ON NAME      TOGGLE NAME
 --  -------------  ----------   -----------   -------------
 1  [ LK03-DI01  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
 2  [ LK03-DI02  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
 3  [ LK03-DI03  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
 4  [ LK03-DI04  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
 5  [ LK03-DI05  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
 6  [ LK03-DI06  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
 7  [ LK03-DI07  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
 8  [ LK03-DI08  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
 9  [ LK03-DI09  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
10  [ LK03-DI10  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
11  [ LK03-DI11  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
12  [ LK03-DI12  ] [ OFF      ] [ ON       ] [ TOGGLING  ]
```

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LINKED ARGUS – EDIT BATTERY INPUT NAMES:

```
== LINKED ARGUS SETTINGS ==

A) EDIT LINKED ARGUS NAME
B) EDIT LINK NUMBER
C) EDIT DISCRETE INPUT NAMES
D) EDIT BATTERY INPUT NAMES
E) EDIT LED NAMES
```

If option D) EDIT BATTERY INPUT NAMES is selected the following screen is displayed. Press the Enter or down arrow key to move to the next field. Press the up arrow to backtrack. Enter the desired battery input names or leave the default names and press Escape when done to save the names and return to the LINKED ARGUS SETTINGS screen.

```
== LINKED ARGUS BATTERY INPUT NAMES ==

       #      NAME
       _   _____
       1 [ LK03-B1      ]
       2 [ LK03-B2      ]
       3 [ LK03-B3      ]
```

LINKED ARGUS – EDIT LED NAMES:

```
== LINKED ARGUS SETTINGS ==

A) EDIT LINKED ARGUS NAME
B) EDIT LINK NUMBER
C) EDIT DISCRETE INPUT NAMES
D) EDIT BATTERY INPUT NAMES
E) EDIT LED NAMES
```

If option E) EDIT LED NAMES is selected the following screen is displayed. Press the Enter or down arrow key to move to the next field. Press the up arrow to backtrack. Enter the desired LED function names and press Escape when done to save the names and return to the LINKED ARGUS SETTINGS screen. When all changes are complete press Escape to save and return to the Change Settings menu. **It is not necessary to INSTALL a Linked Argus unit.**

```
== LINKED ARGUS LED NAMES ==

#     NAME        OFF NAME      ON NAME     SLOW FLASH    FAST FLASH
_  _____  _____   _____   _____    _____
1 [ LK03-LED1 ] [ OFF      ] [ ON       ] [ SLOW      ] [ FAST      ]
2 [ LK03-LED2 ] [ OFF      ] [ ON       ] [ SLOW      ] [ FAST      ]
3 [ LK03-LED3 ] [ OFF      ] [ ON       ] [ SLOW      ] [ FAST      ]
4 [ LK03-LED4 ] [ OFF      ] [ ON       ] [ SLOW      ] [ FAST      ]
5 [ LK03-LED5 ] [ OFF      ] [ ON       ] [ SLOW      ] [ FAST      ]
6 [ LK03-LED6 ] [ OFF      ] [ ON       ] [ SLOW      ] [ FAST      ]
7 [ LK03-LED7 ] [ OFF      ] [ ON       ] [ SLOW      ] [ FAST      ]
8 [ LK03-LED8 ] [ OFF      ] [ ON       ] [ SLOW      ] [ FAST      ]
```

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3.10.9.1.2   Edit (Modules)

The Modules EDIT option allows you to modify an installed module's parameter configuration. On the Terminal Main Menu select the Change Settings function, and then the Modules option from the sub-menu. You will then be presented with an editable Modules screen (see Figure 3-35). You will only see the EDIT option for modules that have been previously added.

Use the down or right arrow keys to highlight the desired Module's EDIT option and press Enter. Selecting the EDIT option presents the same data screens as the ADD module screens. Refer to the ADD Module sequence in previous paragraph 3.10.9.1.1 for the Type of module you are editing. Refer to Table 3-6 for iLOD parameters and descriptions.

Modify the data screens as necessary. When done press Escape to save the changes and return to the Change Settings menu. If no other changes are required press Escape again to return to the Main Menu. It is not necessary to re-install the edited module.
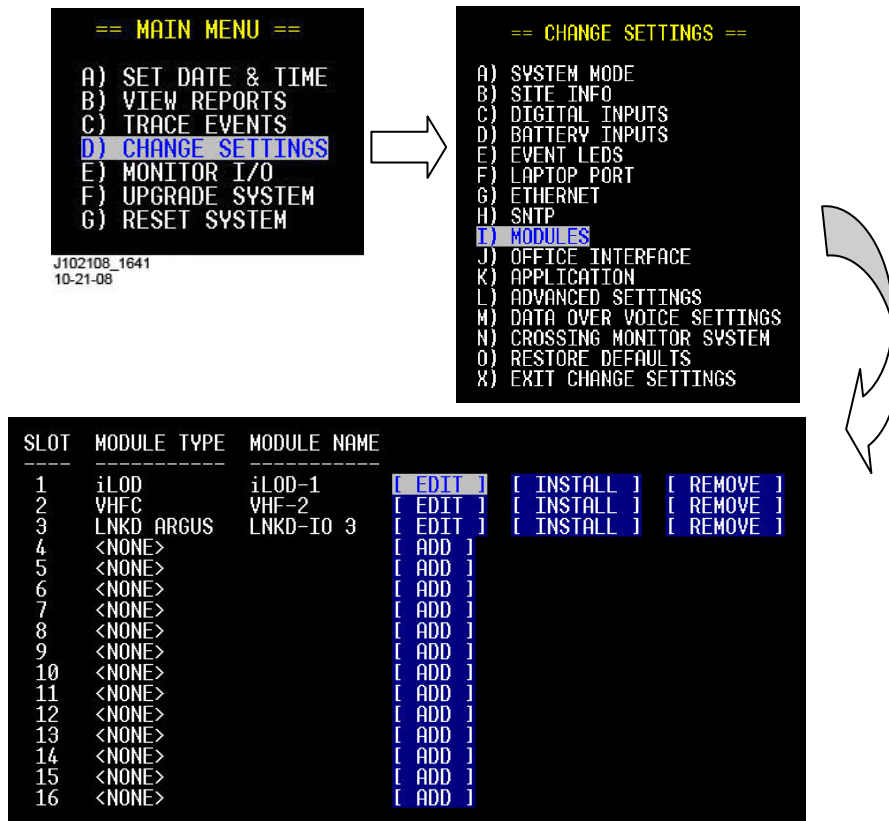
Figure 3-36. [Terminal] Modules EDIT Option Screen

3.10.9.1.3   Install/Re-install (Modules)

The Modules INSTALL option allows you to connect or reconnect an installed Echelon module. This function must be used after you ADD a module (except a Linked Argus). It is also used to re-establish connection after replacing a module of the same type in a specific slot number.

On the Terminal Main Menu select the Change Settings function, and then the Modules option from the sub-menu. You will then be presented with an editable Modules screen (see Figure 3-35). You will only see the INSTALL option for modules that have been previously added.

Use the down or right arrow keys to highlight the desired Module's INSTALL option and press Enter. You will be prompted with a message to press the module's Echelon Service button. The prompt will remain on screen until the Service button is pressed and the module connects/re-connects to the Echelon LAN. When done, press Escape to return to the Change Settings menu.
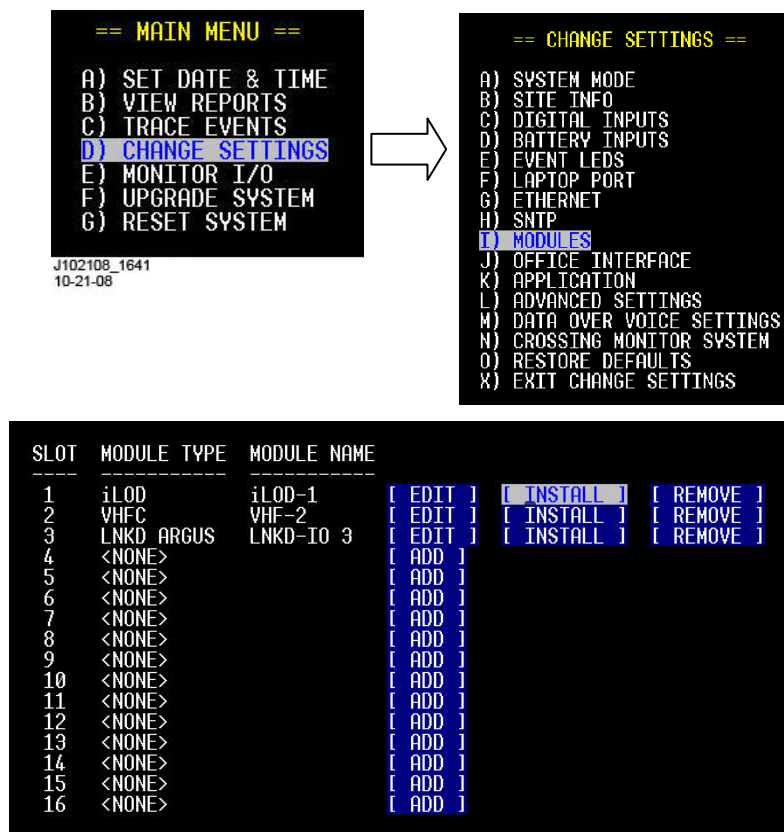
Figure 3-37. [Terminal] Modules INSTALL Option Screen

3.10.9.1.4   Remove (Modules)

The Modules REMOVE option allows you to remove an installed Echelon module from the LAN. This function will immediately remove the module (clearing all its parameters) and reset the Module Type to <NONE>. This function is used if the module in a specific slot number is to be replaced by a different Type of module (using the ADD function).

On the Terminal Main Menu select the Change Settings function, and then the Modules option from the sub-menu. You will then be presented with an editable Modules screen (see Figure 3-35). You will only see the REMOVE option for modules that have been previously added.

Use the down or right arrow keys to highlight the desired Module's REMOVE option and press Enter. The module will be immediately removed, the Module Type will revert to <NONE> and the ADD option will again be available for that slot number, as shown. When done, press Escape to return to the Change Settings menu.
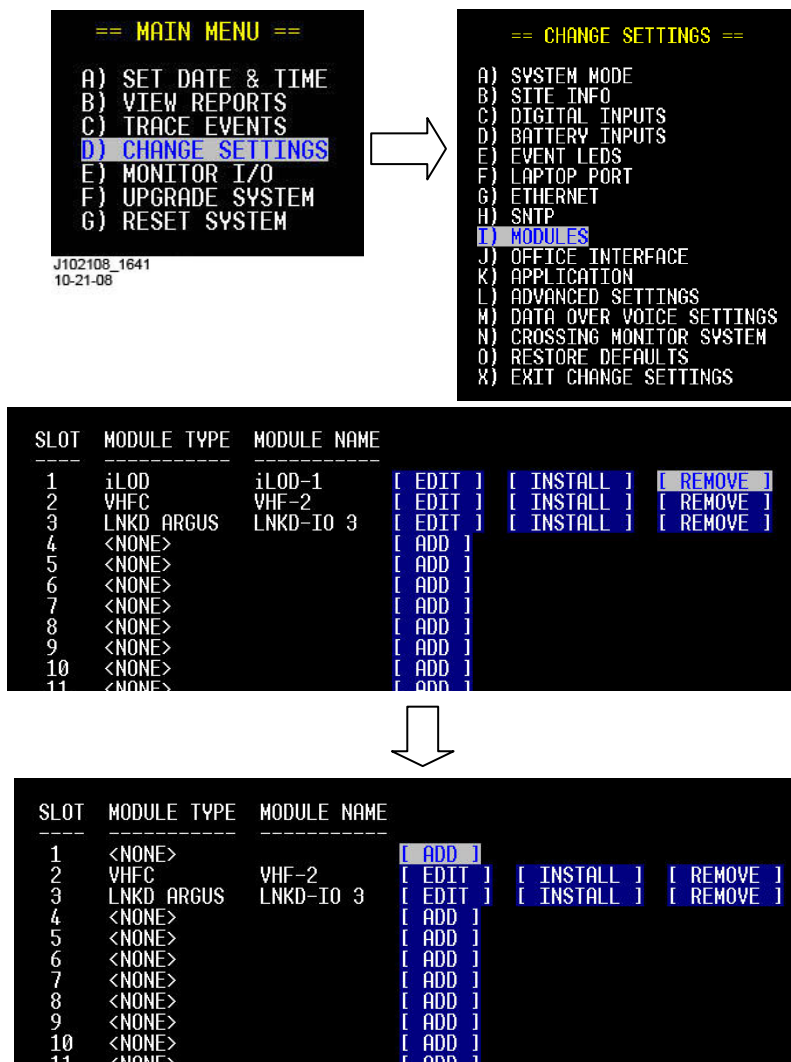
Figure 3-38. [Terminal] Modules REMOVE Option Screens

3.10.9.2 Front Panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. Press the right arrow key to scroll to the sub-menu titled Modules and press ENTER to select it.

The front panel module option selection sequence is shown below, and each option's settings are described in the following paragraphs.
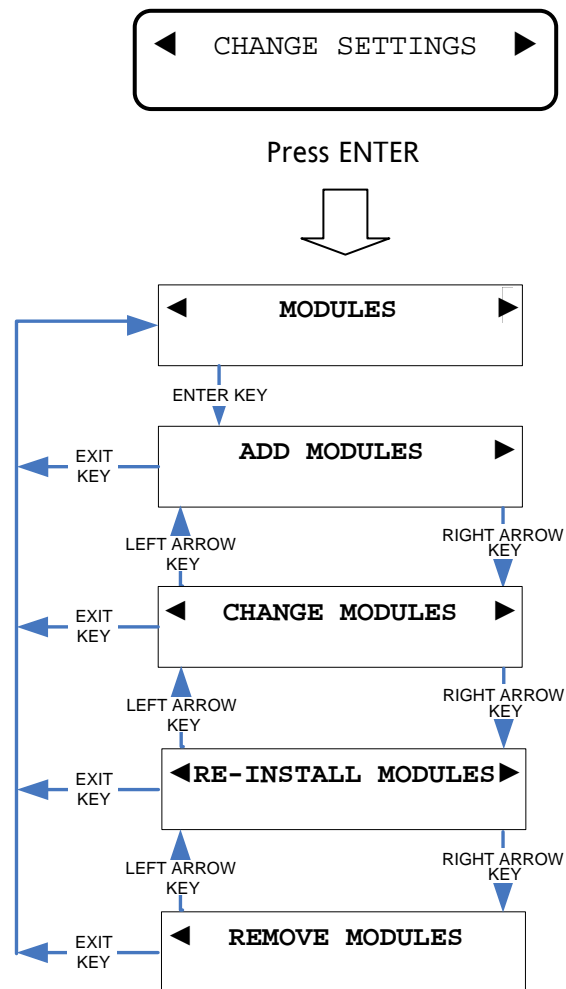
Figure 3-39. [Front Panel] Module Option Sequence

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3.10.9.2.1   Add Modules

In most cases modules are automatically installed by the CDL application. Use this sequence to manually install additional modules. To add a networked module, it must first be wired into the Echelon network and powered on. **Once a module has been added it must be actively enabled by pressing its Echelon Service button when prompted** (not required for a Linked Argus unit). After a module is added to the Echelon configuration it can only be removed using the Remove Modules option.

To add a module to the Argus Echelon LAN, refer to the following Add Module Sequences shown in Figure 3-40, Figure 3-41 and Figure 3-42) and proceed as follows. If adding or editing iLOD modules refer to Table 3-6 for iLOD parameters and descriptions.

1. On the front panel display navigate to CHANGE SETTINGS > MODULES > ADD MODULES. At the Add Modules display, press ENTER.

2. The next display shows the slot number and module Type to install.

3. If a module has not been previously installed in this slot the "Type" will indicate EMPTY. If a module has been installed in this slot its name will be displayed next to the Type prompt (for example: iLOD-1 or VHF-3).

4. To advance through slot numbers Ø2 – 16 press the right arrow key until you reach the desired slot number. To backtrack from higher to lower slot numbers, press the left arrow key. When the desired slot number is displayed, press ENTER or the down arrow key.

5. Press the right arrow to cycle the Module Type from EMPTY through the available modules (iLOD, VHFC and LINKED ARGUSat this time). When the correct module Type is displayed, press ENTER or the down arrow key to select it.

6. The next display screen presents an option to edit the Module Data (for example: modify the Module Name, Sensor Channel, etc.). To answer the prompt use the left and right arrows to select YES or NO, then press ENTER or the down arrow.

7. If NO was selected at the Edit Data prompt, the next screen will may prompt you to hit the Echelon Service button, or return you to the Add Modules screen. If prompted, press the Service button on the unit to be installed unit module (it may need to be pressed two or three times) to complete the module installation.

8. If YES was selected at the Edit Data prompt, the next screen will display the module name for in that slot #. An underscore cursor will be positioned below the first character of the module name. To change the character, use the front panel keypad (cell phone style), as explained in paragraph 3.3.4. After entering a character, the cursor will automatically advance to the next character position. To advance the cursor position right or left use the right or left arrow keys. When done press ENTER or the down arrow key.

9. Depending on the module type, several screens may follow with options to modify text or select other settings. Modify the data as necessary then press ENTER or the down arrow to advance to the next screen. To backtrack up through previous screens use the up arrow.

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10. Except for LINKED ARGUS, ~~Tt~~he final screen after the editing process will prompt you to hit the Echelon Service button. Press the Service button on the unit ~~to be installed~~you're installing (it may need to be pressed two or three times) to complete the module installation. **The added module will not be actively connected until its Echelon Service Button is pressed.**

11. Resume at step 2 above and repeat for any additional slots as necessary.

ADD MODULES – iLOD: (Refer to Table 3-5 for iLOD parameters and descriptions)
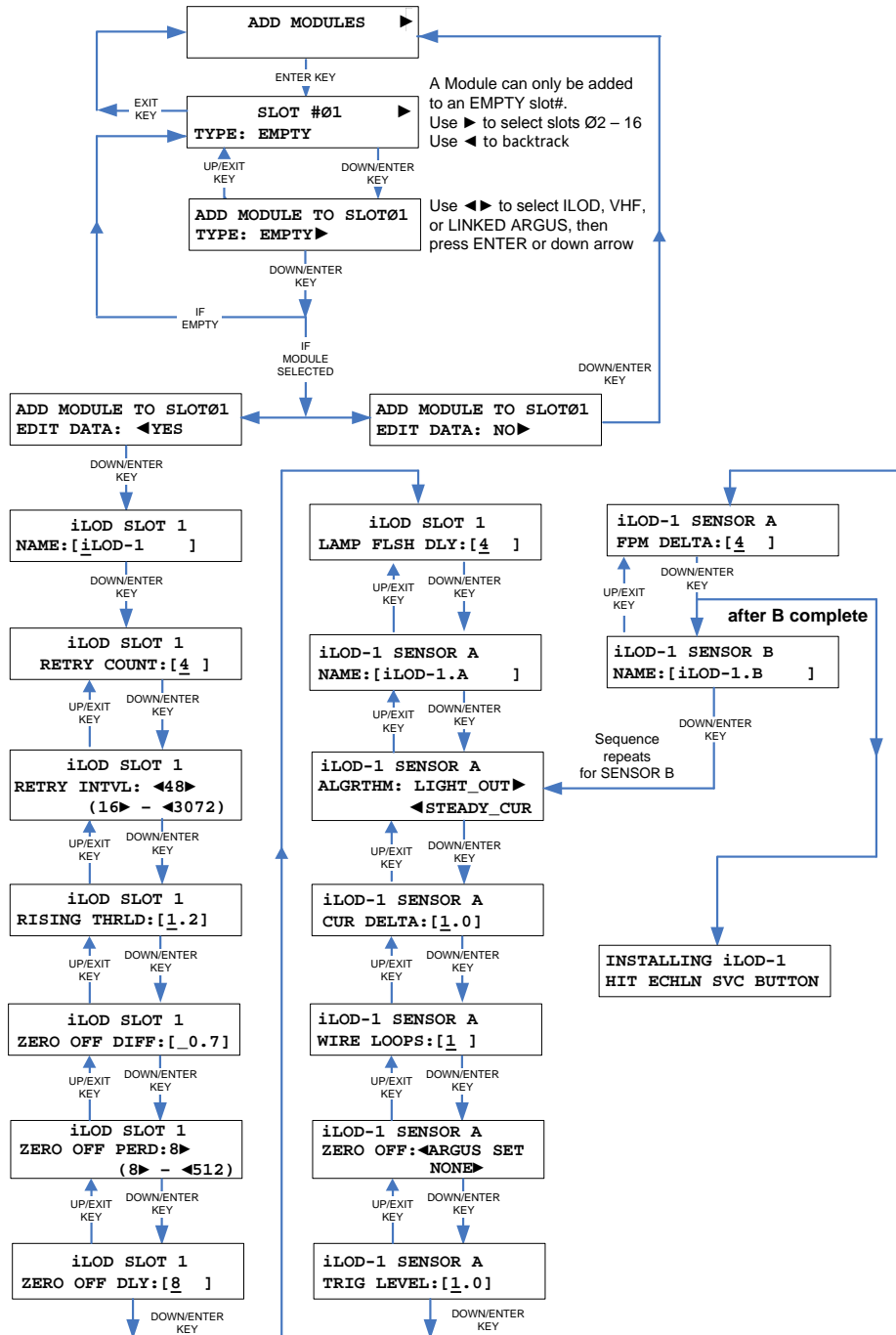
Figure 3-40. [Front Panel] Add Modules Sequence for iLODs

3-59
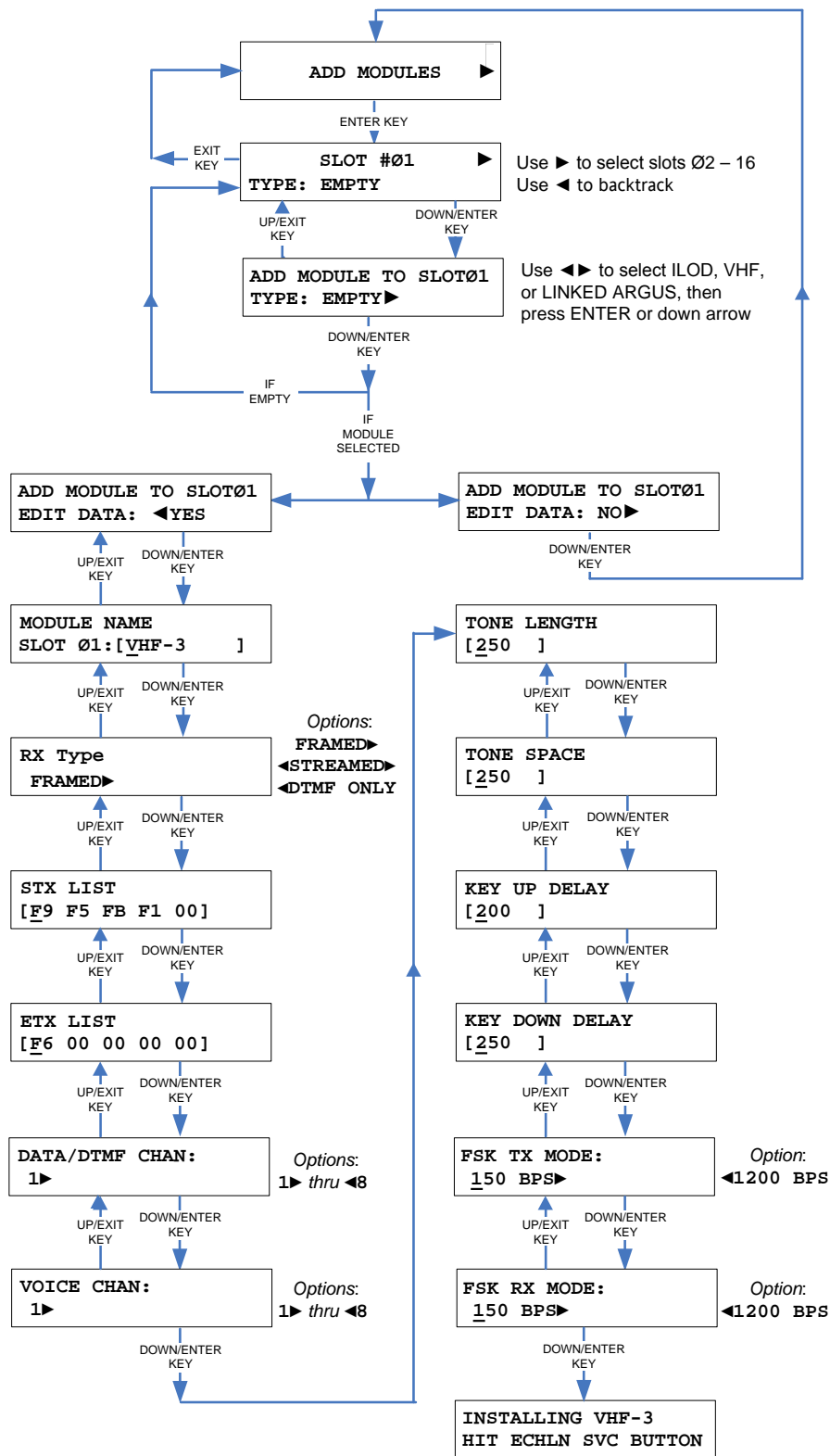
ADD MODULES – VHF:

Figure 3-41. [Front Panel] Add Modules Sequence for VHFCs

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ADD MODULES – Linked Argus:


```
              ADD MODULES        ▶
```
ENTER KEY

```
         SLOT #Ø1             ▶
TYPE: EMPTY
```
Use ▶ to select slots Ø2 – 16
Use ◀ to backtrack

EXIT KEY

UP/EXIT KEY   DOWN/ENTER KEY

```
ADD MODULE TO SLOTØ1
TYPE: EMPTY▶
```
Use ◀▶ to select ILOD, VHF, or LINKED ARGUS, then press ENTER or down arrow

DOWN/ENTER KEY

IF EMPTY

IF MODULE SELECTED

```
ADD MODULE TO SLOTØ1
EDIT DATA: ◀YES
```

```
ADD MODULE TO SLOTØ1
EDIT DATA: NO▶
```

DOWN/ENTER KEY

UP/EXIT KEY   DOWN/ENTER KEY

```
MODULE NAME
SLOT Ø1:[LNKD-IO 1 ]
```

UP/EXIT KEY   DOWN/ENTER KEY

```
LINK NUMBER
[1]
```

DOWN/ENTER KEY

```
LNKD ARGUS DOES NOT
REQUIRE INSTALL
```

Figure 3-42. [Front Panel] Add Modules Sequence for LINKED ARGUS

3.10.9.2.2   Change (Edit) Modules

Change Modules is used to <u>edit the settings</u> of a particular module. This operation is essentially the same as the Edit Data sequence in the **Add Modules** program, with the exception that there is no prompt at the end for the Echelon service button, as the module is already installed.
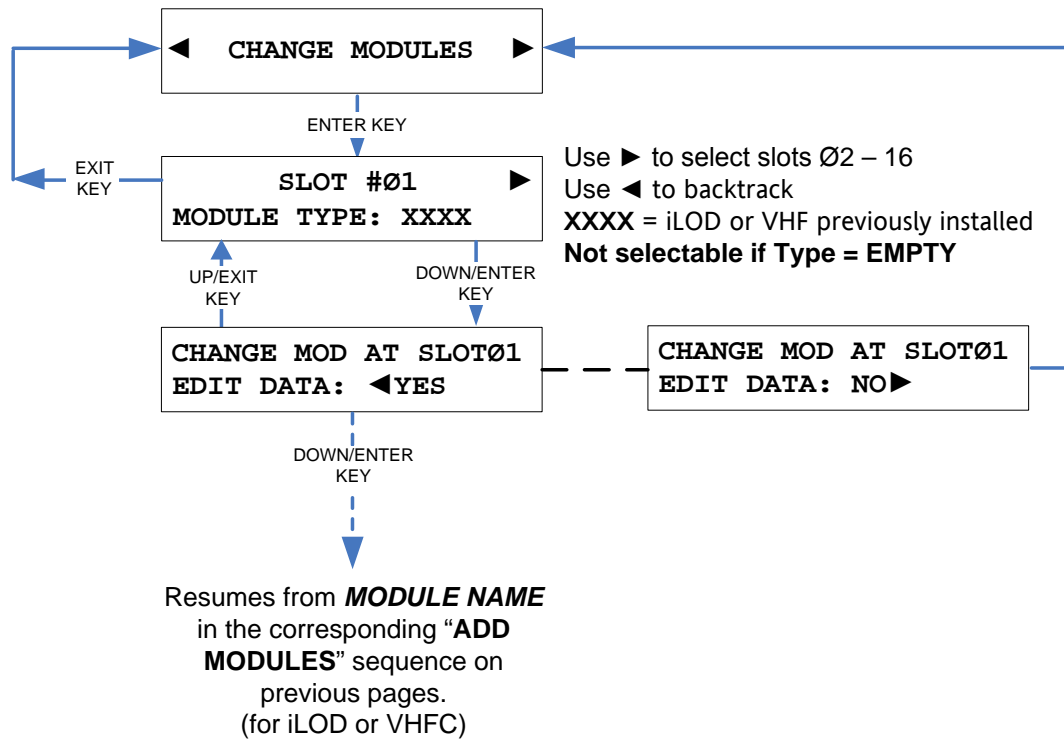
Figure 3-43. [Front Panel] Change Modules Sequence

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3.10.9.2.3 Re-install Modules

Re-install Modules is used to swap out an existing module with another module <u>of the same type</u>.

NOTE	**NOTE**
	Before performing this operation, the old module must be physically removed and the new module must be wired in its place.

```
        ◄RE-INSTALL MODULES►


              ENTER KEY

   EXIT
   KEY     SLOT #Ø1        ►      Use ► to select slots Ø2 – 16
       MODULE TYPE: ILOD           Use ◄ to backtrack

           DOWN/ENTER
              KEY

       INSTALLING iLOD-1
       HIT ECHLN SVC BUTTON
```
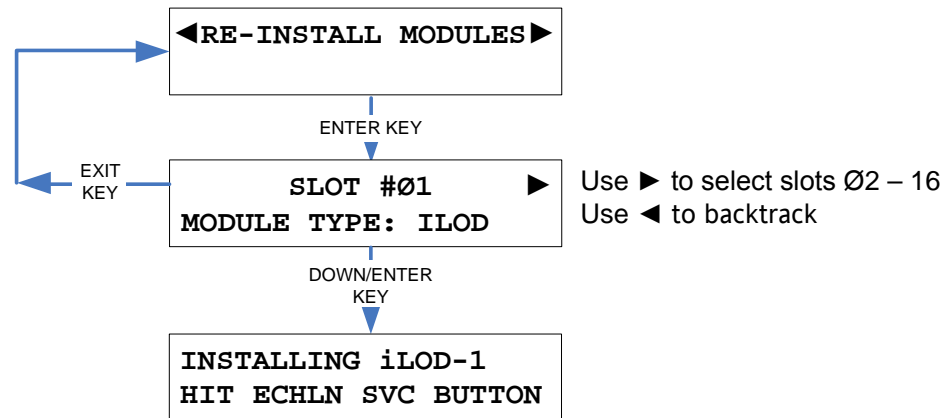
Figure 3-44. [Front Panel] Re-Install Modules Sequence

1. At the Re-Install Modules display screen, press ENTER.

2. At the next display screen, press the right arrow key to select the slot number of the module you are replacing. The name of the corresponding module type should appear below the slot number.

3. After selecting the slot number, press ENTER or the down arrow and the next screen will prompt you to hit the Echelon Service button. Press the service button on the replacement unit you're installing to complete the new module installation.

4. To edit the settings of the new module (if necessary) use the Change Modules option as previously detailed.

3.10.9.2.4 Remove Modules

This function is used to remove an installed module. Refer to Figure 3-45 and the following steps to remove a module.
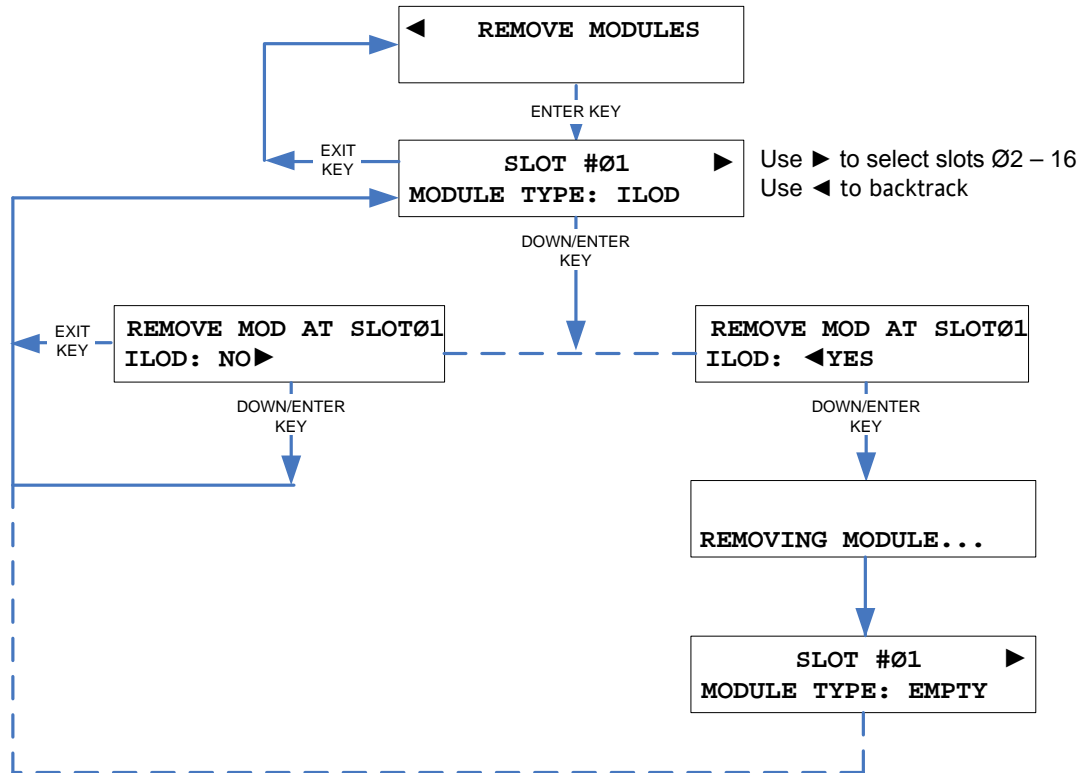
Figure 3-45. [Front Panel] Remove Modules Sequence

1. At the Remove Modules screen, press ENTER.

2. At the next display screen, press the right arrow key to select the slot number of the module you want to remove. The name of the corresponding module type should appear below the slot number.

3. After selecting the slot number and module to remove, press ENTER or the down arrow.

4. The next screen shows a horizontal scrolling line on top, and the module type displayed on the bottom. Next to the module type is a choice option. Use the left or right arrow to select YES to remove the module, or NO to leave the module installed, then press ENTER or the down arrow.

5. If NO was selected at the previous screen then no action will be taken and you will be returned to the slot selection screen. If YES was selected, the next screen will briefly display the message "Removing module…" and return to the slot selection screen. The module has been removed and the module type for that slot will indicate EMPTY.

3.10.10 Office Interface

The office interface is used to report health status and alarm information to the Wayside Alarm Management System over a network.

3.10.10.1 Terminal Screens

On the Terminal Main Menu select the Change Settings function, and then the Office option from the sub-menu. You will then be presented with a screen showing the editable Office Settings (see Figure 3-46).

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move up to a previous field. Use the right and left arrow keys to position the flashing underscore cursor below the character you wish to change, or to scroll through options where selectable options are shown (<>). After entering a character the cursor will automatically move to the next character position.

When done, press the Esc (ESCAPE) key to save the changes and return to the Change Settings menu.
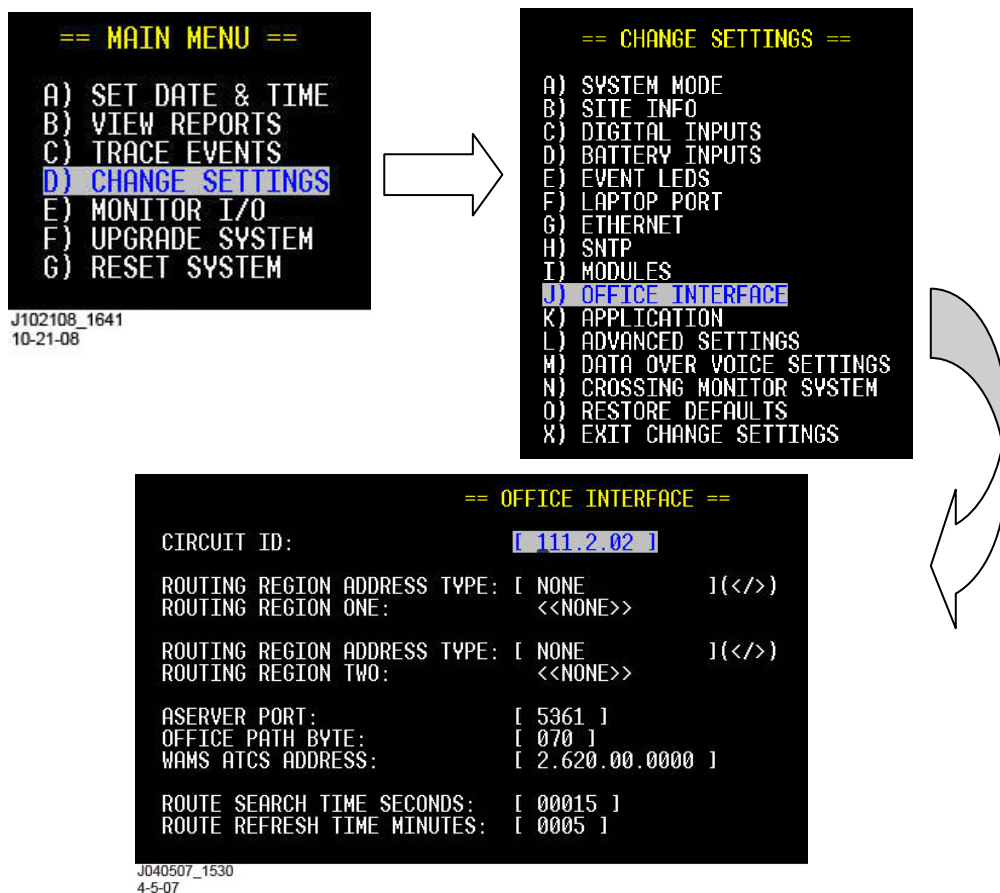
Figure 3-46. [Terminal] Office Interface Screens

3.10.10.2 Front Panel Display

On the front panel, press the Menu key, then press the right arrow key to scroll to the Change Settings menu and press ENTER. Press the right arrow key to scroll to the sub-menu titled Office Interface and press ENTER to select it. Enter data as required. Refer to the Ethernet setup sequence shown below.
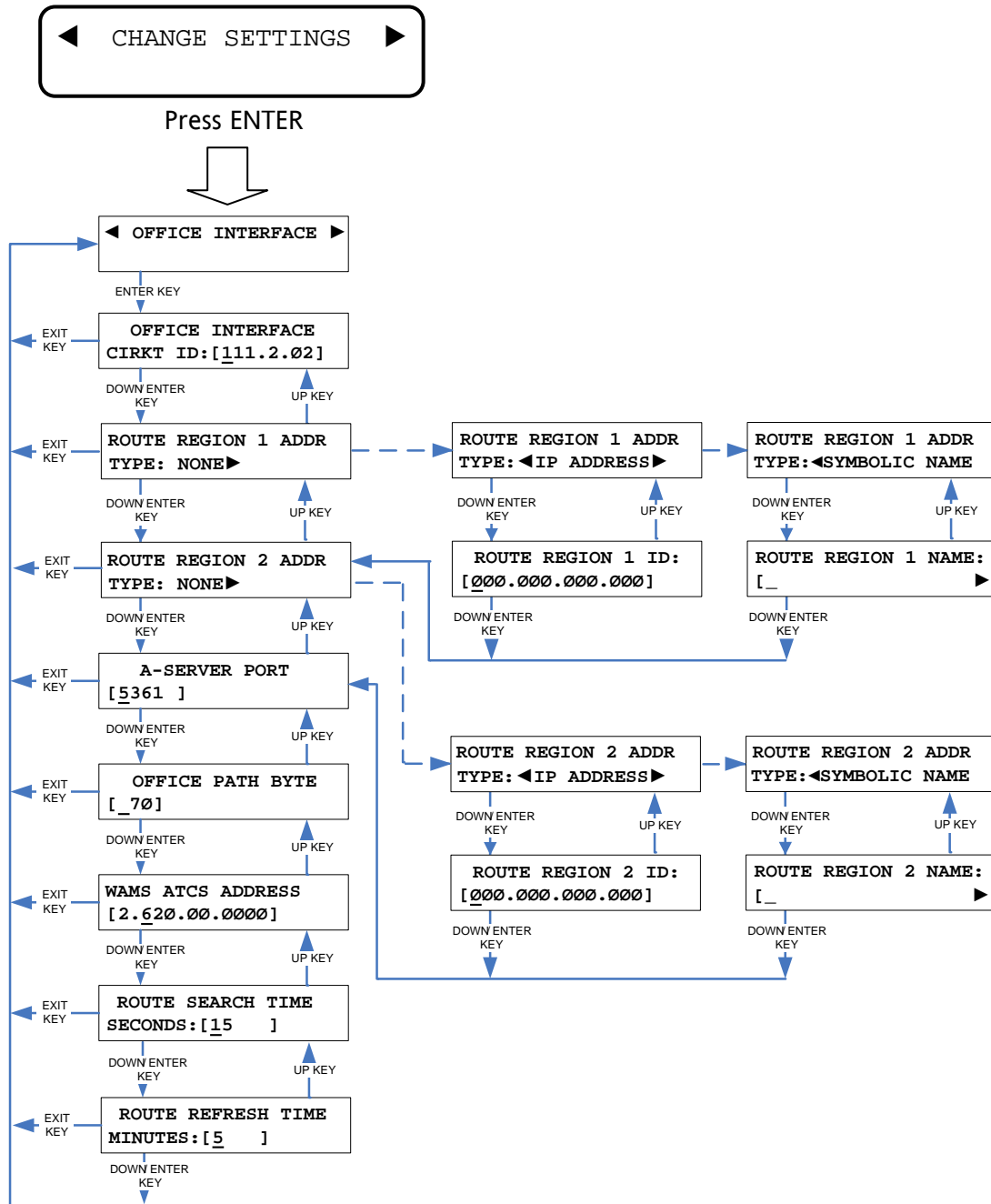

Figure 3-47. [Front Panel] Office Interface Sequence

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3.10.11 Application.

The Application options on the Terminal are somewhat different than the options on the Front Panel. The options on the Terminal (in addition to performing a site setup) include transferring the CDL from the PC to the Argus, and vice versa, as well as deleting the CDL, or viewing/changing the Compiler Log.
The Application options on the Front Panel only include site setup, battery calibration and lamp calibration.

3.10.11.1 Terminal Screens

Also see following Figure 3-49 for illustrations of the Application Settings sub-menus.

> **NOTE**
>
> **NOTE**
>
> In Figure 3-49 rows D & E, at the FORMAT query in the GENERATE COMPILER REPORT screen, use left and right arrow keys to select ON SCREEN, PRINT/CAPTURE, or USB STICK output option. At the VERBOSITY query in the CDL LOG SETTINGS screen, use left and right arrows to select the INFO or DEBUG option.
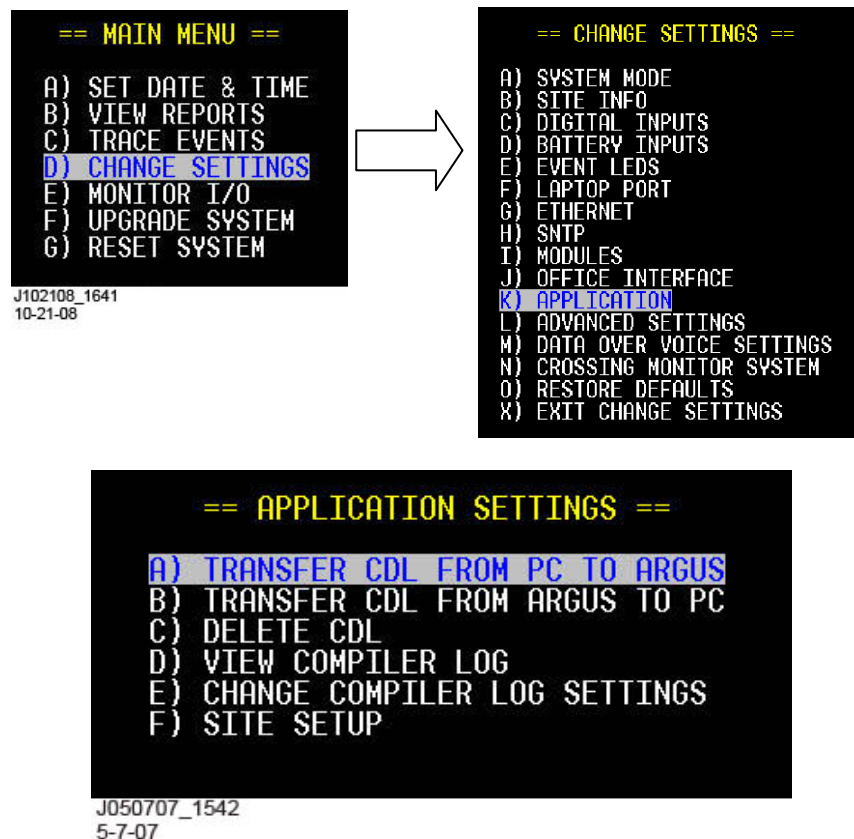
Figure 3-48. [Terminal] Application Settings Screens

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A

```
    == APPLICATION SETTINGS ==

A) TRANSFER CDL FROM PC TO ARGUS
B) TRANSFER CDL FROM ARGUS TO PC
C) DELETE CDL
D) VIEW COMPILER LOG
E) CHANGE COMPILER LOG SETTINGS
F) SITE SETUP
```
J050707_1542
5-7-07

```
    == APPLICATION TRANSFER ==

TRANSFER CDL FROM PC TO ARGUS
      [ EXECUTE   TRANSFER ]
```
J050707_1547
5-7-07

To proceed select the "**Send File...**" function from the HyperTerminal Transfer tab.

B

```
    == APPLICATION SETTINGS ==

A) TRANSFER CDL FROM PC TO ARGUS
B) TRANSFER CDL FROM ARGUS TO PC
C) DELETE CDL
D) VIEW COMPILER LOG
E) CHANGE COMPILER LOG SETTINGS
F) SITE SETUP
```
J050707_1614
5-7-07

```
    == APPLICATION TRANSFER ==

TRANSFER CDL FROM ARGUS TO PC
      [ EXECUTE   TRANSFER ]
```
J050707_1618
5-7-07

To proceed select the "**Receive File...**" function from the HyperTerminal Transfer tab.

C

```
    == APPLICATION SETTINGS ==

A) TRANSFER CDL FROM PC TO ARGUS
B) TRANSFER CDL FROM ARGUS TO PC
C) DELETE CDL
D) VIEW COMPILER LOG
E) CHANGE COMPILER LOG SETTINGS
F) SITE SETUP
```
J050707_1622
5-7-07

```
ARE YOU SURE YOU WANT TO DELETE THE CDL?
        Y)YES          N)NO          _
```
J050707_1624
5-7-07

D

```
    == APPLICATION SETTINGS ==

A) TRANSFER CDL FROM PC TO ARGUS
B) TRANSFER CDL FROM ARGUS TO PC
C) DELETE CDL
D) VIEW COMPILER LOG
E) CHANGE COMPILER LOG SETTINGS
F) SITE SETUP
```
J050707_1626
5-7-07

```
    == GENERATE COMPILER REPORT ==

FORMAT:          [ ON SCREEN    ](</>)

           [ GENERATE REPORT ]
```
J050707_1627
5-7-07

E

```
    == APPLICATION SETTINGS ==

A) TRANSFER CDL FROM PC TO ARGUS
B) TRANSFER CDL FROM ARGUS TO PC
C) DELETE CDL
D) VIEW COMPILER LOG
E) CHANGE COMPILER LOG SETTINGS
F) SITE SETUP
```
J050707_1629
5-7-07

```
    == CDL LOG SETTINGS ==

COMPILER LOG VERBOSITY:[ INFO  ](</>)
```
J050707_1632
5-7-07

F

```
    == APPLICATION SETTINGS ==

A) TRANSFER CDL FROM PC TO ARGUS
B) TRANSFER CDL FROM ARGUS TO PC
C) DELETE CDL
D) VIEW COMPILER LOG
E) CHANGE COMPILER LOG SETTINGS
F) SITE SETUP
```
J050707_1633
5-7-07

```
PLEASE WAIT (COMPILING)...100%

iLOD MODULES? (0 - 4)                    1
ANY LED BULBS USED?                    YES

PLEASE WAIT (COMPILING)...100%

COMPILE SUCCESSFUL

PLEASE WAIT (SAVING CHANGES)...DONE.

_
```
J050707_1636
5-7-07

Figure 3-49. [Terminal] Application Settings Sub-Menus

Document no.: SIG-00-06-05   July 2014
Version No.: F

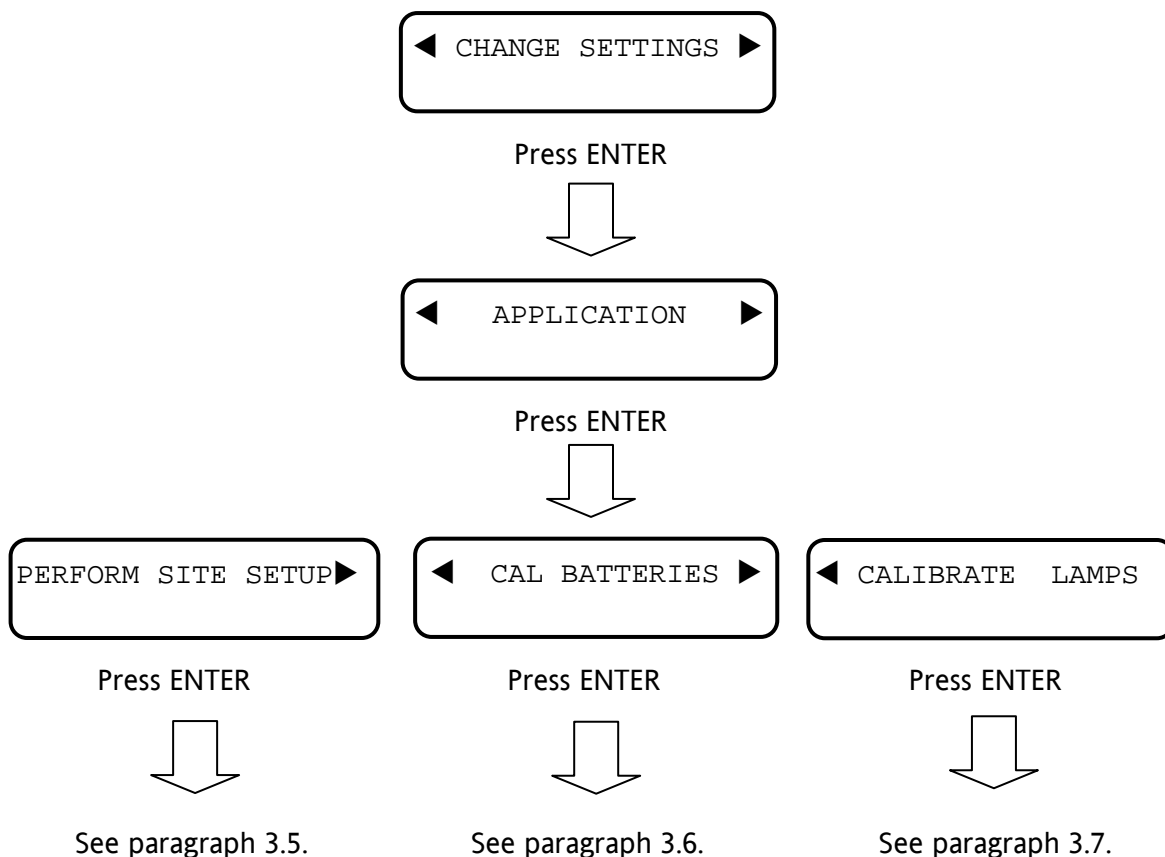### 3.10.11.2 **Front Panel Display**

On the Front Panel, the Application option under the Change Settings menu is different than the Application option on the Terminal. In this environment, the only options are:

- Perform Site Setup
- Calibrate Batteries
- Calibrate Lamps

The site setup sequence is explained in paragraph 3.5. The sequence can also be initiated by pressing the "Site Setup" button on the Front Panel keypad.

When the site setup sequence is performed, a prompt asks whether or not the date/time of the system needs to be set. If yes is chosen, the SET DATE/TIME sequence will be followed, as explained in paragraph 3.4.

After the date/time is set or skipped, the system will compile the CDL program. This phase of the compilation only compiles the menu question commands in the CDL program. Each of these options is detailed in the Site Setup procedure found earlier in this section. See the paragraphs referenced below.

```
            ◄ CHANGE SETTINGS ►

                Press ENTER
                    ⇓

            ◄   APPLICATION   ►

                Press ENTER
                    ⇓

PERFORM SITE SETUP►   ◄ CAL BATTERIES ►   ◄ CALIBRATE  LAMPS

   Press ENTER          Press ENTER          Press ENTER
       ⇓                    ⇓                    ⇓

See paragraph 3.5.    See paragraph 3.6.    See paragraph 3.7.
```

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3.10.12 Advanced Settings

3.10.12.1 Discrete Inputs

The Discrete Inputs function under the Advanced menu (accessed via the Change Settings menu) is used to set up the timers for De-bounce On, De-bounce Off, and the Toggle Period for each discrete input.

NOTE	**NOTE** If an input is configured for either MTSS or GFT mode, these settings have no effect.

3.10.12.1.1 Terminal Screens

Refer to following Figure 3-50.

On the Terminal Main Menu select the Change Settings function, and then the Advanced Settings option from the sub-menu. You will then be presented with a screen showing selection options for Discrete Inputs, Battery Inputs, Update Password, and Event Log Duration.

Select (highlight) the Discrete Inputs option and press ENTER (or simply press the letter A on your keyboard). The Discrete Input Timers screen opens showing the 12 Discrete Input names and their timer settings.

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move back to a previous field. Use the right and left arrow keys to position the flashing underscore cursor below the character you wish to change. After entering a character the cursor will automatically move to the next character position.

When done, press the Esc (ESCAPE) key to save the changes and return to the Advanced Settings menu.

3-70
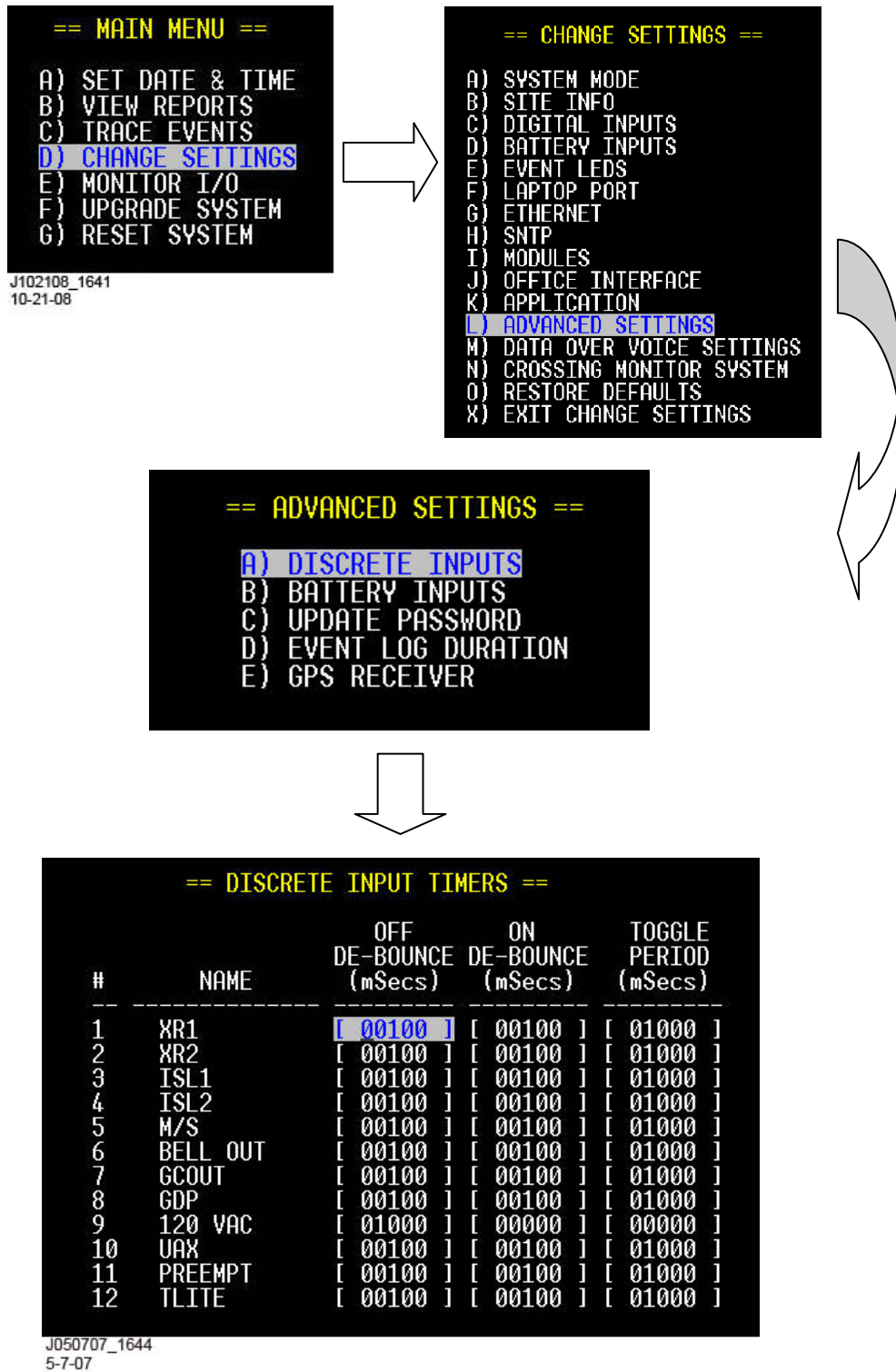
Figure 3-50. [Terminal] Advanced Settings – Discrete Input Timers Screens
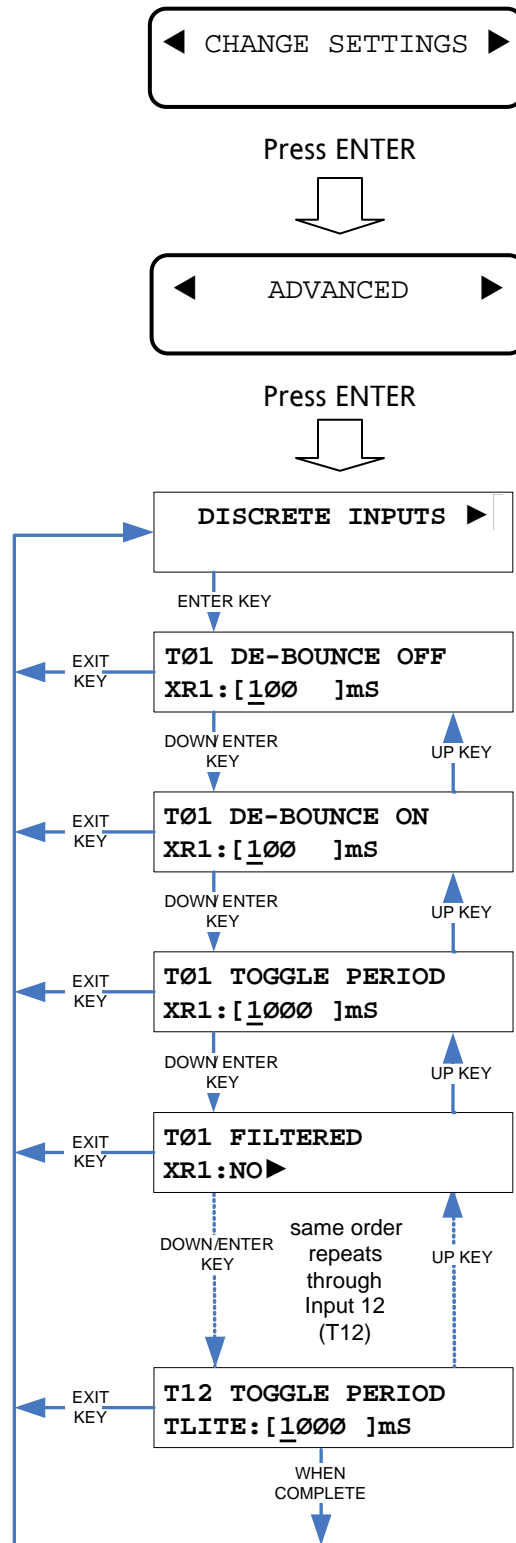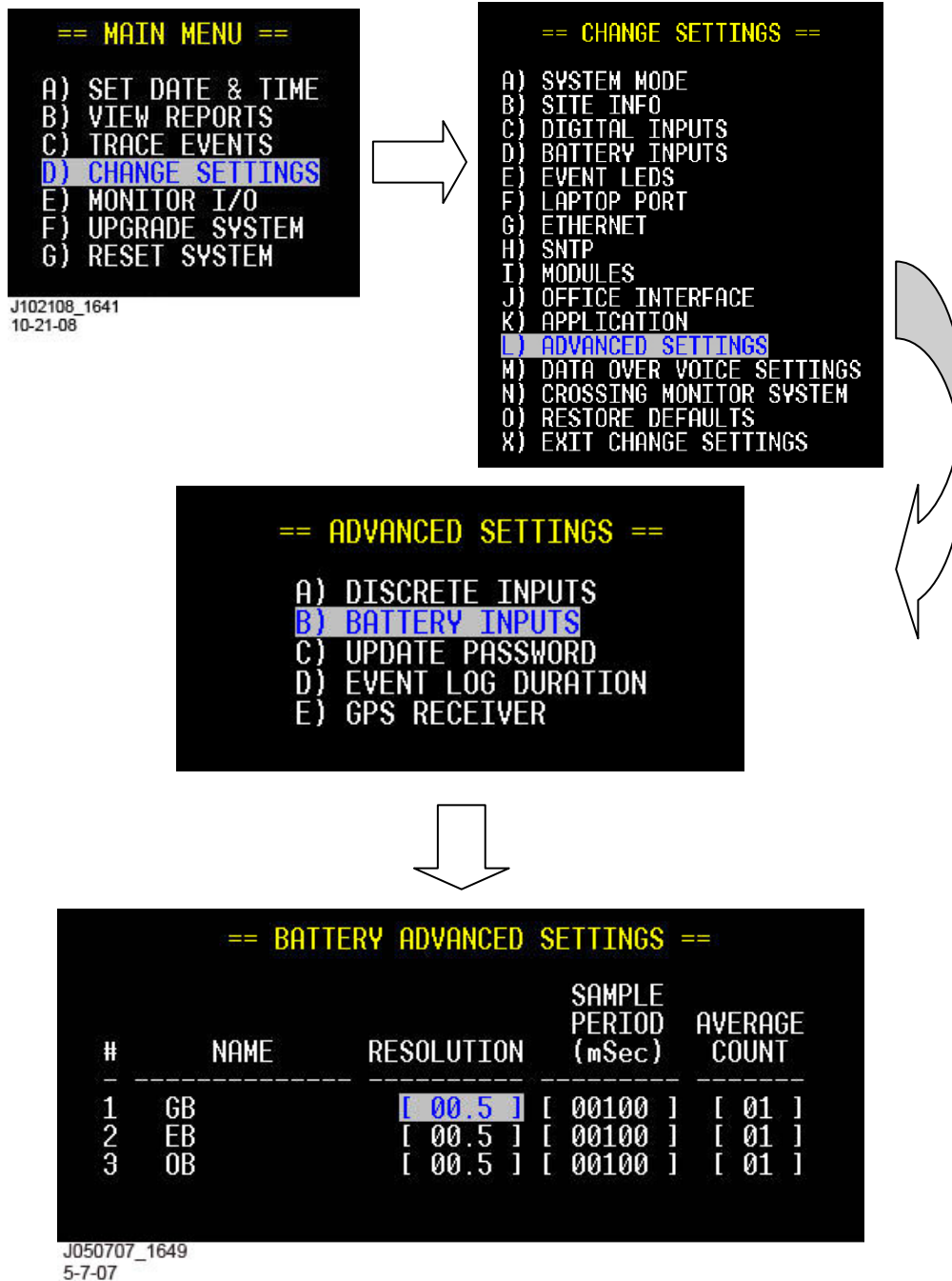
3.10.12.1.2 Front Panel Display

```
◄ CHANGE SETTINGS ►
```

Press ENTER

```
◄      ADVANCED      ►
```

Press ENTER

```
DISCRETE INPUTS ►
```

ENTER KEY

```
T01 DE-BOUNCE OFF
XR1:[100  ]mS
```
EXIT KEY

DOWN ENTER KEY / UP KEY

```
T01 DE-BOUNCE ON
XR1:[100  ]mS
```
EXIT KEY

DOWN ENTER KEY / UP KEY

```
T01 TOGGLE PERIOD
XR1:[1000 ]mS
```
EXIT KEY

DOWN ENTER KEY / UP KEY

```
T01 FILTERED
XR1:NO►
```
EXIT KEY

DOWN/ENTER KEY / UP KEY

same order repeats through Input 12 (T12)

```
T12 TOGGLE PERIOD
TLITE:[1000 ]mS
```
EXIT KEY

WHEN COMPLETE

Figure 3-51. [Front Panel] Advanced – Discrete Input Timers Sequence

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3.10.12.2 Battery Inputs

The Battery Inputs function under the Advanced menu (accessed via the Change Settings menu) is used to set up resolution, sample, and average count for each battery.

3.10.12.2.1 Terminal Screens

Refer to following Figure 3-52.

On the Terminal Main Menu select the Change Settings function, and then the Advanced Settings option from the sub-menu. You will then be presented with a screen showing selection options for Discrete Inputs, Battery Inputs, Update Password, and Event Log Duration.

Select (highlight) the Battery Inputs option and press ENTER (or simply press the letter B on your keyboard). The Battery Advanced Settings screen opens showing the 3 Battery Input names and their settings.

Use the down arrow or ENTER key to move to the next field. Use the up arrow to move back to a previous field. Use the right and left arrow keys to position the flashing underscore cursor below the character you wish to change. After entering a character the cursor will automatically move to the next character position.

When done, press the Esc (ESCAPE) key to save the changes and return to the Advanced Settings menu.

Figure 3-52. [Terminal] Advanced Settings – Battery Inputs Screens

3.10.12.2.2 Front Panel Display

```
◀ CHANGE SETTINGS ▶
```

Press ENTER

⬇

```
◀      ADVANCED      ▶
```

Press ENTER

⬇

```
◀  BATTERY INPUTS
```

ENTER KEY

```
BATTERY 1 RESOLUTION
GB:[Ø0.5v]
```
Scrolling line

DOWN/ENTER KEY   UP KEY   EXIT KEY

```
BATTERY 1 SAMPLE
GB:[100  ]mS
```
Scrolling line

DOWN/ENTER KEY   UP KEY   EXIT KEY

```
BATTERY 1 AVG COUNT
GB:[1    ]
```
Scrolling line

DOWN/ENTER KEY   same order repeats through Input 3 (OB)   UP KEY   EXIT KEY

```
BATTERY 3 AVG COUNT
OB:[1    ]
```
Scrolling line

WHEN COMPLETE   EXIT KEY

Figure 3-53. [Front Panel] Advanced – Battery Inputs Sequence

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3.10.12.3 Update Password

A user password is only required for a remote user to access the Argus via Telnet. The Update Password function under the Advanced menu (accessed via the Change Settings menu) is used to change the user password.

3.10.12.3.1 Terminal Screens

Refer to following Figure 3-54.

On the Terminal Main Menu select the Change Settings function, and then the Advanced Settings option from the sub-menu. You will then be presented with a screen showing selection options for Discrete Inputs, Battery Inputs, Update Password, and Event Log Duration.

Select (highlight) the Update Password option and press ENTER (or simply press the letter C on your keyboard). The Update Password screen opens showing the Input fields for the old password, new password, and new password confirmation.

NOTE
NOTE   Passwords are case sensitive. That is, the password must be entered in the same UPPER/lower case style as it was originally entered.

Enter the old password, then use the down arrow or ENTER key to move to the next field. The factory preset password can be obtained by contacting Railroad Field Support at: 1-800-793-7233.

NOTE
NOTE   When you enter the old password, if it's not correct you will see a brief error message and be returned to the same screen to try again. You can not set a new password without entering the correct old password first.

Use the up arrow to move back to a previous field. Use the right and left arrow keys to position the flashing underscore cursor below the character you wish to change. After entering a character the cursor will automatically move to the next character position.

Enter a new password in the New Password field, then move down to the next field and enter the new password again (exactly as the first password) as a confirmation.

When done, highlight the Submit Password field and press ENTER to save the new password.
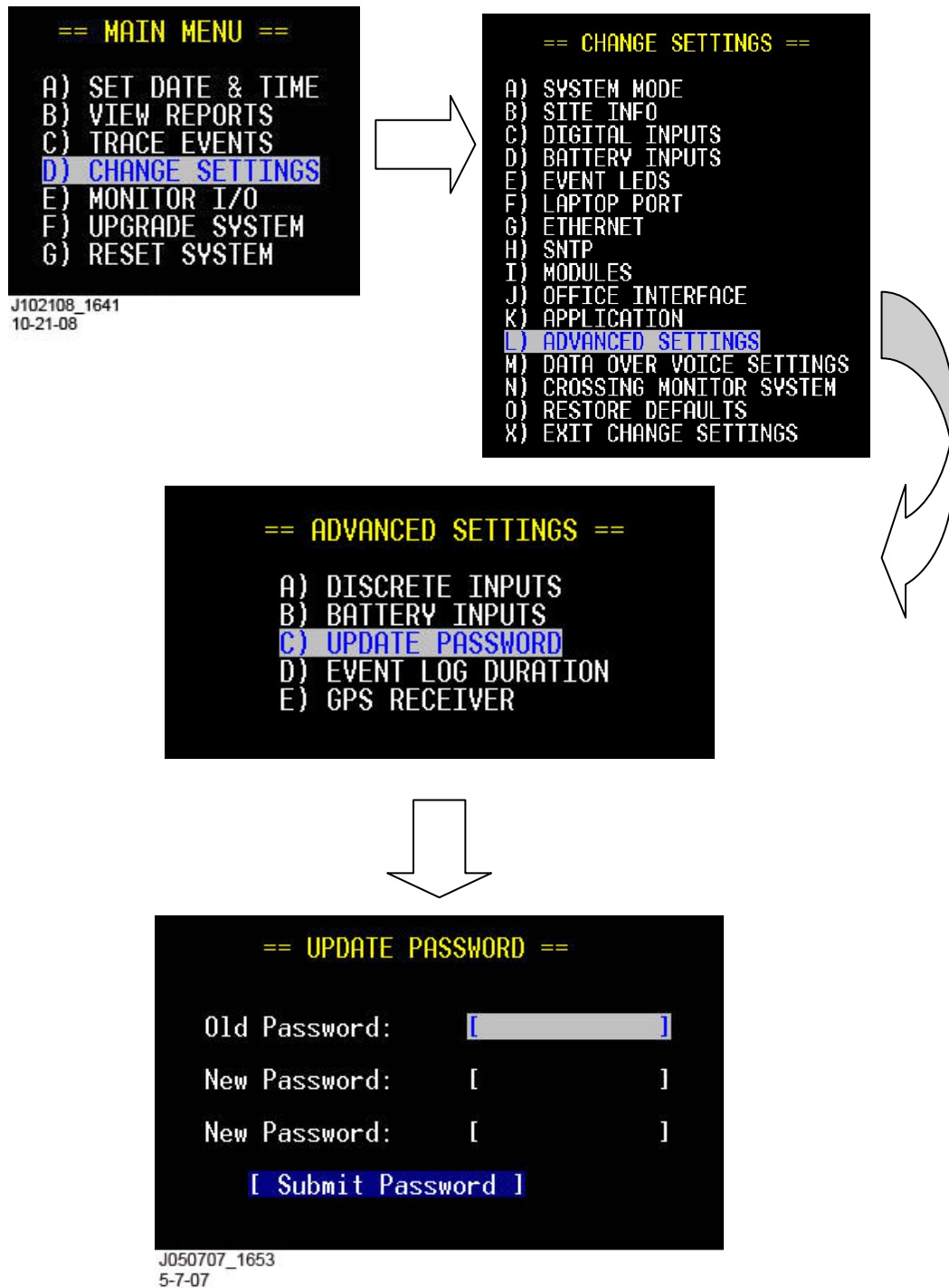
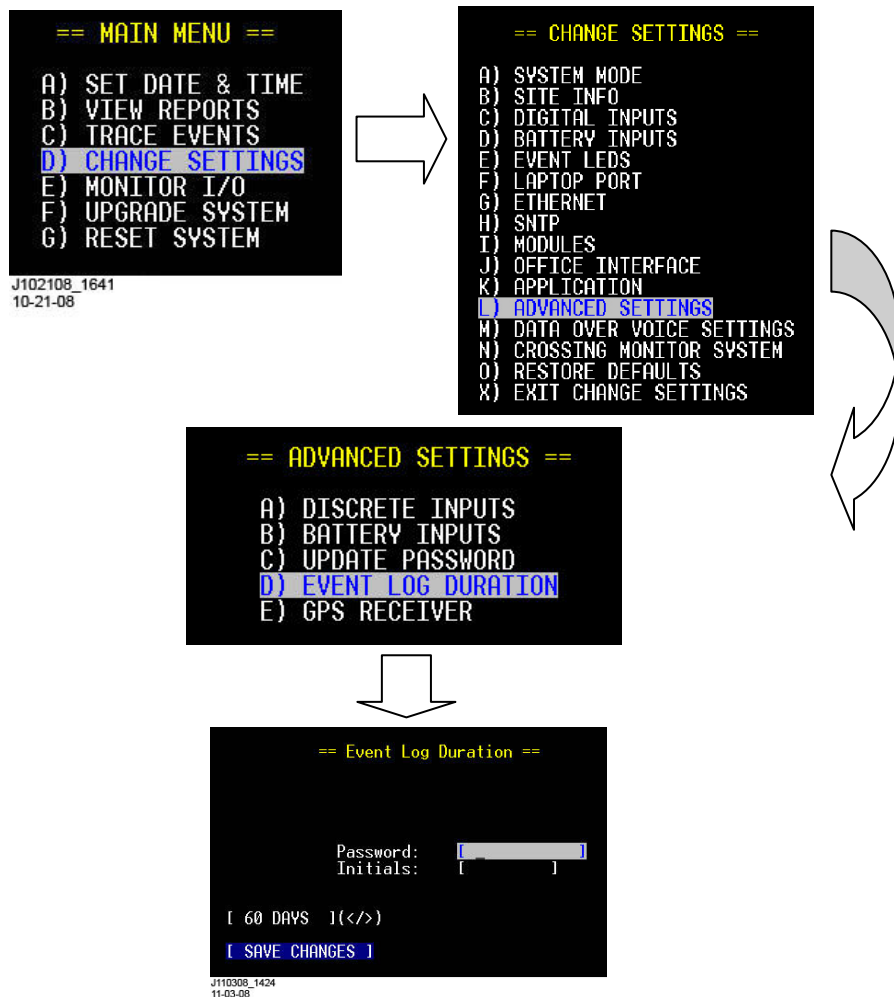**Figure 3-54. [Terminal] Advanced Settings – Update Password Screens**

3.10.12.4 Event Log Duration

The Event Log Duration settings determine the duration of time of events that will be held in event memory. By default, the Argus will only keep the latest 60 days worth of events. Events older than 60 days will be removed from the log at midnight. However up to 128 events may be held as events are erased in blocks of 128 events.

The Event Log Duration can be configured as 60 days, 90 days, 180 days, or Full. "Full" means the entire event memory is used, no events are erased but when the log is full the oldest event is overwritten by the new event. The Event Log Duration can also be controlled by the application program.

3.10.12.4.1 Terminal Screens

Refer to following Figure 3-55. On the Terminal Main Menu select the Change Settings function, and then the Advanced Settings option from the sub-menu. On the Advanced Settings sub-menu select Event Log Duration.
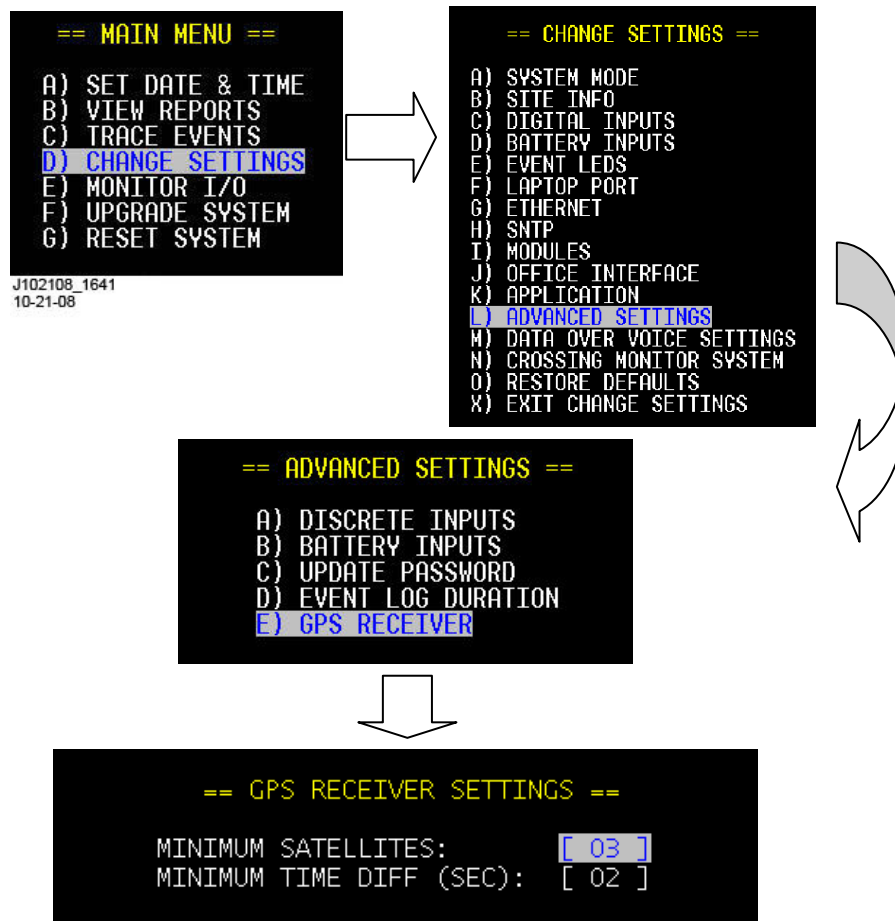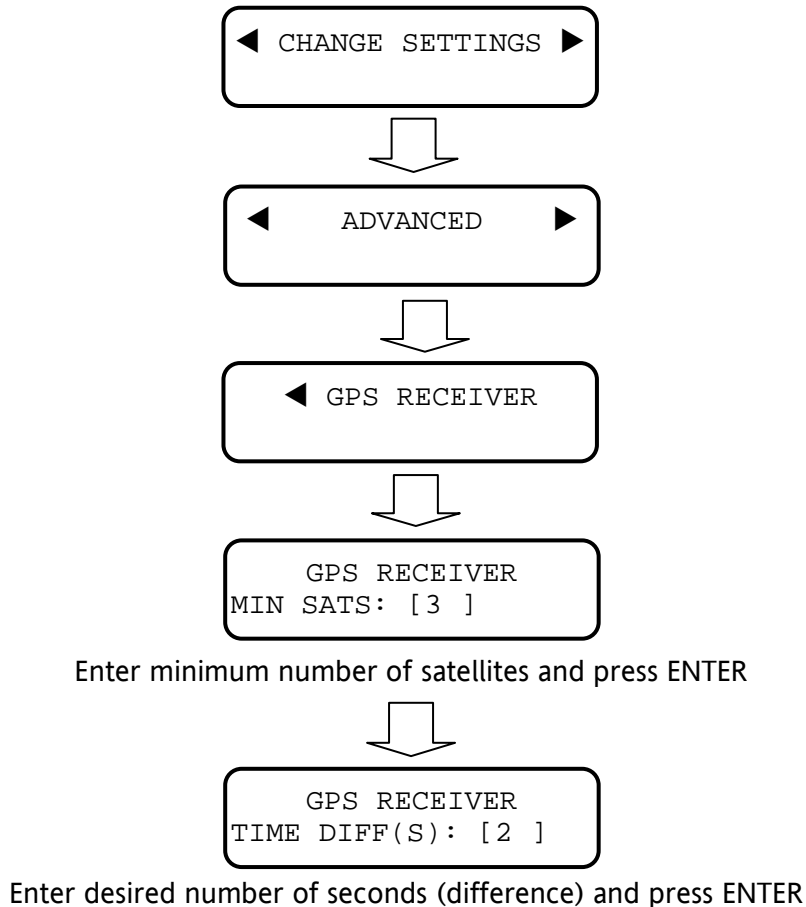

Figure 3-55. [Terminal] Advanced Settings – Event Log Duration Screens

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3.10.12.4.2 Front Panel Display

On the front panel keypad, press the Menu key and then the right arrow key to step to the Change Settings option. At the Change Settings option, press the Enter key and then the right arrow key to step to the Advanced option. Again press the Enter key and then the right arrow to step to the Event Log Duration option.

Press the Enter key and Argus will query "ARE YOU SURE: NO>". To access the Event Log Duration settings, press the right arrow to change the response to "<YES", then press the Enter key. Argus then prompts you to ENTER THE PASSWORD with the entry cursor blinking within a set of brackets. The default password is "sscsuper" in all lower case letters (remember, pressing a key will cycle through upper case letters first, then lower case letters).

After the password is correctly entered, press the Enter key and Argus will allow you to change the Event Log Duration settings to FULL, 60 DAYS, 90 DAYS, or 180 DAYS.

```
◄  CHANGE SETTINGS  ►
```

Press ENTER

```
◄      ADVANCED      ►
```

Press ENTER

```
◄ EVENT LOG DURATION
```

Press ENTER

```
◄ EVENT LOG DURATION
  ARE YOU SURE: NO►
```

Change to ◄**YES** and press ENTER

```
ENTER THE PASSWORD
[                ]
```

Enter password and press ENTER
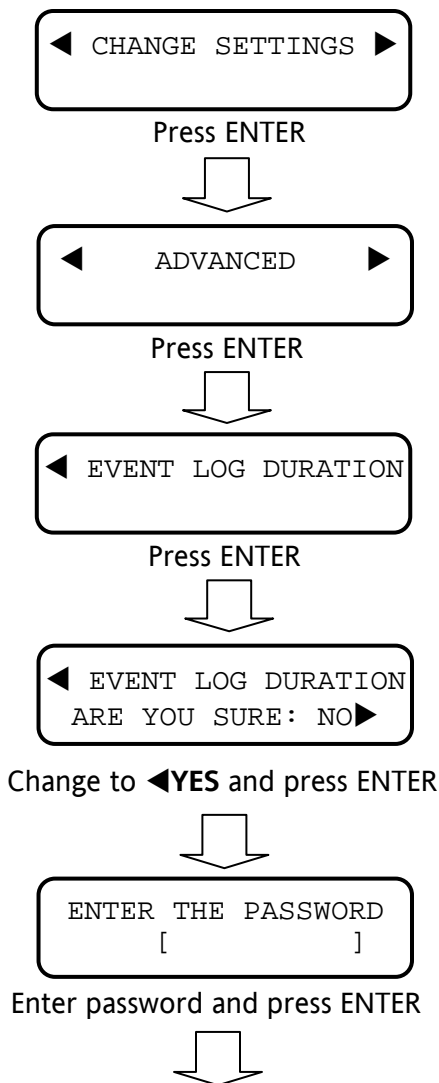
Event Log Duration settings can be set to FULL, 60 DAYS, 90 DAYS, or 180 DAYS

3.10.12.5 GPS Receiver

 If the Argus is equipped with an internal GPS receiver card (-04/-05/-06 models), the GPS receiver card will automatically provide local date/time (when Argus date/time configuration is properly set – see paragraph 3.4) and location coordinates to the Argus unit. The Argus also provides settings for the minimum number of satellites to track, and the desired maximum number of seconds (difference) between Internal system time and GPS time before the internal system time is set to the GPS time. See following paragraph 3.10.12.5.3 for settings details.

The GPS receiver's operational status and configuration settings can be observed on the terminal interface and Argus front panel under the Monitor I/O menu selection (see paragraph 3.11.4).

3.10.12.5.1 Terminal Screens

On the Terminal Main Menu select the Change Settings function, and then the Advanced Settings option from the sub-menu. On the Advanced Settings sub-menu select GPS Receiver.

Enter the minimum number of satellites to track and the desired number of seconds required (difference) before the Internal system time is set to the GPS time.

Figure 3-56. [Terminal] Advanced Settings – GPS Receiver Screens

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3.10.12.5.2 Front Panel Display

On the front panel keypad, press the Menu key and then the right arrow key to step to the Change Settings option. At the Change Settings option, press the Enter key and then the right arrow key to step to the Advanced option. Again press the Enter key and then the right arrow to step to the GPS Receiver option. Press Enter.

```
┌─────────────────────────┐
│ ◄  CHANGE SETTINGS  ►    │
└─────────────────────────┘
            ⇩
┌─────────────────────────┐
│ ◄      ADVANCED      ►   │
└─────────────────────────┘
            ⇩
┌─────────────────────────┐
│ ◄  GPS RECEIVER         │
└─────────────────────────┘
            ⇩
┌─────────────────────────┐
│      GPS RECEIVER       │
│  MIN SATS: [3 ]         │
└─────────────────────────┘
```
Enter minimum number of satellites and press ENTER

```
            ⇩
┌─────────────────────────┐
│      GPS RECEIVER       │
│  TIME DIFF(S): [2 ]     │
└─────────────────────────┘
```
Enter desired number of seconds (difference) and press ENTER

3.10.12.5.3 GPS Configuration Settings

There are two configuration options for the GPS receiver card. These options are found under the "Change Settings > Advanced" settings menu.

Setting	Range	Default Value	Description
Minimum Satellites	1 - 10	3	The number of satellites in view must be greater than or equal to this value before the Argus will use the date/time and location information reported by the GPS receiver.
Minimum Time Difference (seconds)	1 – 60 seconds	5 seconds	The difference between the system time and GPS time required before the Argus will set the system time to the GPS time.

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3.10.13   Data Over Voice Settings

The Data Over Voice settings are used to configure the system to communicate with the Wayside Alarm Management System (WAMS) over a field voice network (refer to Safetran document no. SIG-00-03-17). The Data Over Voice system uses a VHF Communicator to transmit and receive data and a special protocol for utilizing the system. Several parameters of the protocol can be set on this configuration page.

The following are the available configuration options and what the options mean. In most cases, the default settings can be accepted without modification. However, you must enter the correct Call-in Sequence as a minimum.

Table 3-7. Data Over Voice Configuration Options

Setting	Units	Range/Options	Default Value	Description
VHFC Node	N/A	List of configured VHF Communicator modules on this Argus system	First VHF configured on this Argus	This is the VHFC connected to the Argus that will be used for the AC detector protocol traffic. There may be other VHFC units connected to the system that are not used for the AC detector system.
Call-in Sequence	N/A	Sequence of up to 8 DTMF tones each with a value of 0 - 9, A, B, C, D, #, or *	blank	The call-in number/sequence the Argus uses to call-in to the Automated Routing Console. *At the present time, the routing console only supports 4 call-in digits.*
Call-in Timeout	seconds	0 - 65535	60	The amount of time to wait after sending the call-in sequence without receiving the greeting before attempting to call-in again.
Call-in Retries	N/A	0 - 9	3	The number of attempts to call-in without receiving the greeting before going into the longer waiting period (Call-in Delay)
Call-in Delay	seconds	0 - 65535	600	If a call-in fails to deliver an alarm or alarm clear or all call-in retries failed, this is the amount of time to wait before trying to call-in and deliver the alarm again.

Setting	Units	Range/Options	Default Value	Description
ACK Timeout	seconds	0 - 65535	10	The amount of time to wait for the ACK from the routing console after sending a data packet before attempting the data packet again.
ACK Retries	N/A	0 - 9	3	The number of tries to send a data packet before giving up on this call-in and attempting a call-in later.
Next Message Delay	seconds	0 - 65535	30	The number of seconds to wait, while the audio channel is open, for any new alarms to occur and send without initiating another call-in. If no new alarms or messages are sent within this time period, a new call-in will be initiated to send them in.
PTT Delay	seconds	0 - 65535	5	The amount of time to wait after we receive the greeting for the routing console to let go of PTT before the Argus starts sending in data packets.
Health Reporting	N/A	Enabled or Disabled	Enabled	If enabled, periodic reporting of health to the Automated Routing Console will be made. Otherwise, health will not be sent to the office.
Health Report Hour	N/A	0 - 23	0	The hour of the day the Argus should send in its health report, if health reporting is enabled.

3.10.13.1 Terminal Screens

Use this menu sequence to access the Data Over Voice parameter screen. Note that a VHF Radio must be installed using the Change Settings > Modules process before a VHF Node will appear.

Refer to Figure 3-57. On the Terminal Main Menu select the Change Settings function, and then the Data Over Voice Settings option from the sub-menu. You will then be presented with a screen showing the various parameters that can be set as required.

When done, press the Esc (ESCAPE) key to save the settings and return to the Change Settings sub-menu.
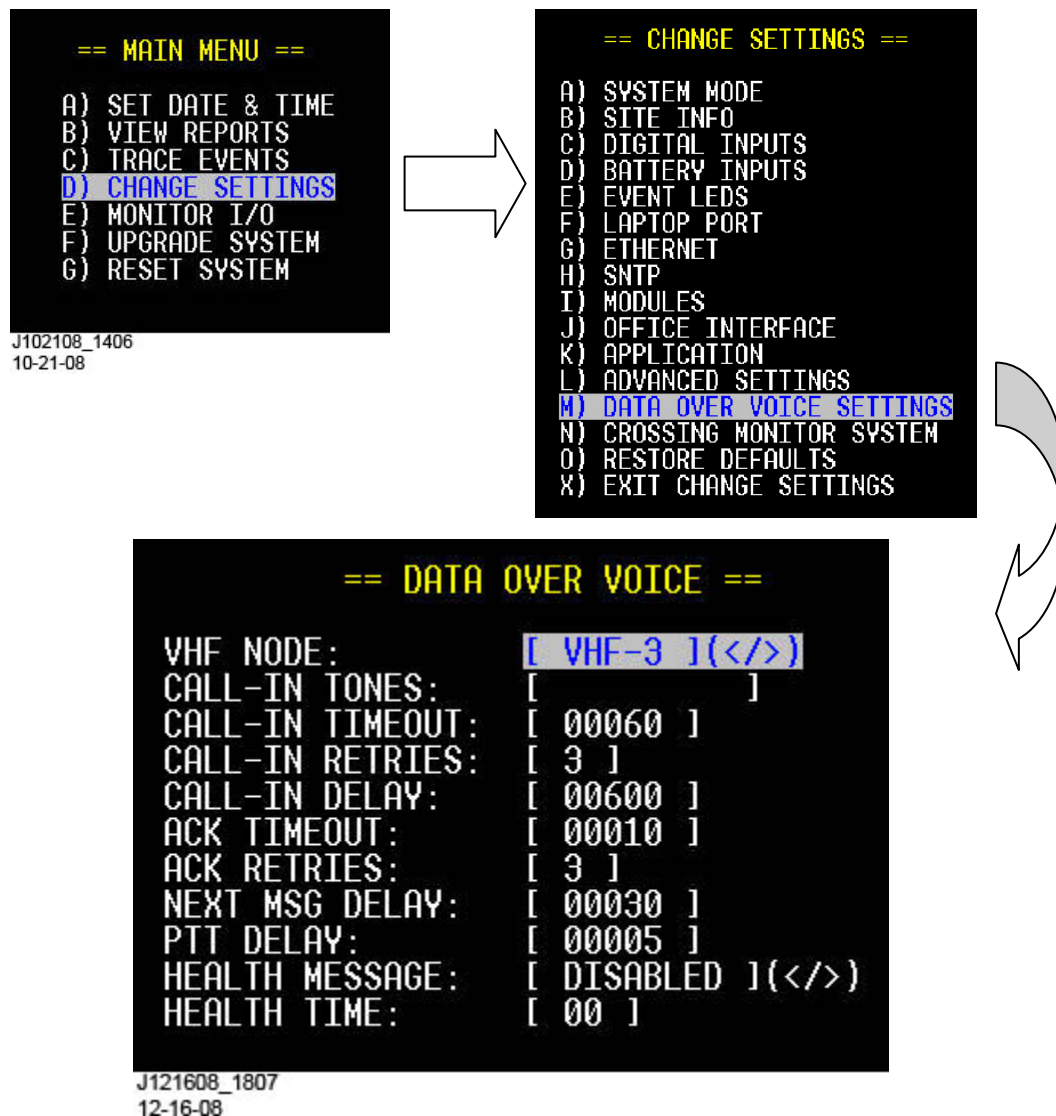
Figure 3-57. [Terminal] Data Over Voice Screens

3.10.13.2 Front Panel Display
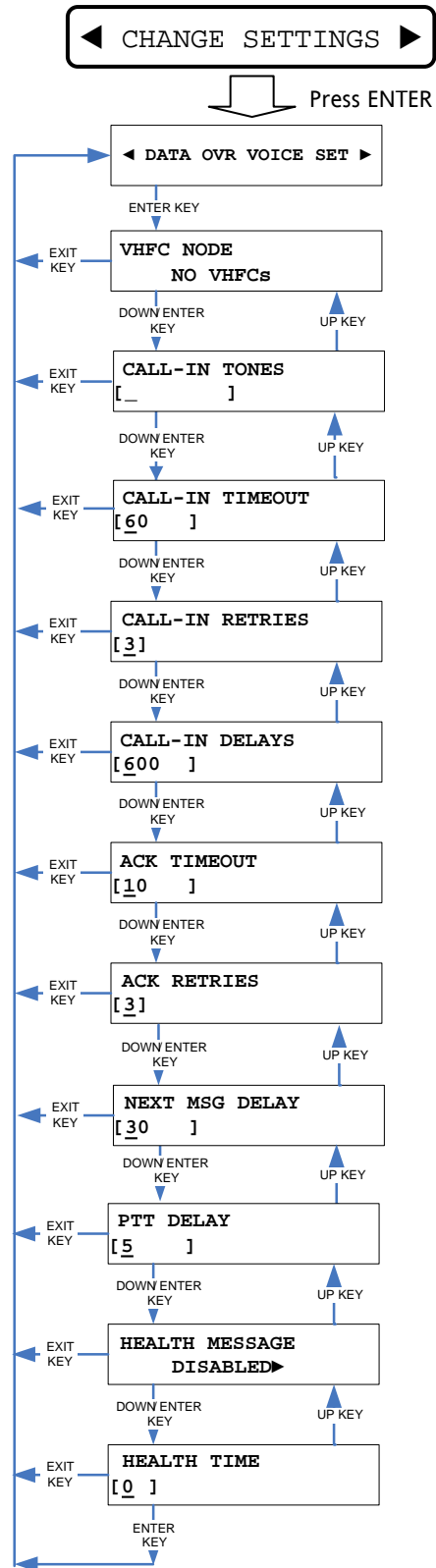
Figure 3-58. [Front Panel] Data Over Voice Sequence

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3.10.14 Restore Defaults

The Restore Defaults function (accessed via the Change Settings menu) is used to restore the system's configuration settings back to the factory defaults, if deemed necessary.

The only exception to the Restore Defaults function is that if logged into the terminal interface through the Laptop port, the Laptop port settings will not be set back to the default configuration. Therefore, connection to the Laptop will be maintained.

This operation may be performed from the terminal interface or the Front Panel. A prompt will be provided to verify that all configuration settings are to be reset.

⚠ CAUTION	**CAUTION** WHEN FACTORY DEFAULTS ARE RESTORED ALL EXISTING CONFIGURATION SETTINGS WILL BE OVERWRITTEN AND LOST.

NOTE	**NOTE** After restoring defaults, any Echelon modules (such as ILODs) connected to the Argus must be reinstalled.

3.10.14.1 Terminal Screens

Figure 3-59. [Terminal] Restore Defaults Screens

3.10.14.2 Front Panel Display

On the front panel keypad, press the right arrow to select YES, then press ENTER to restore the factory defaults. Leaving this option set to NO and pressing the down arrow or Enter key will return to the previous menu level without any configuration changes.
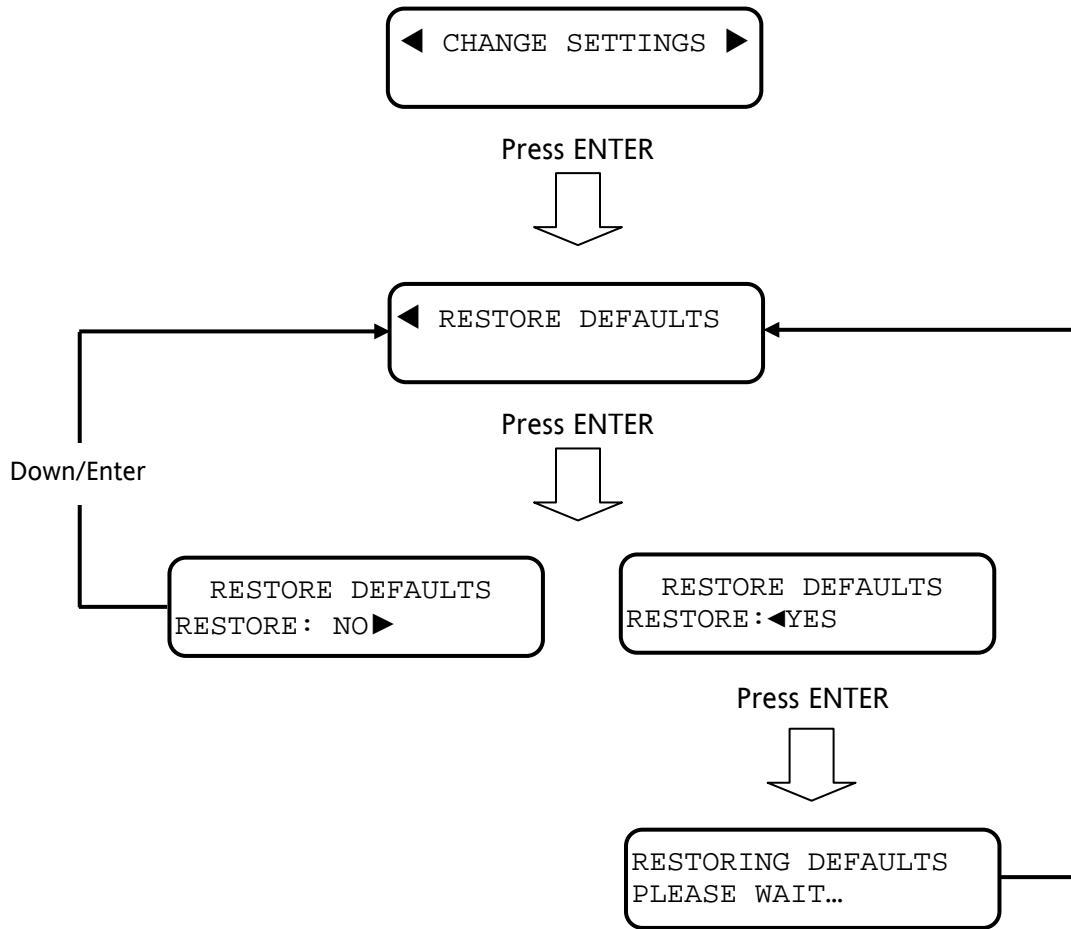
Figure 3-60. [Front Panel] Restore Defaults Sequence

3.11 MONITOR I/O

Monitoring I/O on the Front Panel is slightly different from monitoring I/O on the Terminal interface. Both methods are explained below.

3.11.1 Onboard I/O

3.11.1.1 Terminal Screens

Use this menu selection to view the status of the onboard I/O.

Refer to Figure 3-61. On the Terminal Main Menu select the Monitor I/O function, and then the Onboard I/O option from the sub-menu. You will then be presented with a screen showing status for the 12 Discrete Inputs, 3 Battery Inputs, 8 Event LEDs, System Temperature and some essential Argus run statistics. See Table 3-8 for MTSS and GFT Discrete Input designations and indications.

When done, press the Esc (ESCAPE) key to return to the Monitor I/O sub-menu.
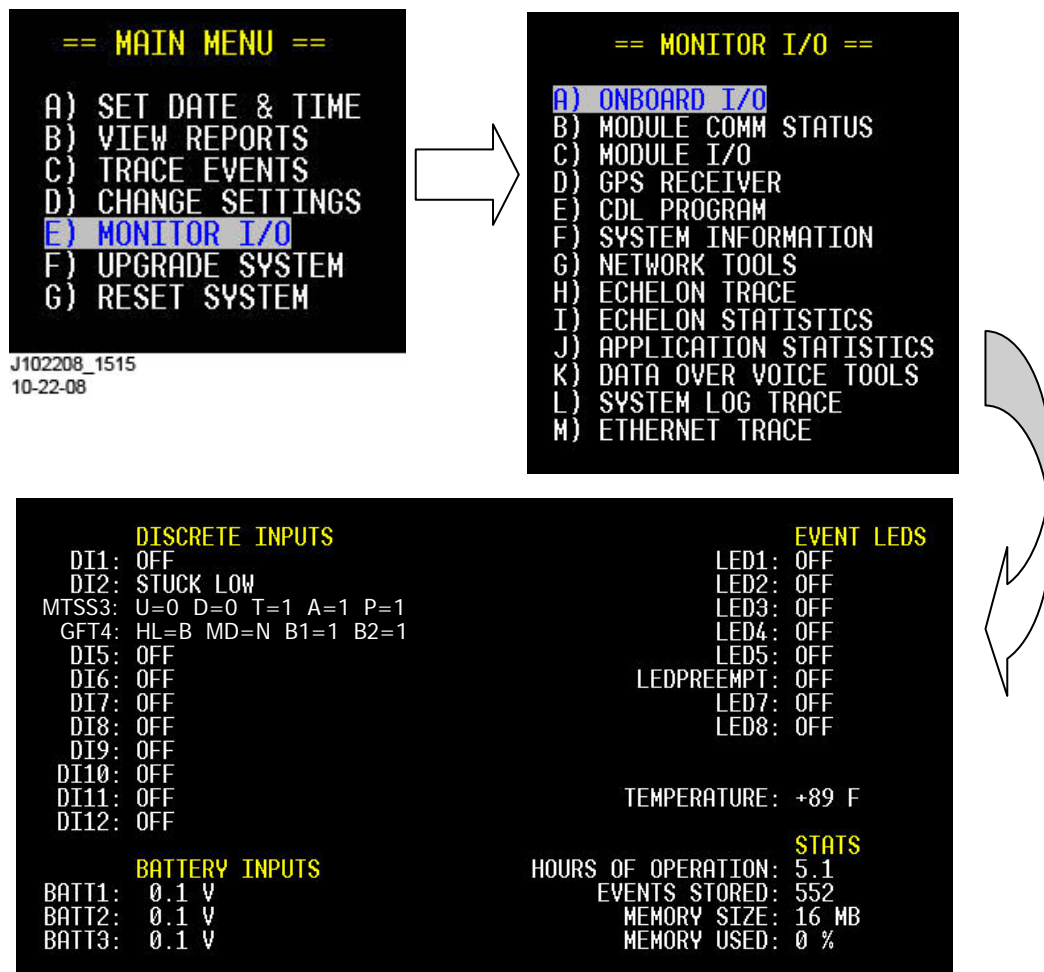
Figure 3-61. [Terminal] Onboard I/O Screens

Table 3-8. MTSS and GFT Discrete Input Designations and Indications

Discrete Inputs Display	Description	
STUCK LOW	The data signal is always low, which indicates the wiring may be loose or unplugged. Or, the MTSS/GFT hardware may have failed.	
STUCK HIGH	The data signal is always high, which indicates the input may be wired to the wrong signal. Or, the MTSS/GFT hardware may have failed.	
MTSS: **U**=X **D**=X **T**=X **A**=X **P**=X	Shows the state of each of the 5 data bits reported by the MTSS. The bit meanings are described below.	
Designations	**Monitoring**	**Screen Indications**
U	Gate **U**p Contact	**Ø** = gate down, **1** = gate up
D	Gate **D**own Contact	**Ø** = gate up, **1** = gate down
T	Gate **T**ip Sensor	**Ø** = not horizontal, **1** = horizontal
A	Bell **A**udio	**Ø** = no audio, **1** = audio present
P	Bell **P**ower	**Ø** = no power, **1** = power applied
GFT: **HL**=X **MD**=X **B1**=X **B2**=X	Shows the state of each of the 4 data bits reported by the GFT. The bit meanings are described below.	
Designations	**Monitoring**	**Screen Indications**
HL	GFT Health	**G** = Good Health, **B** = Bad Health
MD	GFT Mode	**N** = Normal, **T** = Test
B1	Battery 1 Fault	**Ø** = No fault, **1** = Fault
B2	Battery 2 Fault	**Ø** = No fault, **1** = Fault

3.11.1.2 <u>Front Panel Display</u>

3.11.1.2.1 **Discrete Digital (Discrete) Inputs**

Use this menu selection to view the status of the 12 discrete discrete inputs.

At the DISCRETE DIGITAL INPUTS screen, press ENTER. The next display shows an overview of the possible states for a all installed discrete discrete inputs.

A discrete input can be in one of three states: OFF, ON, or TOGGLING, as shown.

```
◄        MONITOR I/O        ►
```

Press ENTER

```
DISCRETE DIGITAL
INPUTS ►
```

Press ENTER

Digital Inputs key   MTSS/GFT Inputs key

```
ON=1  OFF=-  TOG=T          MTSS/GFT=X
-XXXX--T--1-------          -XX-----------
```
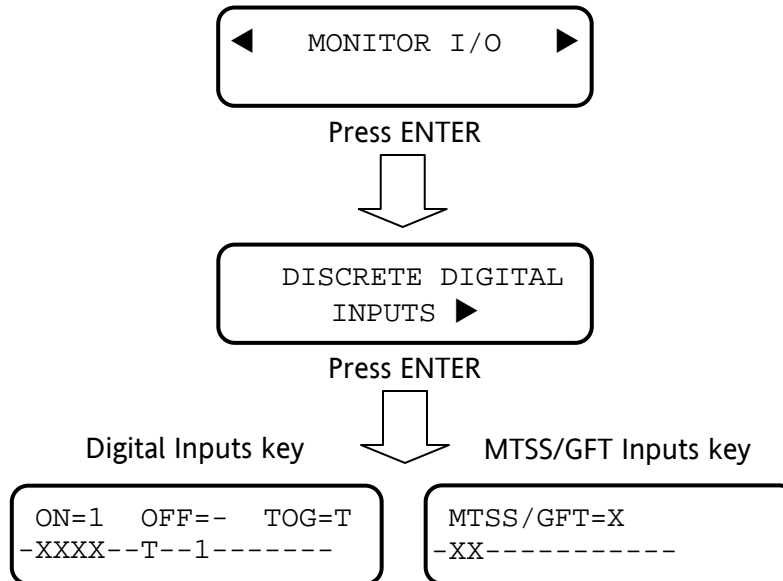
Alternating display shows an overview of the 12 discrete inputs.

The bottom line of the display (------------) indicates the status of the 12 discrete inputs DI1 – DI12. The dynamic status of each DIGITAL input is displayed as "1"(ON), "-"(OFF), or "T"(TOGGLING). However, since the front panel display is not large enough to display all the MTSS/GFT status bits, only an "X" is shown for an installed MTSS or GFT unit. To view the actual status codes for each input, press the down arrow to step through each one individually.

The states for discrete Digital inputs Inputs are defined as follows:

- **OFF**: If the voltage on the input has been less than 1.0 VDC (or AC peak) for the user-defined OFF de-bounce period

- **ON**: If the voltage on the input has been above 6.0 VDC (or AC peak) for the user-defined ON de-bounce period

- **TOGGLING**: If the voltage changes state four or more times within the user-defined toggle period

Detailed descriptions of Digital Inputs are listed in Table 3-1. Detailed descriptions of MTSS and GFT status codes are listed in Table 3-8.

Press the down and up arrows to scroll through the display status for each of the 12 discrete inputs. Discrete inputs are listed by their wire tags. After selecting the desired input, the display shows the state of the input by its state name. For example, if the first discrete input was a crossing relay with a wire tag of "XR", and an OFF name of "DOWN" (refer to paragraph 3.10.3 and Figure 3-24 for setting up discrete inputs) it would look the following way on the display:

```
          1:XR1
DOWN
```

If the input is an MTSS input, it shows the following: U=0 D=1 T=1 A=0 P=0 and a GFT input shows HL=B MD=T B1=0 B2=0. Detailed descriptions of MTSS and GFT status codes are listed in Table 3-8.

When done press the EXIT key to return to the Discrete Inputs menu selection.

3.11.1.2.2   Batteries

Use this menu selection to view the status of the 3 battery inputs.

```
◄     MONITOR I/O     ►
```

Press ENTER

⇩

```
◄      BATTERIES      ►
```

Press ENTER

⇩
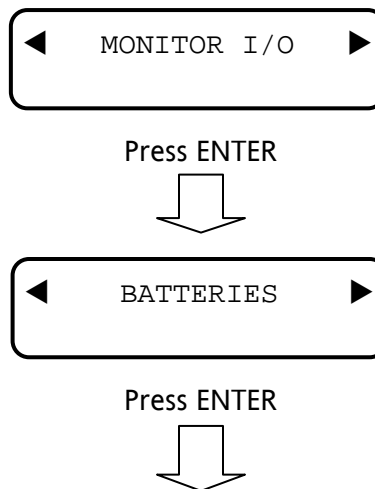
At the BATTERIES display, press the ENTER key. The voltages on all batteries will display, as shown.

```
      ALL BATTERIES
Ø.1 V    Ø.1 V     Ø.1 V
```

Press the down and up arrows to scroll through the list of batteries individually, where each battery will be displayed with its tag name and voltage, as shown below. Refer to paragraph 3.10.4 and Figure 3-26 for setting up battery inputs.

```
          1: GB
Ø.1 V
```

When done press the EXIT key to return to the Batteries menu selection.

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3.11.1.2.3 System Temperature

Use this menu selection to view the internal temperature of the Argus.

```
┌─────────────────────────────┐
│  ◄      MONITOR I/O      ►   │
└─────────────────────────────┘
```

Press ENTER

⬇

```
┌─────────────────────────────┐
│ ◄SYSTEM TEMPERATURE         │
└─────────────────────────────┘
```

Press ENTER

⬇

```
┌─────────────────────────────┐
│   SYSTEM TEMPERATURE        │
│        [ 84°F ]             │
└─────────────────────────────┘
```
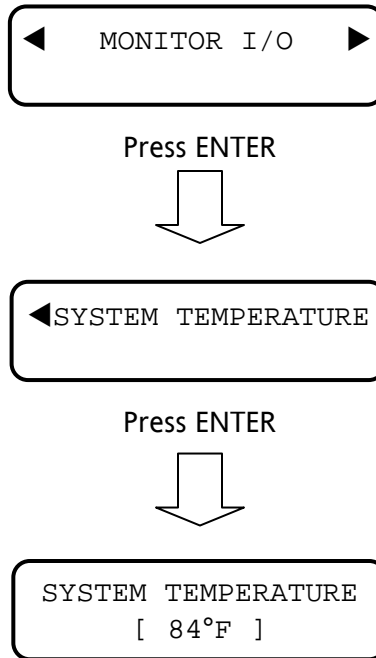
Press the left or right arrow keys to toggle between degrees Fahrenheit and degrees Celsius.

When done press the EXIT key to return to the System Temperature menu selection.

3.11.2   Module Comm Status

3.11.2.1   <u>Terminal Screens</u>

Use this menu selection to view the communication status of modules connected to the Echelon LAN.

Refer to Figure 3-62. On the Terminal Main Menu select the Monitor I/O function, and then the Module Comm Status option from the sub-menu. You will then be presented with a screen showing module names, types and communication status for 16 possible modules connected to the Echelon LAN.

When done, press the Esc (ESCAPE) key to return to the Monitor I/O sub-menu.
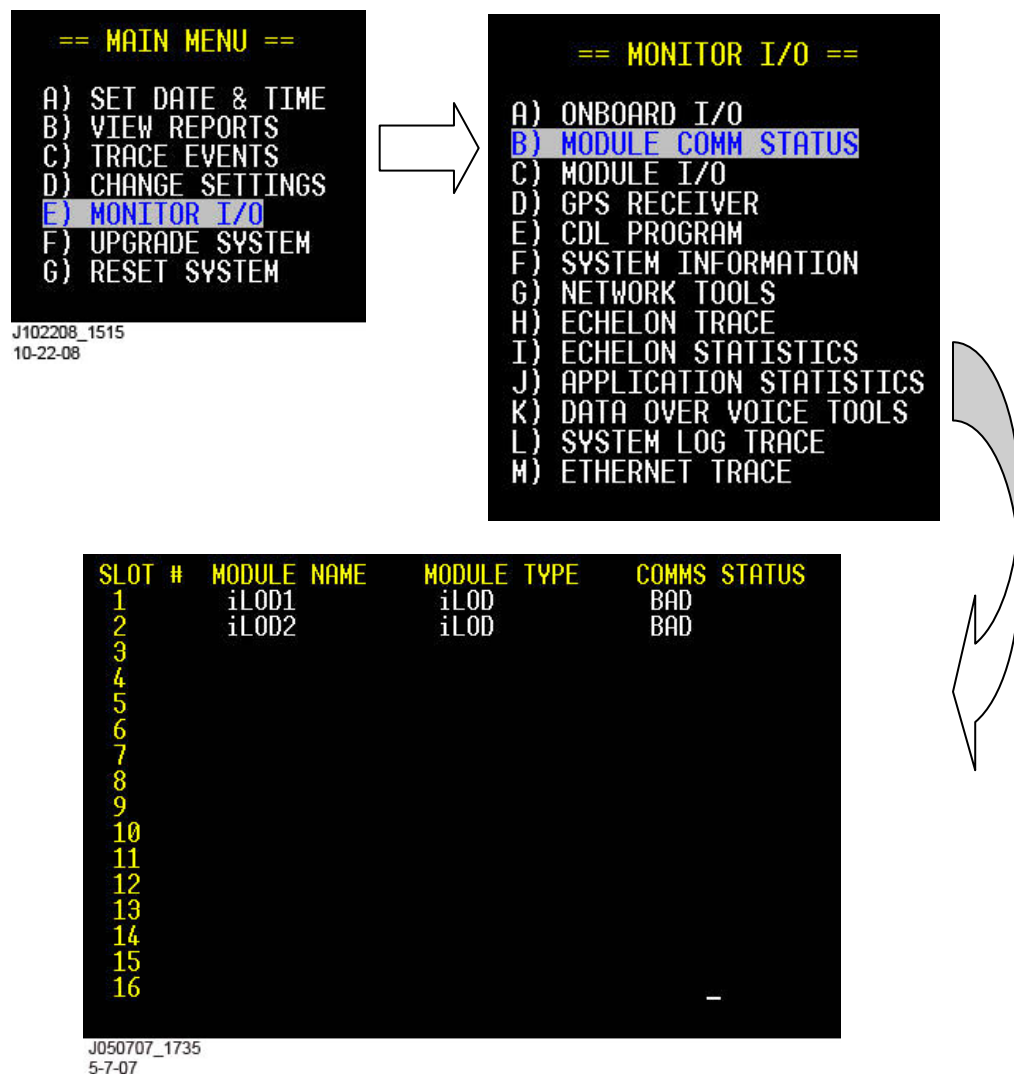
Figure 3-62. [Terminal] Module Comm Status Screens

3.11.3 Module I/O

3.11.3.1 Terminal Screens

Use this menu selection to view the I/O status of modules connected to the Echelon LAN.

Refer to Figure 3-63. On the Terminal Main Menu select the Monitor I/O function, and then the Module I/O option from the sub-menu. You will then be presented with a screen showing modules connected to the Echelon LAN.

Highlight the module you wish to interrogate and press ENTER. A new screen will appear showing status details for the corresponding module.

When done, press the Esc (ESCAPE) key to return to the previous menu.
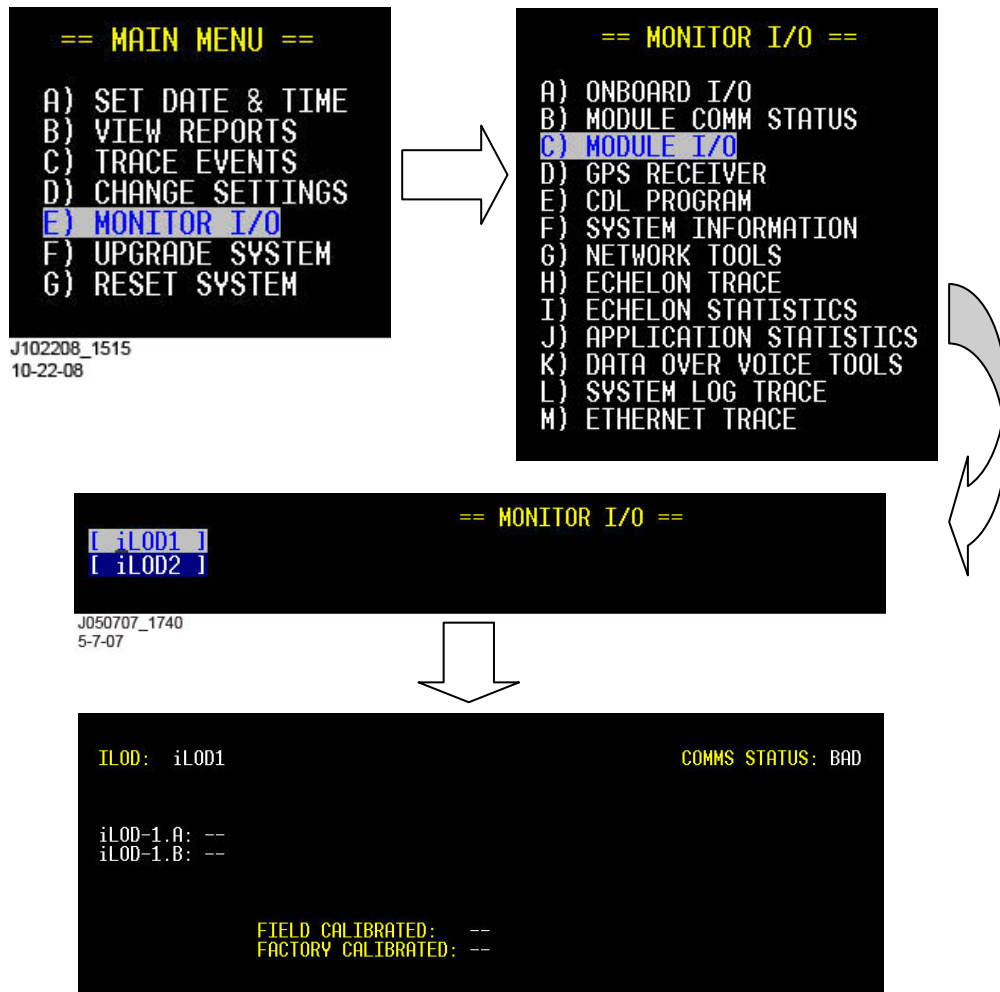
Figure 3-63. [Terminal] Module I/O Screens

3.11.3.2 **Front Panel Display**

Use this menu selection to view the status of any installed Echelon modules.

```
◄      MONITOR I/O      ►
```

Press ENTER

```
◄      MODULE I/O      ►
```
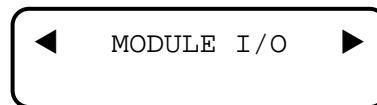
Press ENTER

At the MODULE I/O display, press the ENTER key. The first installed module will display. Press the right and left arrows to scroll through other installed modules, if any.

```
        iLOD1         ►
```
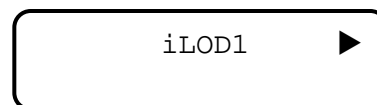
Press ENTER

At the selected module, press the ENTER key to display the module status.

```
iLOD1: iLOD-1.A
              COMM BAD
```
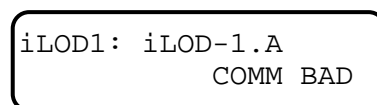
When done press the EXIT key to return to the Module I/O menu selection.

3.11.4   GPS Receiver

Use this menu selection to view the GPS receiver status and settings (-04/-05/-06 models only).

3.11.4.1   Terminal Screens

On the Terminal Main Menu select the Monitor I/O function, and then the GPS Receiver option from the sub-menu. You will then be presented with a screen showing the operational status of the GPS Receiver, as well as the time, date and user configuration settings. Refer to paragraph 3.10.12.5.3 for GPS configuration settings. Refer to following paragraph 3.11.4.3 for status details.

When done, press the Esc (ESCAPE) key to return to the previous menu.
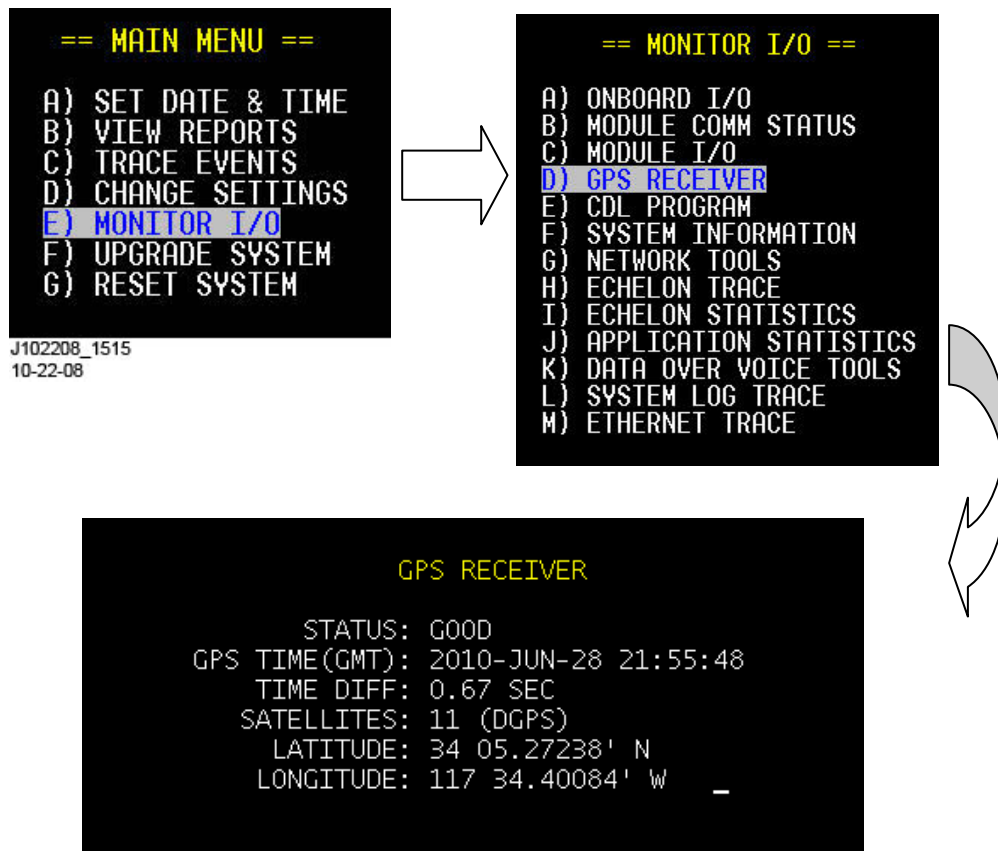
Figure 3-64. [Terminal] GPS Receiver Screens

3.11.4.2 Front Panel Display

On the front panel keypad, press the Menu key and then the right arrow key to step to the Monitor I/O option. Press the Enter key and then the right arrow key to step to the GPS Receiver option. Press Enter (or down arrow) to step through and view the GPS Receiver settings.

```
        ◄ MONITOR I/O ►


     ◄      GPS RECEIVER


      GPS RECEIVER STATUS
     GOOD


        GPS TIME (GMT)
     2010-JUN-28 21:55:48


       TIME DIFF FROM GPS
     0.67 SEC


     SATELLITES (QUALITY)
     11 (DGPS)


          LATITUDE
     34 05.27238' N


          LONGITUDE
     117 34.40084' W
```

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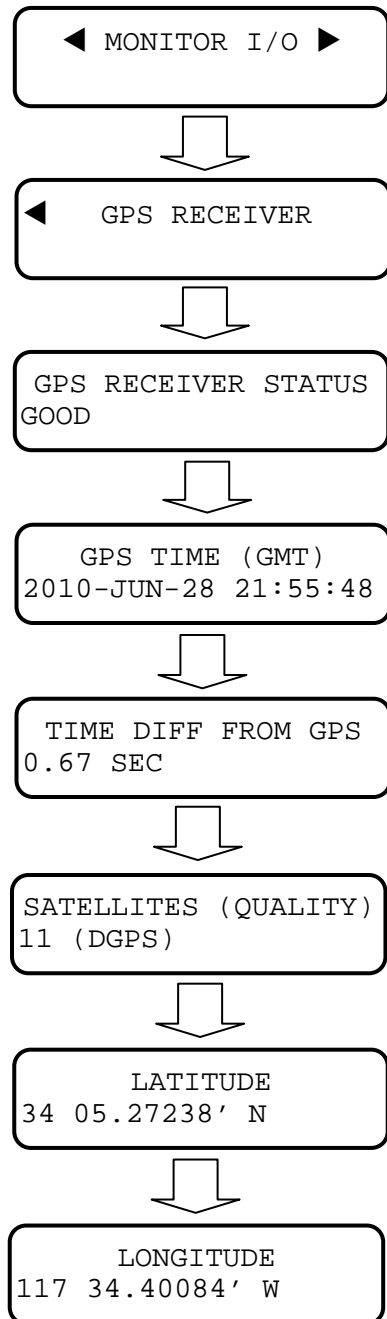
3.11.4.3 GPS Receiver Status

The GPS receiver status will be reported as one of the following:

GPS Receiver Status	Description
GOOD	The Argus detected an installed GPS receiver card, the Argus is receiving the stream of NMEA data from the card, and the number of satellites in view is greater than or equal to the "Minimum Satellites" setting. When the GPS Receiver Status is GOOD, the date/time and location information can be trusted.
BAD – TOO FEW SATS	The Argus detected an installed GPS receiver card and the Argus is receiving the stream of NMEA data from the card. However, the number of satellites in view is less than the "Minimum Satellites" setting. In this state, the date/time and location information cannot be trusted.
BAD – NO DATA	The Argus detected an installed GPS receiver card but it is NOT receiving the stream of NMEA data from the card.
NO RECEIVER DETECTED	The Argus did not detect an installed GPS receiver card.

3.11.5   CDL Program

This menu option is primarily used by Siemens Rail Automation Applications Engineering for troubleshooting purposes.

3.11.5.1   Terminal Screens
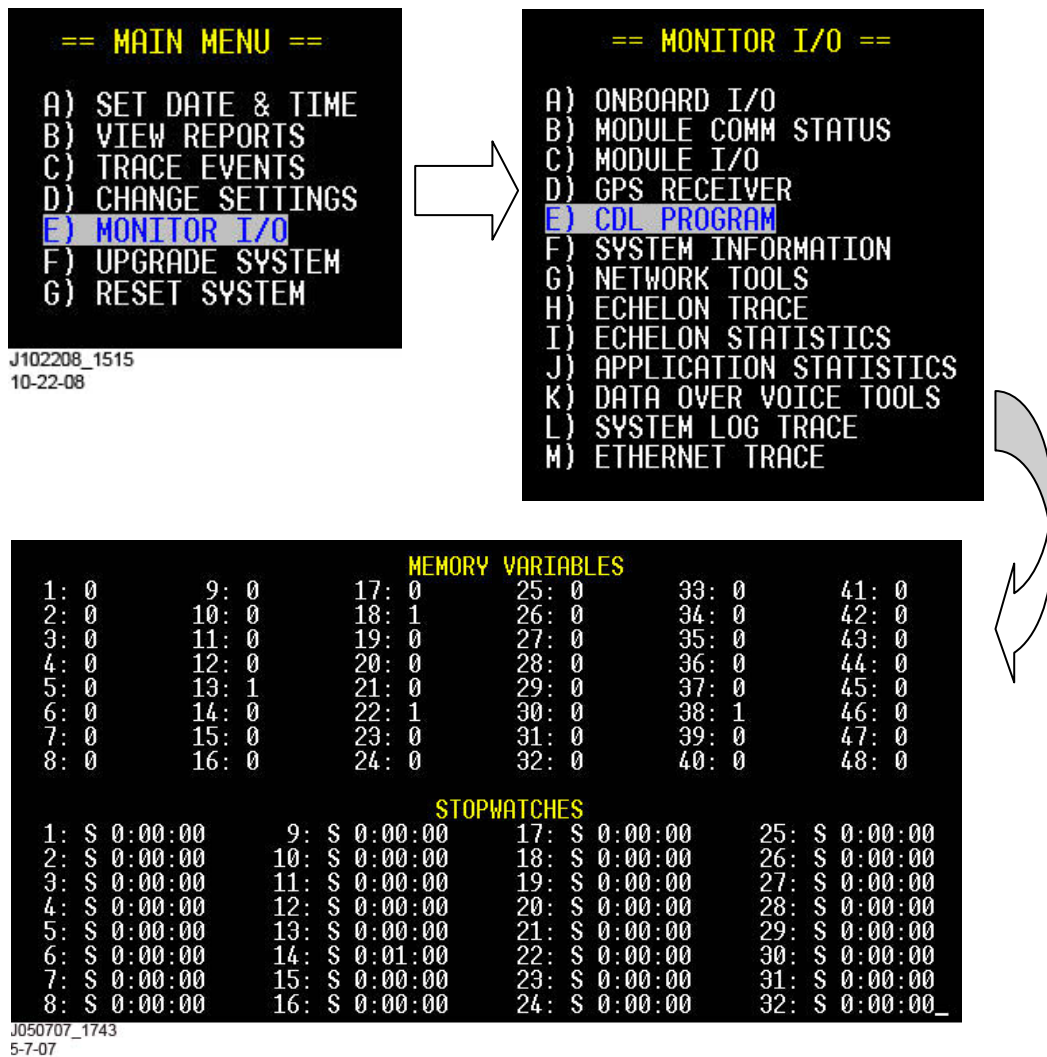
Figure 3-65. [Terminal] CDL Program Screens

3.11.6   System Information

This menu option is primarily used by Siemens Rail Automation Applications Engineering for troubleshooting purposes.

3.11.6.1   Terminal Screens
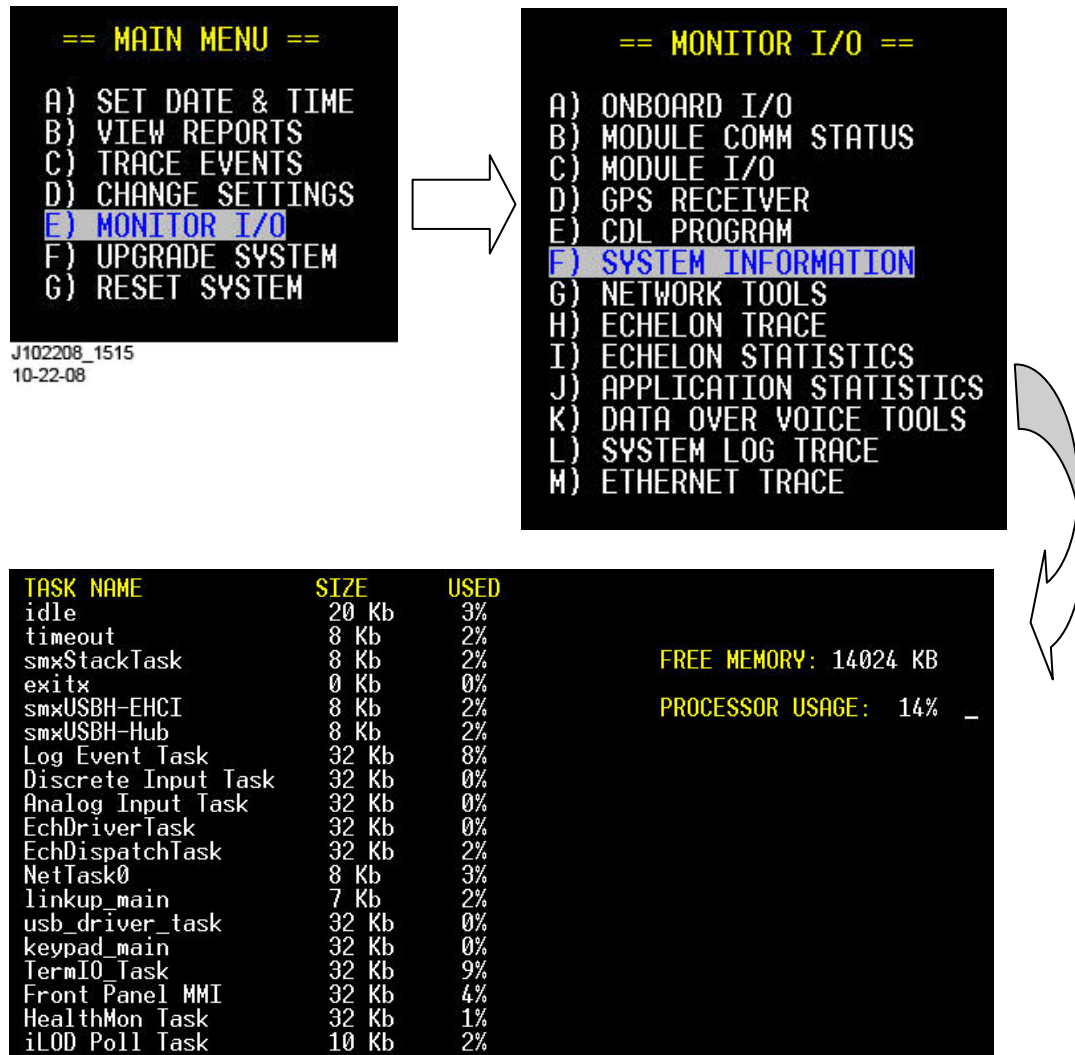
Figure 3-66. [Terminal] System Information Screens

3.11.6.2 <u>Front Panel Display</u>

The System Info menu is used for troubleshooting. For example, if a particular task is monopolizing the processor or if memory is being used faster than it is being freed, then reference the information listed in the System Info menu.

```
        ◄   SYSTEM INFO    ►

                 ▼

        HOURS OF OPERATION ►

                 ▼

        ◄   STACK USAGE    ►

                 ▼

        ◄ PROCESSOR USAGE  ►

                 ▼

        ◄   MEMORY USAGE
```
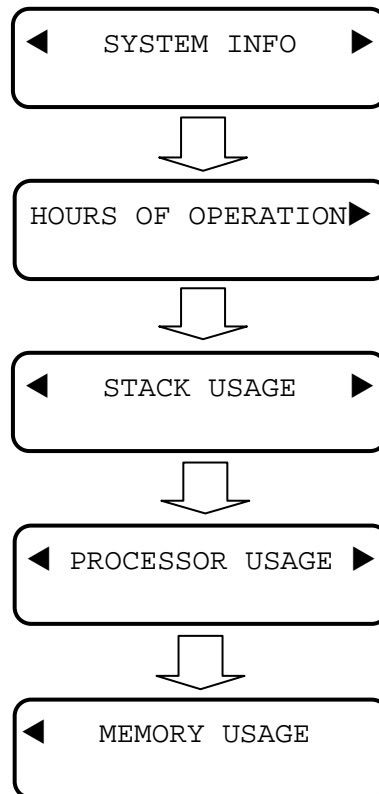
Note that pressing the down arrow in the Stack Usage menu provides numerous information screens, such as the percentage of stack usage, stack size, and free memory available. This information may be of use to Siemens Rail Automation personnel when troubleshooting a problem.

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3.11.7 Network Tools

This menu option is primarily used by Siemens Rail Automation Applications Engineering for troubleshooting purposes.

3.11.7.1 <u>Terminal Screens</u>
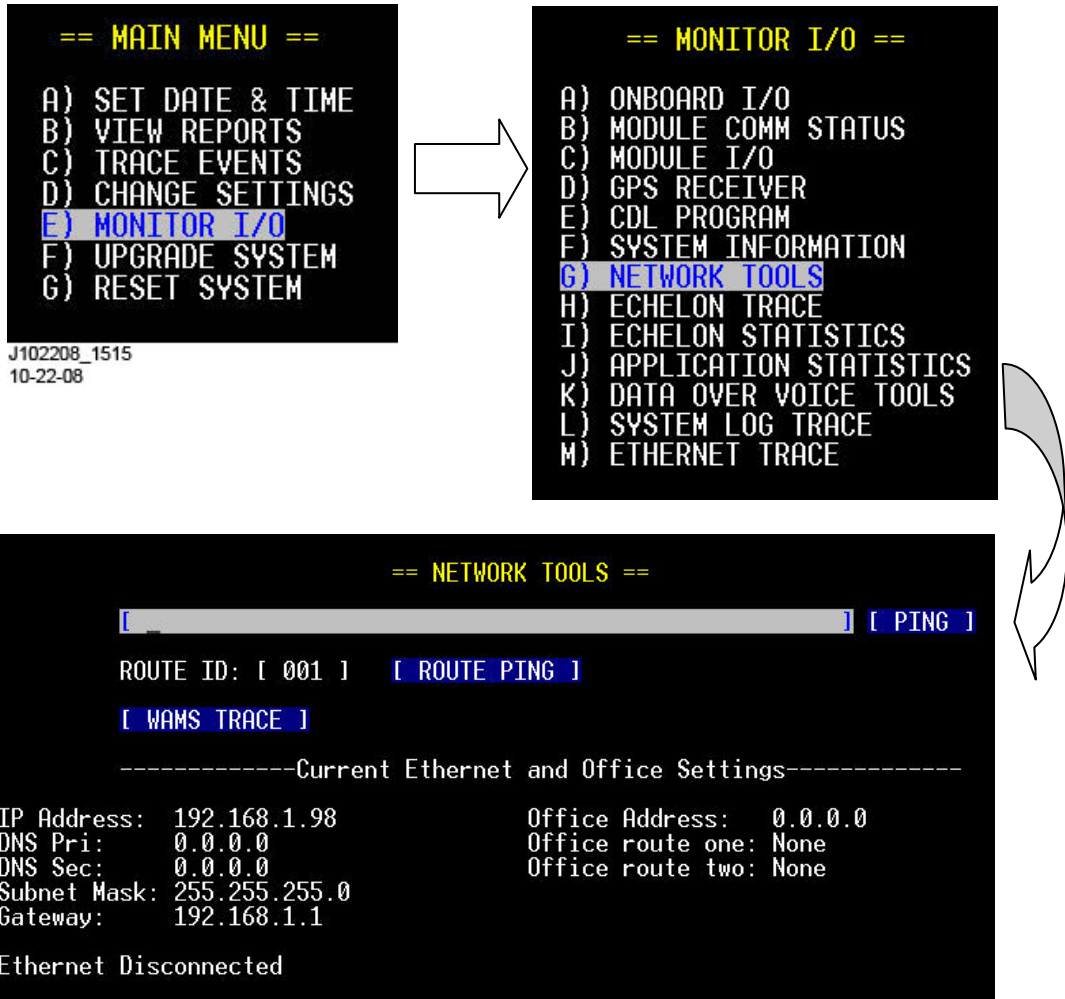
Figure 3-67. [Terminal] Network Tools Screens

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3.11.8   Echelon Trace

The Echelon Trace screen is used to troubleshoot Echelon communication. As messages are sent or received, they are printed on this screen. Messages exchanged with iLOD's or other equipment would appear on this screen, as they are sent or received.

3.11.8.1   Terminal Screens

To view the trace data on screen, press any key to start tracing, and press Esc (ESCAPE) to stop. To save trace data to the computer, the Terminal Emulation program (e.g. HyperTerminal) must have text capturing enabled. If necessary, refer to your computer software user guide or Help system for assistance on enabling text capturing.
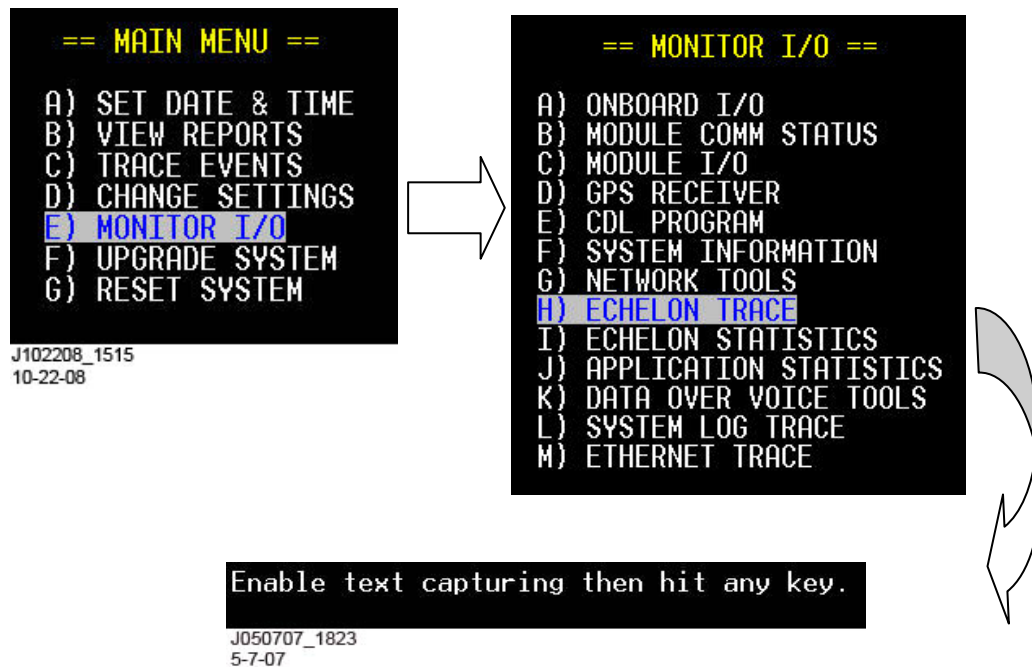
Figure 3-68. [Terminal] Echelon Trace Screens

3.11.9   Echelon Statistics

The Echelon Statistics screen shows a count of the number of messages sent and received over the Echelon network. It also shows counts for errors and resets of the Echelon interface. This information can be helpful when troubleshooting Echelon problems. For example, the "TX FAILED COUNT" would be excessively high if the Echelon network were noisy. The "RESET COUNT" might be high if the Argus unit had a hardware problem related to the Echelon interface.

3.11.9.1   Terminal Screens
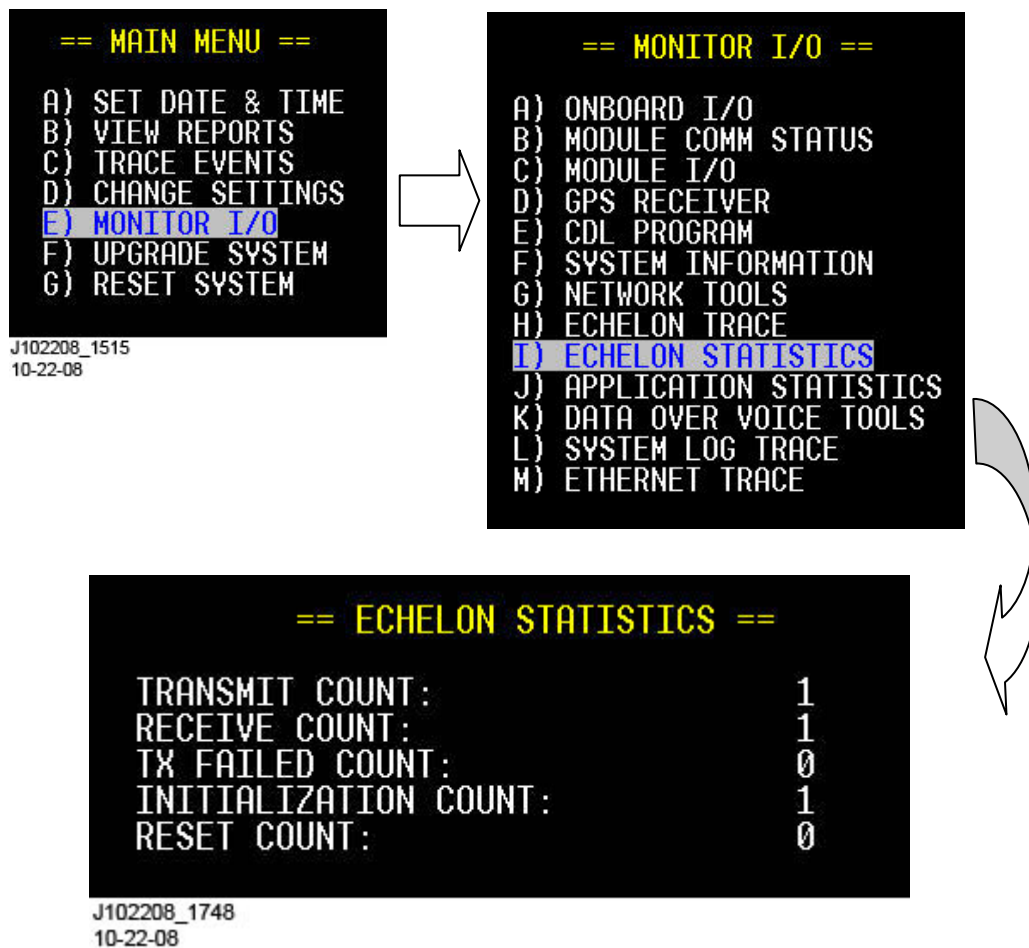
Figure 3-69. [Terminal] Echelon Statistics Screens

3.11.10 Application Statistics

The Application Statistics are used by an application engineer to evaluate the performance of the application program. The execution time of one main loop of the application program is timed. The minimum time, maximum time, and average time are displayed in milliseconds.

3.11.10.1 Terminal Screens
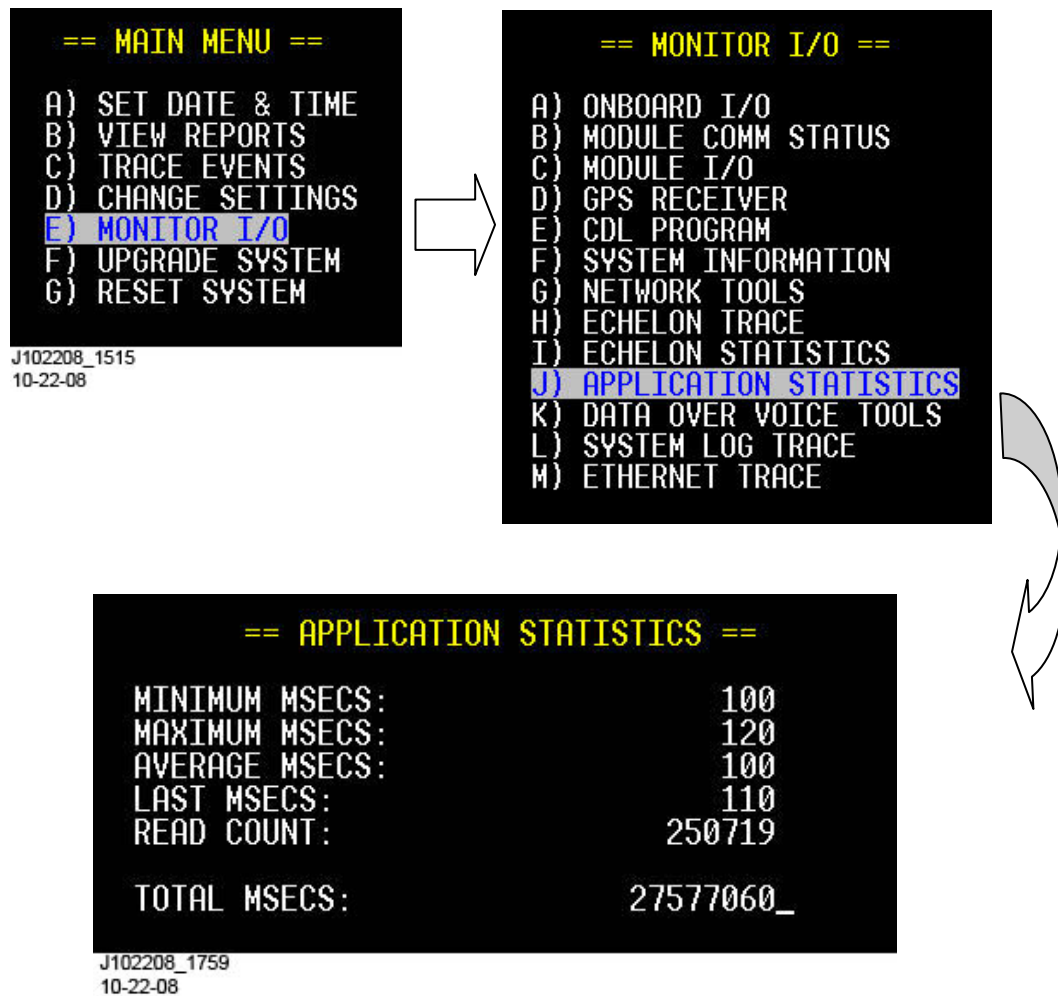
Figure 3-70. [Terminal] Application Statistics Screens

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3.11.11 Data Over Voice Tools

The Data Over Voice Tools screen provides troubleshooting aids for an Argus using the Data Over Voice communication system (see the Data Over Voice system overview manual, COM-00-07-10). From this screen, you can send test data packets on the VHF Communicator, send DTMF tones, and command the VHF Communicator to speak. You can trace message activity between the Argus and the VHF Communicator. You can trigger the Argus to send alarm messages, health messages, and test messages to WAMS using the Data Over Voice VHF network. You can also trace the Data Over Voice VHF protocol from this screen.

3.11.11.1 Terminal Screens
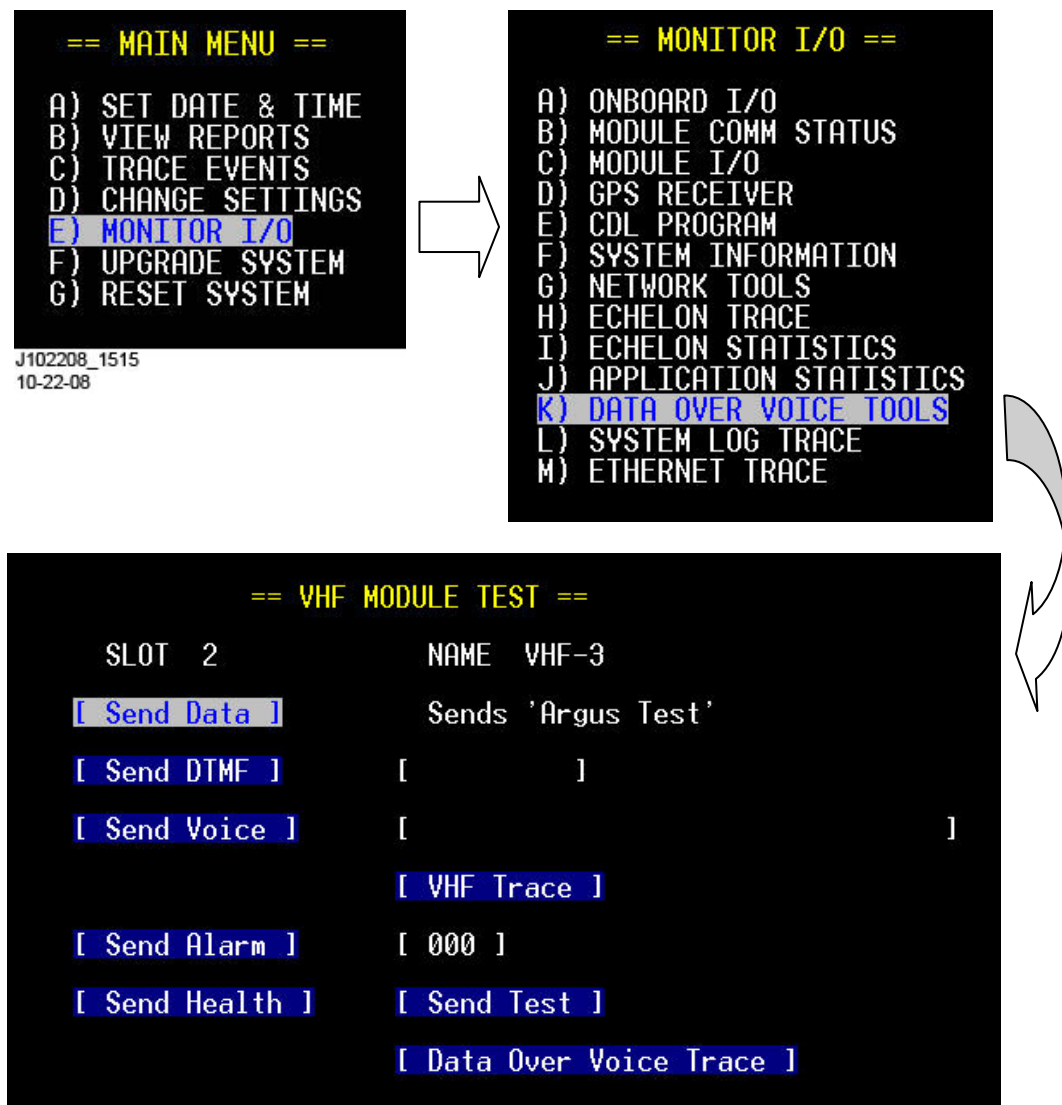
Figure 3-71. [Terminal] Data Over Voice Tools Screens

3.11.11.2 Front Panel Display

On the front panel keypad, press the Menu key and then the right arrow key to step to the Monitor I/O option. Press the Enter key and then the right arrow key to step to the Data Ov Voice Msgs option. Press Enter (or down arrow) to step through and view the message options.

Use the right or left arrow keys to toggle NO/YES, or enter an alarm number.

```
    ◄     MONITOR I/O     ►

◄DATA OV VOICE MSGS►

  DATA OV VOICE MSGS
SEND TEST MSG:   NO►

  DATA OV VOICE MSGS
SEND ALARM MSG: [0 ]

  DATA OV VOICE MSGS
SEND HLTH MSG:   NO►
```
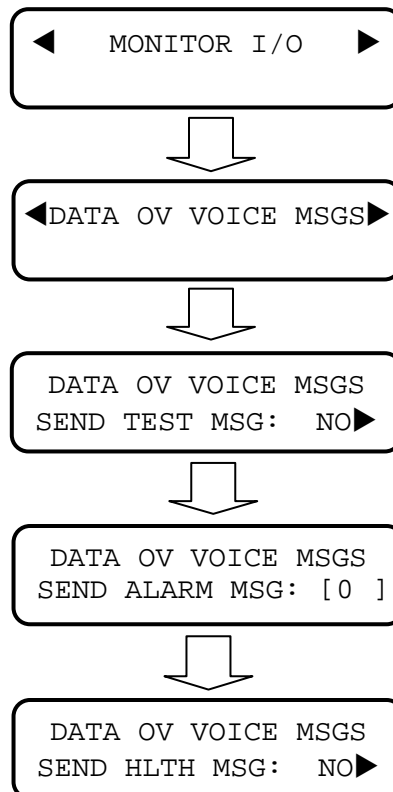
3.11.12   System Log Trace

The System Log Trace displays System Log entries on the screen as they are added to the System Log in real-time This screen is useful when troubleshooting the internal operation of the Argus. The entries appear on the screen as they occur, rather than going back through the log later to see what happened.

3.11.12.1 Terminal Screens
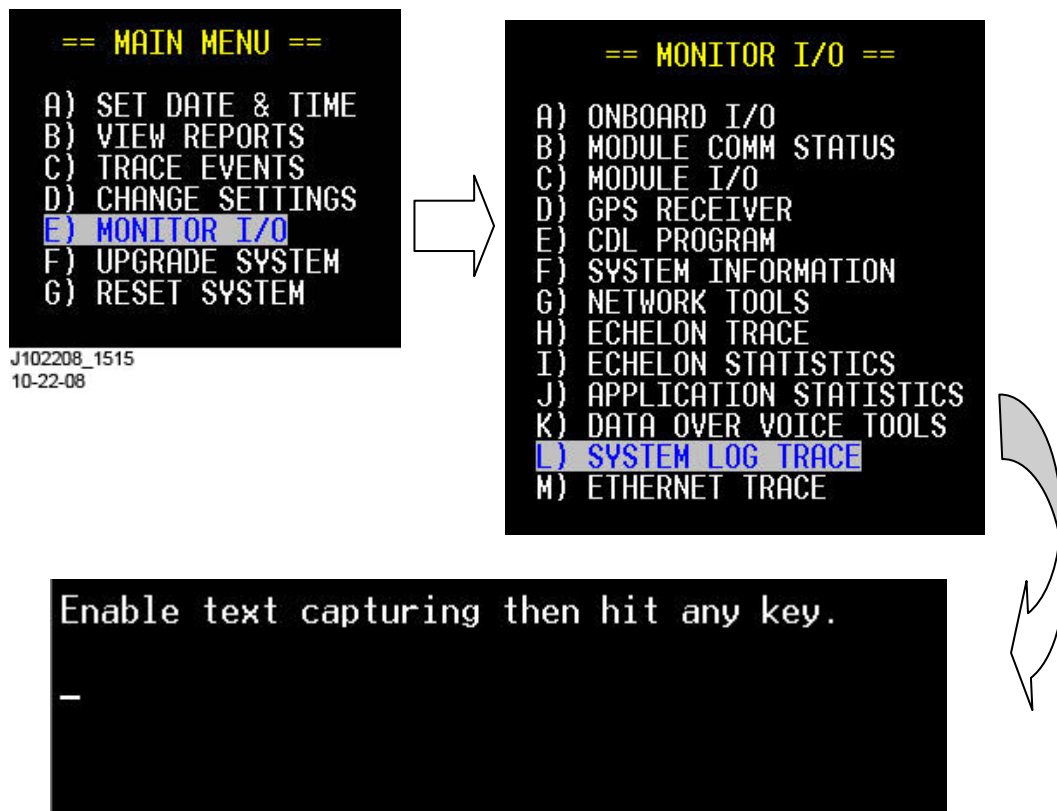
Figure 3-72. [Terminal] System Log Trace Screens

3.11.13   Ethernet Trace

The Ethernet Trace screen allows you to view message traffic on the Ethernet port of the Argus unit. It can be helpful when troubleshooting problems with IP network communication.

3.11.13.1 <u>Terminal Screens</u>

```
== MAIN MENU ==

A) SET DATE & TIME
B) VIEW REPORTS
C) TRACE EVENTS
D) CHANGE SETTINGS
E) MONITOR I/O
F) UPGRADE SYSTEM
G) RESET SYSTEM

J102208_1515
10-22-08
```

```
== MONITOR I/O ==

A) ONBOARD I/O
B) MODULE COMM STATUS
C) MODULE I/O
D) GPS RECEIVER
E) CDL PROGRAM
F) SYSTEM INFORMATION
G) NETWORK TOOLS
H) ECHELON TRACE
I) ECHELON STATISTICS
J) APPLICATION STATISTICS
K) DATA OVER VOICE TOOLS
L) SYSTEM LOG TRACE
M) ETHERNET TRACE
```

```
Enable text capturing then hit any key.

_
```

Figure 3-73. [Terminal] Ethernet Trace Screens

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3.12 USB PORT

3.12.1   Front Panel Operation

Downloading and uploading files and reports to/from the Argus is made easy through the use of the USB port on the front panel. The USB action prompts can be accessed by simply inserting a flash drive (often called a USB stick) into the USB port.

NOTE

NOTE	**NOTE** After thorough performance testing, Siemens Rail Automation recommends the use of a 512 MB USB flash drive manufactured by SimpleTech, model STI-UFD/512. This drive can be ordered from Siemens Rail Automation under the part number Z927-00270-0000.

At the USB action prompt, use the right and left arrows to scroll through its available options. Press ENTER to select the option. You can also use the up and down arrows to navigate through the list of action prompts.

For each USB action prompt, select:

- **Yes** to download/upload a report or file. At completion of the download/upload, the next action prompt will be displayed.

- **No** to go to the next action prompt. Additionally, you can use the up & down arrows to traverse through all the USB action prompts.

NOTE	**NOTE** If you press ENTER to select an action and a flash drive is not installed in the USB port, you will not see a YES/NO prompt to complete the action. Instead you will be returned to the USB main menu.

There are three colored USB Status LEDs located above the USB connector. The LED colors indicate the status of the USB connection/process, as listed below.

- Red: Error
- Yellow: Transfer in progress
- Green: OK to remove flash drive

The following **reports** can be retrieved and saved to the USB flash drive:

- Full Event Report
- 24 Hour Event Report
- 2 Week Event Report
- Full Incident Report
- 24 Hour Incident Report
- 2 Week Incident Report
- Application Event Report
- Maintenance Event Report
- Configuration Report
- System Log Report
- Version Report

The following **files** can be uploaded/downloaded to/from the USB flash drive:

Copy **TO** USB drive from Argus (upload)

- Get Argus Configuration file
- Get Argus Executive
- Get Argus CDL (Application program)
- Get Argus CPLD

Copy **FROM** USB drive to Argus (download)

- Save New Argus Configuration file
- Save New Argus CDL (Application program)
- Save New Argus Executive
- Save New Argus CPLD

The following section lists all the action prompts in the order in which they are presented.

NOTE	
NOTE	For convenience, the USB stick may be erased (reformatted) using the FORMAT USB DEVICE menu selection. See following action prompts and CAUTION below.

CAUTION	
⚠ **CAUTION**	SELECTING YES AT THE FORMAT USB DEVICE ACTION WILL **ERASE** ALL CONTENTS ON THE FLASH DRIVE. ARGUS WILL PROMPT "ARE YOU SURE?" BEFORE FORMATTING THE FLASH DRIVE.

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3.12.2 USB Front Panel Action Prompts

The following list of action prompts is available to "copy from" or "save to" the Argus via the USB port. Selecting NO at the action prompt and pressing the keypad Enter or the down arrow key will go to the next action prompt. Selecting YES and pressing Enter or the down arrow will execute the action, then go to the next action prompt.

When the USB stick is first inserted the yellow LED begins flashing. After approximately 5 to 15 seconds the first action prompt will appear. The USB action prompts are presented in the following order:

1. GET FULL EVNT REPRT?

2. GET 24 HOUR EVT RPT?

3. GET 2 WEEK EVT RPT?

4. GET FULL INC REPRT?

5. GET 24 HOUR INC RPT?

6. GET 2 WEEK INC RPT?

7. GET APPL. EVENT RPT?

8. GET MAINT. EVNT RPT?

9. GET CONFIG REPORT?

10. GET SYSLOG REPORT?

11. GET VERSION REPORT?

12. GET CONFG FROM ARGUS

13. GET EXEC FROM ARGUS?

14. GET CDL FROM ARGUS?

15. GET CPLD FROM ARGUS?

16. SAVE CONFG TO ARGUS?

17. SAVE CDL TO ARGUS?

18. SAVE EXEC TO ARGUS?

19. SAVE CPLD TO ARGUS?

20. FORMAT USB DEVICE?

21. EXIT USB MENU? (YES exits to top level display, NO restarts at # 1 action prompt)

3.12.3   USB File System Structure

Figure 3-74 shows the file system structure for data storage on the USB flash drive (stick).
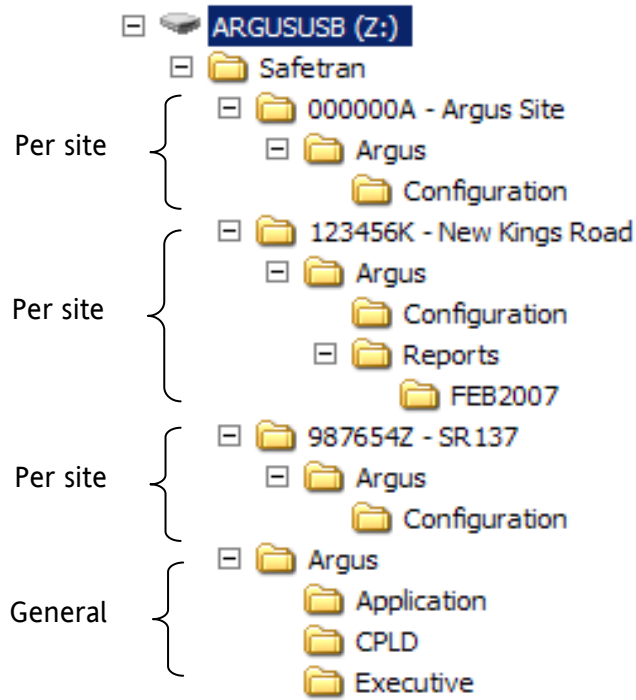
Figure 3-74. USB Flash Drive File System Structure Screen

The subfolders under the ARGUS folder contain:
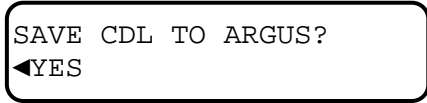
- Unique (per site) data
- Folder for the application program for all sites
- Folder for the Argus executive used for all sites
- Folder for the Argus CPLD firmware for all sites

The unique site folders are named with the D.O.T. number of the site plus the site name. When creating the folder, Argus will replace any slashes, dots, etc. in the site name with spaces. Also, the SAFETRAN directory may be used by other Safetran devices such as the GCP4000 or GEO.

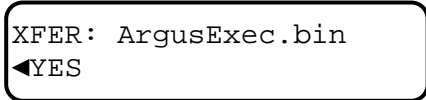### 3.12.4 Front Panel – Updating Application Software Using The USB Stick.
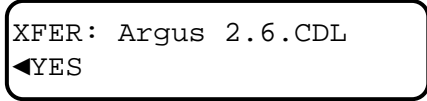
To update the application software in the Argus unit using the USB, follow these instructions.

1. Using your PC, place the CDL file (application program) into the correct directory on the USB stick. The directory is \Safetran\Argus\Application for the CDL file. If that directory does not exist on your USB stick, you will need to create it with the correct spelling. The Argus will look in this directory for application program software when you insert the USB stick.

2. Insert the USB stick into the Argus USB port. The first USB action prompt will automatically pop up on the front panel display.

3. Press the down arrow key or the ENTER key until you are prompted for "SAVE CDL TO ARGUS?" Use the right arrow key to select YES and press ENTER.

```
SAVE CDL TO ARGUS?
◄YES
```

4. You will be prompted with a menu that asks you if that is the correct file to transfer. If the file name shown is correct, use the right arrow key to select "YES" and press ENTER.

```
XFER: Argus 2.6.CDL
◄YES
```

Example display
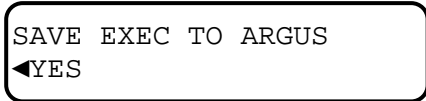
5. You will see "COPY FILE TO MEMORY" and a transfer progress bar as the file is copied from the stick to the unit. Then, you'll see "SAVING FILE TO ARGUS" as the file is stored into the internal flash memory.

6. When complete, remove the USB stick.

After upgrading the application software, the Argus will beep every 10 seconds and ask you to perform site setup. See paragraph 3.5 for the site setup procedure.

3.12.5   Front Panel – Updating Executive Software Using The USB Stick.

To update the execute software in the Argus unit using the USB, follow these instructions.

1. Using your PC, place the executive file (has .BIN filename extension) into the correct directory on the USB stick. The directory is `\Safetran\Argus\Executive` for the BIN file. If that directory does not exist on your USB stick, you will need to create it with the correct spelling. The Argus will look in this directory for executive program software when you insert the USB stick.

2. Insert the USB stick into the Argus USB port. The first USB action prompt will automatically pop up on the front panel display.

3. Press the down arrow key or the ENTER key until you are prompted for "SAVE EXEC TO ARGUS?" Use the right arrow key to select YES and press ENTER.

```
SAVE EXEC TO ARGUS
◄YES
```

4. You will be prompted with a menu that asks you if that is the correct file to transfer. If the file name shown is correct, use the right arrow key to select "YES" and press ENTER. Otherwise, select NO and press enter until the file you are looking for is shown.

```
XFER: ArgusExec.bin
◄YES
```

Example display

5. When the transfer begins you will see "COPY FILE TO MEMORY" and a transfer progress bar as the file is copied from the stick to the unit. Then, you'll see "SAVING FILE TO ARGUS" as the file is stored into the internal flash memory.

6. When the unit prompts: "Remove USB device then I will restart", remove the USB stick.

7. The unit will come up running the new executive software.

3.12.6   Report File Name Formats

All reports will be stored in the REPORTS folder under the unique site folder. Table 3-9 shows the format conventions for the report file names.

Table 3-9. Report File Name Formats

REPORT TYPE	FILE NAME FORMAT	EXAMPLE
Event	EVT-<DOT>-<date>.TXT	EVT-714356W-2006OCT25.TXT
Config	CFG-<DOT>-<date>.TXT	CFG-714356W-2006NOV24.TXT
Version	VER-<DOT>-<date>.TXT	VER-714356W-2006NOV24.TXT
Application	APP-<DOT>-<date>.TXT	APP-714356W-2006NOV24.TXT
System	SYS-<DOT>-<date>.TXT	SYS-714356W-2006NOV24.TXT
Reset	RST-<DOT>-<date>.TXT	RST-714356W-2006NOV24.TXT
Incident	INC-<DOT>-<date>.ENC	INC-714356W-2006NOV24.ENC
Maintenance	MNT-<DOT>-<date>.TXT	MNT-714356W-2006NOV24.TXT

Every report file name begins with the D.O.T. number of the site. The D.O.T. number is always six digits followed by a letter or digit (e.g., 123456A). Dates are always stored with the four-digit year, followed by the three-letter month, and the two-digit day.

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3.13 UPGRADE SYSTEM

Selecting this option allows you to transfer new Executive software to the unit using the Zmodem transfer protocol. Because this screen can be accessed over Telnet, it allows you to upgrade Executive software remotely.

	NOTE
NOTE	Refer to your computer/software owner's manual for details on terminal emulation, Telnet and the Zmodem protocol.

Before starting the upgrade process, the Argus will ask for confirmation with the "Are You Sure?" prompt. Select Yes and press ENTER to upgrade the system.

3.13.1 Terminal Screens
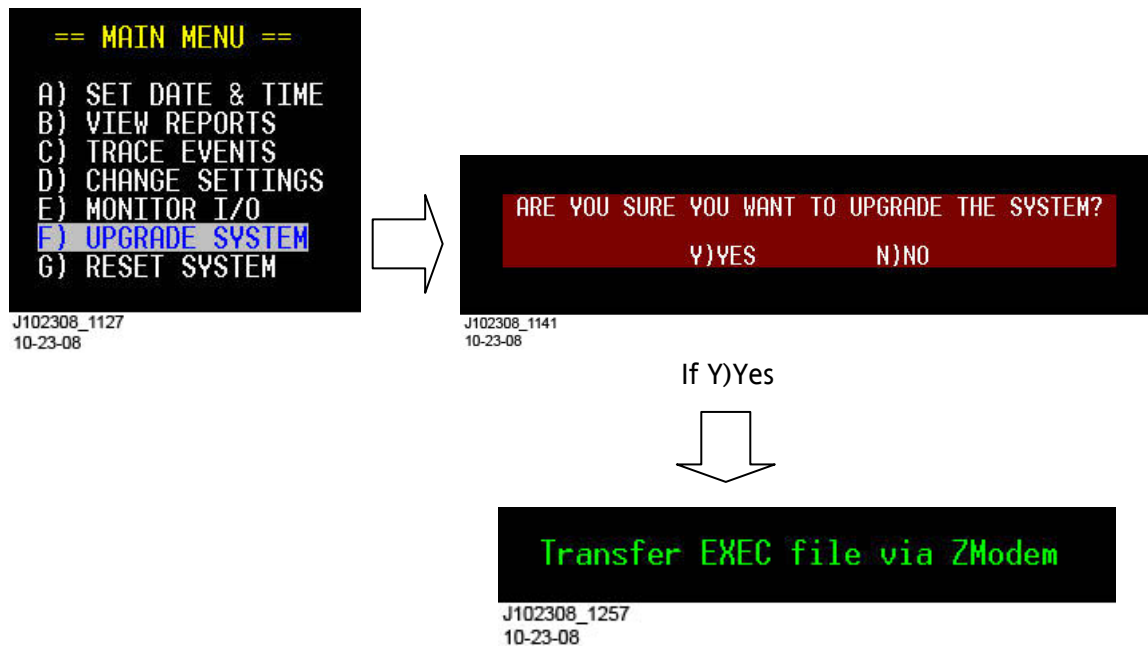
Figure 3-75. [Terminal] Upgrade System Screens

3.14   SYSTEM RESET

Selecting this option will reboot the Argus. Before rebooting, the Argus will ask for confirmation with the "Are You Sure?" prompt. Select Yes and press ENTER to reset the system.

3.14.1   Terminal Screens

Figure 3-76. [Terminal] Reset System Screens

3.14.2   Front Panel Display
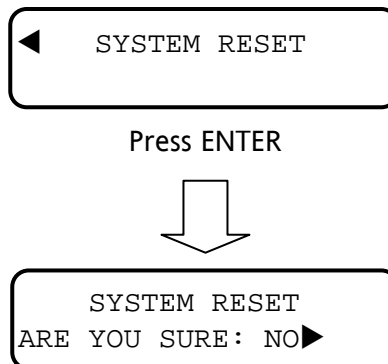
Figure 3-77. [Front Panel] System Reset Sequence

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3.15 EVIDENCE MODE LOCK

Evidence Mode Lock is only available from the Argus front panel. Evidence Mode Lock should only be selected if there is an incident on the rail line and management determines that the Event Log contained within the Argus should be locked to guarantee that the evidence contained within cannot be erased or altered.

Evidence Mode Lock is engaged by pressing the keypad Menu key, and then using the right arrow to step to the last option "<EVIDENCE MODE LOCK". Press Enter to select this option. The keypad screen then prompts the operator "ARE YOU SURE: NO>". Changing the response to <YES and pressing Enter will prompt the user for the password (case sensitive). If the password is entered correctly, Evidence Mode Lock will engage.

⚠ CAUTION	**CAUTION** ONCE THE ARGUS IS PLACED INTO EVIDENCE MODE LOCK, THE LOCK CANNOT BE REMOVED AND THE UNIT CANNOT BE PLACED BACK INTO REGULAR SERVICE UNTIL THE UNIT IS RETURNED TO SIEMENS RAIL AUTOMATION FOR REACTIVATION.

3.15.1   Front Panel Display

```
◄EVIDENCE MODE LOCK
```

Press ENTER

⬇

```
◄EVIDENCE MODE LOCK
 ARE YOU SURE: NO▶
```

Change to ◄**YES** and press ENTER

⬇

```
ENTER THE PASSWORD
  [          ]
```
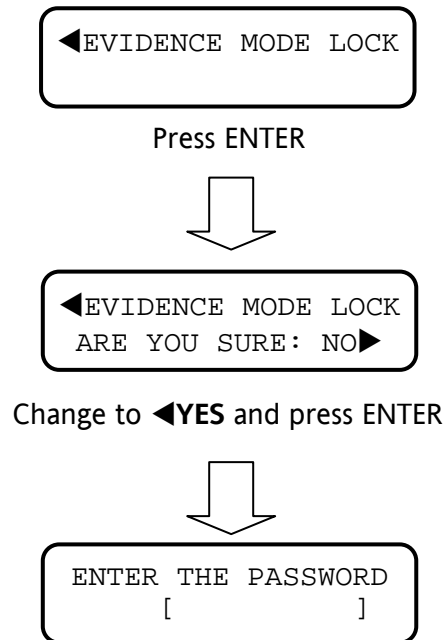
Figure 3-78. [Front Panel] Evidence Mode Lock Sequence

3.16   UPDATING EXECUTIVE SOFTWARE USING THE TERMINAL

Upgrading the Executive software can be performed from the Terminal Boot Monitor, the Upgrade System option on the main menu, or via the insertion of a USB stick containing an Executive file. Downloading a new Executive from the Boot Monitor must be started <u>within 10 seconds</u> after the "SELECT BOOT OPTION" prompt is displayed, as shown in Figure 3-79. If using the Upgrade System option from the main menu (as described above), when the message "Transfer exec file via Zmodem" is displayed the process is the same from the following step 5 on.

Figure 3-79. [Terminal] Boot Monitor Choice Prompt

To download Executive software from a PC or Laptop:

1. Know beforehand the location (file path) of the new Executive file as there will only be one minute to locate and select it. The Executive file can be downloaded from any device; i.e., hard drive, floppy disk, CD, or network/Internet connected to the PC.

2. Ensure the terminal emulator is running with an active connection to the Argus.

3. Restart/power-up the Argus.

4. At the "SELECT BOOT OPTION" prompt, press **A** within 10 seconds. Terminal screen displays:

    Awaiting Download...

5. Using the terminal emulator `Transfer` command, there will be 60 seconds to locate and begin SENDING the new Executive binary file using the Zmodem protocol. (Depending on the terminal emulation software that is in use, this process may be slightly different). After the Executive is downloaded, it will be burned into the Argus FLASH memory.

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6. When the Boot Monitor resumes, the 10 second delay will again start. If desired, selecting "RUN EXECUTIVE" will shortcut the delay. The new Executive will be launched.
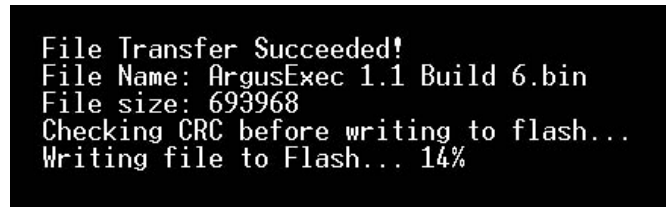
Following is a typical screen display sequence if the upgrade is successful:
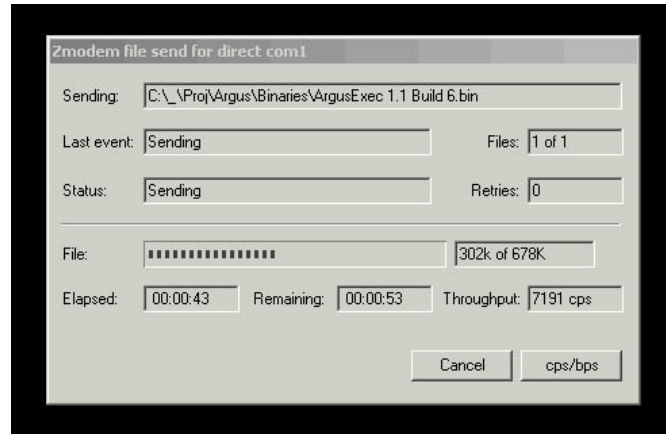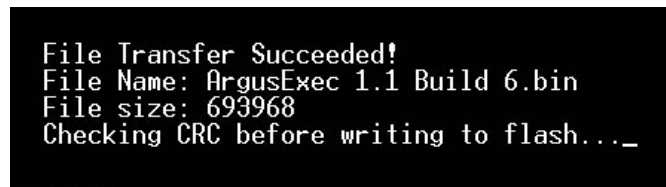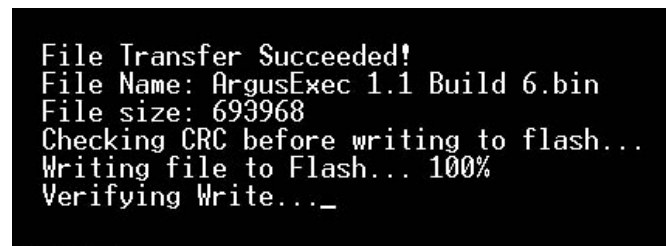

Figure 3-80. [Terminal] Executive Update File Transfer Screens

3.17 INSTALLING ARGUS BOOT CODE USING THE TERMINAL

Installing/upgrading the Argus boot code can be performed from the Terminal Boot Monitor. This process is basically the same as updating Executive software from the terminal (see above paragraph 3.16) with the exception of the following step 7. Downloading boot code from the Boot Monitor must be started within 10 seconds after the "SELECT BOOT OPTION" prompt is displayed, as shown in Figure 3-79.

To download Argus Boot Code software from a PC or Laptop:

1. Know beforehand the location (file path) of the new Boot Code file as there will only be one minute to locate and select it. The Bode Code file can be downloaded from any device; i.e., hard drive, floppy disk, CD, or network/Internet connected to the PC.

2. Ensure the terminal emulator is running with an active connection to the Argus.

3. Restart/power-up the Argus.

4. At the "SELECT BOOT OPTION" prompt, press **E** within 10 seconds. Terminal screen displays:

    Awaiting Download...

5. Using the terminal emulator `Transfer` command, there will be 60 seconds to locate and begin SENDING the new Boot Code binary file using the Zmodem protocol. (Depending on the terminal emulation software that is in use, this process may be slightly different).

6. After the Boot Code is downloaded, you will see this screen:

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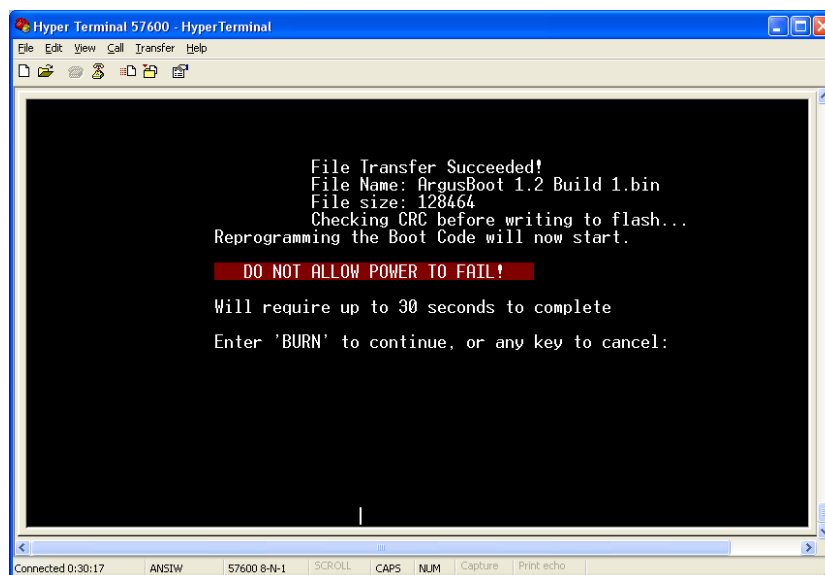
7. Type the word "BURN" in <u>all upper case letters</u> (case sensitive). After a short delay the following screen should be displayed:

1.

8. Allow the reprogramming process to complete without interruption.

9. Once the boot code process has finished the Argus will automatically reboot and return to the normal bootup screen as shown:

10. Verify the boot code version and CRC is correct.

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3.173.18 UPDATING CDL APPLICATION SOFTWARE USING THE TERMINAL

Upgrading the CDL Application software can be performed from the Terminal Boot Monitor or via the insertion of a USB stick containing a CDL file. Downloading a new CDL can be done during the boot process (similar to downloading a new Executive, as previously described), or by selecting the TRANSFER CDL FROM PC TO ARGUS option under the APPLICATION sub-menu in the CHANGE SETTINGS option on the main menu. The menu selection sequence is shown in Figure 3-81.
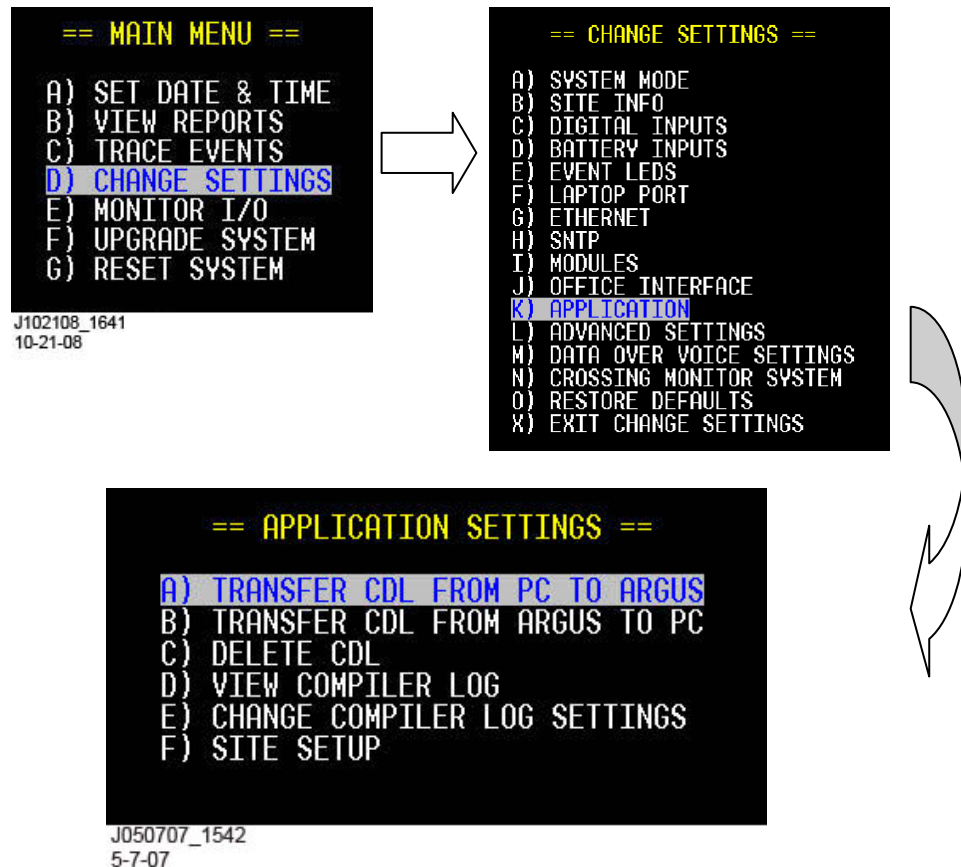

Figure 3-81. [Terminal] Application Settings Screens

Be sure to select the "Send File…" function from the HyperTerminal Transfer tab, then browse to the drive path and file name of the CDL you wish to transfer to Argus, then execute the transfer.

SECTION 4

MAINTENANCE & TROUBLESHOOTING

4.0   MAINTENANCE & TROUBLESHOOTING

4.1   BATTERY MAINTENANCE

Argus has no internal backup battery; therefore, no regular maintenance is required for backup battery operation and maintainability.

4.2   UPLOADING NEW SOFTWARE CHANGES

Occasionally, it may be necessary to load software changes/patches to upgrade the Argus. Following are ways to accomplish this.

- If connected to the serial port, use a terminal emulator (e.g., HyperTerminal) and the Zmodem protocol to transfer the new software (boot code, executive, and application program) to the unit. See paragraphs 3.16 and 3.17.

> **NOTE**
>
> **NOTE**
> Refer to your computer/software owner's manual for details on terminal emulation, Telnet and the Zmodem protocol.

- The new software can also be placed in a specific directory on a USB flash drive. If the software to be upgraded is not boot code, see paragraph 3.12.3 USB Port.

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4.3 TROUBLESHOOTING PROCEDURES

The following table shows some common troubleshooting procedures.

Table 4-1. Argus Troubleshooting Procedures

PROBLEM	CAUSE	FIX
Terminal not working	Mis-wired	Add/remove null modem
	Mismatched baud	Adjust baud
No power LED/no beep	Poor power cable connection	Check for correct power to B and N terminals on connector J11. Check for poor wire connections to Wago terminals. Ensure connector J11 is firmly seated in the front panel mating connector.
	Insufficient power	Increase voltage >8.5V on B/N terminals
	Incorrect battery polarity	Reverse polarity at Argus B/N terminals
No Echelon communications; Echelon lights blinking	iLOD module mis-wired	Verify iLOD wiring and module power wiring
	Module not installed	Re-install module via module menu
	Faulty echelon bus	Wire Echelon bus per specifications
Echelon lights not blinking	Power connected to Echelon terminals	Correct wiring
Sluggish operation	Poor CDL file loaded	Correct CDL file and re-load
		Check hardware handshaking
Unit wants USB stick when executive starts	Failed or corrupted factory test results	Return unit to factory
USB stick not recognized	Unsupported device	Use recommended USB thumb drives/memory sticks

4.3.1   System Log

Messages that are not appropriate in the Event Log but are necessary to troubleshoot the system are stored in the System Log. The System Log is kept in volatile RAM, so it will be lost if power is lost to the unit. However, it will not be lost due to a reset

An entry in the System Log has one of four levels:

- ERROR (level 1) – Critical problems that may need immediate attention.
- WARNING (level 2) – Possible issues that may or may not need correction.
- INFO (level 3) – Helpful information about present operation.
- DEBUG (level 4) – For Siemens Rail Automation personnel.

The verbosity level of logging may be chosen such that any entry that has the same level or lower should be added to the System Log. Higher leveled entries will not be added to the System Log. The default verbosity level is 3 (errors, warnings, and informational messages are logged). The System Log stores at least 1,000 entries.

A System Log entry is in the format <date/time> <level>: <entry text>. The date/time is a shorter format that does not show the year and abbreviates the level. It is time stamped to the hundredth of second. For example, an informational entry for the reception of an unknown message type to process might look like this:

```
OCT-25 15:10:02.31 INFO: UNKNOWN ATCS MSG, SRC:7.620.100.100.99.05, LABEL:D703
```

The screens to view, capture, or transfer the System Log are similar to the other screens. The "on screen" view of the log allows for forward and backward navigation, jumping directly to the start of the log, and jumping directly to the end of the log. Real-time updating of the display with System Log entries is also provided.

4.3.2   Reset Log

The Reset Log is used by Siemens Rail Automation personnel to store a history of the last 10 resets the unit has performed. Several pieces of information are stored with the reset to help troubleshoot the cause. Among the data is the reset cause (address error, divide by zero, user requested, etc.), the value of all the registers at reset, a stack frame showing the last 128 bytes of the stack before reset, and any other helpful information that can be pulled from processor memory or registers.

The Reset Log is stored in volatile memory. The data will be lost when power is cycled.

The screens to view, capture, or transfer the Reset Log are similar to the other screens. The "on screen" view of the log allows for forward and backward navigation, jumping directly to the start of the log, and jumping directly to the end of the log.

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4.3.3   Diagnostic LEDs

Several diagnostic LEDs are included in the Argus. The LEDs associated with communications interface flash briefly when a message is received or transmitted.

The LEDs for the USB interface convey specific status such as error, transfer in progress, and transfer complete.

For additional details, refer to paragraph 1.6.7 in the Specifications section, and paragraph 3.10.5 in the Operation section of this manual.