SIEMENS

INSTALLATION & INSTRUCTION

LOCAL I/O PANEL A53406

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FCC RULES COMPLIANCE

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	Sections Changed	Details of Change
A	4-1-04	- - - - -	INITIAL RELEASE
A.1	2-18-14	ALL	Update Input limitation. Convert to Siemens format
A.2	2-28-14	ALL	Limit word inputs to 12 max from 18

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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

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

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

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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SECTION 1
INTRODUCTION

1.0 INTRODUCTION

This document provides information for the installation, operation, and maintenance of the Siemens model A53406 Local I/O Panel.

WARNING

THE A53406 LOCAL I/O PANEL IS A NON-VITAL DEVICE AND SHOULD NOT BE USED WHERE IT WOULD BE REQUIRED TO PERFORM A VITAL FUNCTION, OR WHERE IT MIGHT INTERFERE WITH THE OPERATIONS OF OTHER VITAL EQUIPMENT.

1.1 SYSTEM OVERVIEW

The Siemens model A53406 Local I/O Panel is a programmable input/output driver for non-vital applications. The A53406 was designed to be utilized in a variety of applications offering versatile control and monitoring capability. The A53406 Local I/O serves as a backup hardwire connection in the event of an ATCS communications failure.

The Local I/O is equipped with three DB-50 Telco connectors to interface up to 144 signal wires and 6 grounds (18 bi-directional 8-bit I/O ports) to and from railroad switching and safety equipment as well as a variety of support equipment like de-icing and snow melting units, door and equipment alarms.

Multiple A53406 Local I/O Units can be used for additional input/outputs to serve any size system. The A53406 Local I/O is controlled by an Echelon® LonTalk® network as used by the A53475 Communications Manager, A53105 CPU, A80273 SEAR II Event Analyzer Recorder, GEO, and the 80276 VHF Radio. The Local I/O is incorporated in a 19 inch rack mount cabinet requiring only 1RU of rack space.

Major features of the A53406 Local I/O Panel:

- Versatile I/O Programming
- 144 I/O connections and 6 Grounds (18 Bi-directional 8-Bit I/O Ports)
- Expandable I/O with multiple units
- Wide input voltage range (10 VDC – 30 VDC)
- Reverse Polarity Protection
- Internal DC-DC Converter
- Echelon® LonTalk® Controlled

Figure 1-1 Local I/O Front Panel

Figure 1-2 Local I/O Rear Panel

1.2 SPECIFICATIONS

Power Requirements

Input Voltage	10 – 30 VDC
Input Current	380 mA @ 13.8 VDC
Input Protection	1 A Slo-Blo Fuse Reverse Polarity Protection Transorb Transient Surge Protection Common Mode Low Pass Filter

External Connectors

J1-J3 Inputs/Outputs:	Parallel DB-50 Telco Connector 144 I/O and 6 ground connections (18 Bi-Directional 8-Bit I/O Ports)
J1-J3 I/O Connection Voltage:	5 Volts Minimum, 45 Volts Maximum
J1-J3 I/O Connection Current:	250 mA Max, 1.5 A Pulsed per output
Power/Echelon® Connector:	10-Pin Male Cage Clamp Style

Controls

Input Power:	Panel Mount Single Throw Toggle Switch
Service :	Recessed PC Mount Momentary Push Button

Indicators

Input Power:	LED (Green)
Service :	LED (Yellow)
RX:	LED (Red)
TX:	LED (Red)
WDOG:	LED (Red)
Error:	LED (Red)

Mechanical

Dimensions:	17.25 inches (43.82 centimeters) Wide 1.7 inches (4.32 centimeters) High 8.25 inches (20.96 centimeters) Deep
Weight:	7.06 Pounds (3.2 Kilograms)

1.3 ORDERING INFORMATION

To order, specify the Local I/O Panel part number **9000-53406-0001**.

1.3.1 Local I/O Panel Interconnect Accessories

The following accessories are available for the A53406 Local I/O Panel:

9000-50618-0000	Rail mount I/O breakout panel with surge suppression
9000-50619-0000	I/O breakout panel with surge suppression
9000-50623-0000	Rack mount I/O breakout panel with opto-isolation
Z706-02025-0000	5 Ft. 25 Pair, Cat 2, Male-to-Male 180° Hood, Telco PBX DB-50 Cable Assembly

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SECTION 2
THEORY OF OPERATION

2.0 THEORY OF OPERATION

The A53406 Local I/O Panel is designed using CMOS and TTL logic. A block diagram of the A53406 Local I/O Panel is provided in

.

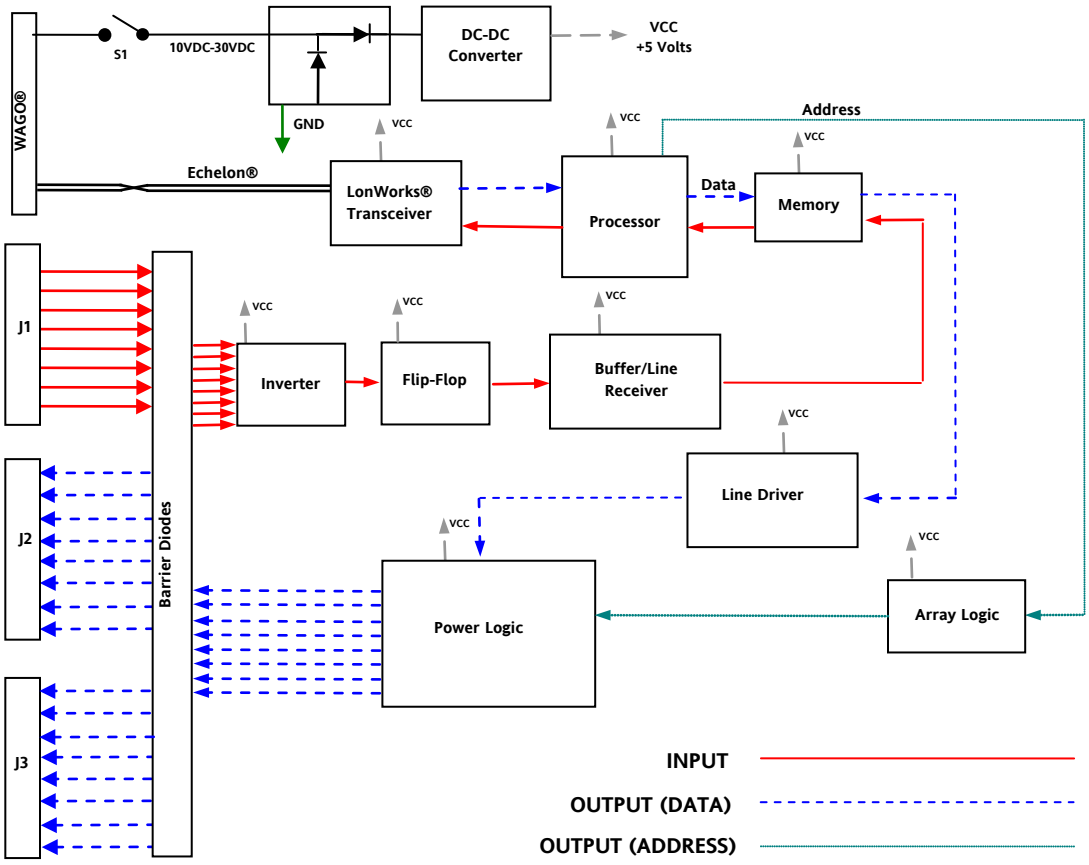

Figure 2-1 Local I/O Panel Block Diagram

2.1 POWER SUPPLY

The A53406 will accept a DC input source from 10 VDC to 30 VDC. A Single Pole Single Throw (SPST) panel mount toggle switch applies power to the unit through a 1 amp slow blow fuse. The input is reverse polarity protected and incorporates surge suppression and filtering to the DC-DC Converter that outputs 5 volts to supply the internal logic. A panel mounted green LED illuminates when power is on.

2.2 I/O CONNECTORS

Three DB-50 Telco connectors are mounted on the rear panel to connect the inputs and outputs to the unit. Each connector contains 48 connections with 2 grounds. Both grounds must be connected to provide ample ground wiring. For best results assign inputs and outputs separately to a single connector. Multiple units may be used in the event that additional inputs and outputs are necessary. The A53406 provides 18 bi-directional 8-bit I/O ports (6 per DB-50 connector). Each 8-bit port is programmable as an input or an output. The outputs are capable of 250 mA continuous current and 1.5 Amp pulsed current per output. Inputs will accommodate a range from 5 Volts to 45 Volts and outputs will accommodate a range from 10 Volts to 30 Volts.

2.3 POWER/ECHELON® CONNECTOR

A ten pin male cage clamp style connector is provided on the rear panel for termination of input power and the Echelon® twisted pair network connections. Input power has provisions for a primary power source and two secondary sources. All sources are attached to a common buss internally and are direct coupled. The connector includes an A+ and B+ power inputs for use with an ORed A-B Hot Swap Redundant Power Supply, three battery source plus, three source grounds, and two connections for Echelon® LonWorks® twisted pair.

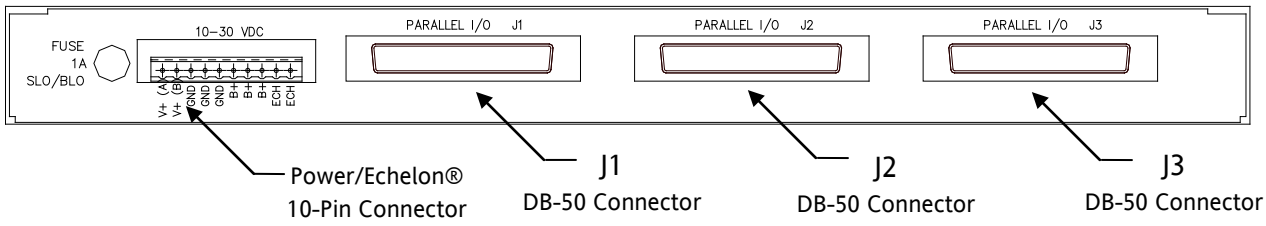

Figure 2-2 Local I/O Rear Panel Connectors

CAUTION

ONLY ONE POWER SOURCE CAN BE CONNECTED TO THE LOCAL I/O PANEL AT ANY TIME. CONECTION OF MULTIPLE POWER SOURCES WILL RESULT IN DAMAGE TO EQUIPMENT AND WIRING. CALL SIEMENS CUSTOMER SERVICE WITH ANY QUESTIONS BEFORE INSTALLING POWER TO THIS UNIT.

2.4 CONTROLS AND INDICATORS

Figure 2-3 displays the locations of the front panel controls and indicators with descriptions and functions listed below.

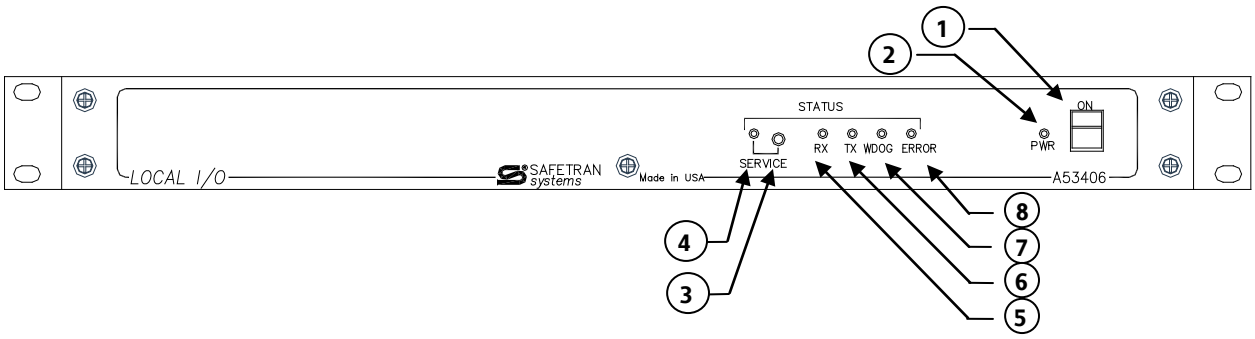

Figure 2-3 Local I/O Front Panel - Controls and Indicators

1	Power Switch	Turns unit on and off
2	Power LED (Green)	Illuminates when power is on
3	Service Button	Recessed button when pressed establishes connection with network
4	Service LED (Yellow)	Illuminates during network connection procedure
5	RX LED (Red)	Illuminates when receiving data
6	TX LED (Red)	Illuminates when sending data
7	WDOG LED (Red)	Illuminates when Watch Dog Timer is active
8	ERROR LED (Red)	Illuminates when an error is detected extinguishes when cleared

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SECTION 3
INSTALLATION

3.0 INSTALLATION

Installation of the A53406 Local I/O should be in a clean and dry location. Figure 3-1 provides an overview of equipment the A53406 Local I/O supports. Accessory breakout boards and cable assemblies are available to complete the installation.

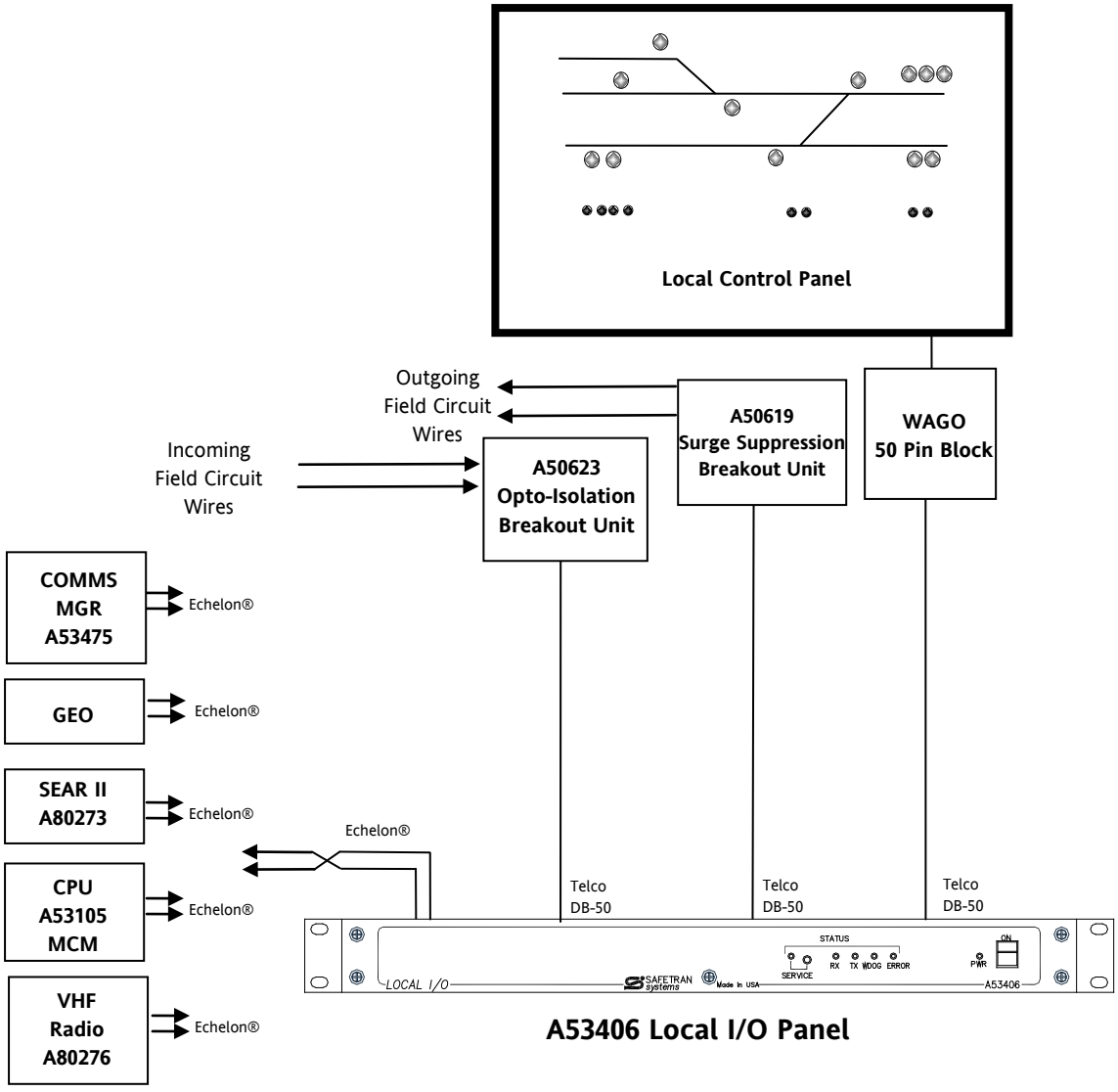


Figure 3-1 Local I/O Panel Installation Overview

3.1 PHYSICAL MOUNTING

The A53406 Local I/O Panel is designed for 19 inch rack mounting. Rack mounting “ears” are provided and can be attached in two locations on the cabinet for flush mounting or a forward extended mount. Two mounting holes per ear will accept standard rack hardware. Figure 3-2 displays mounting options.

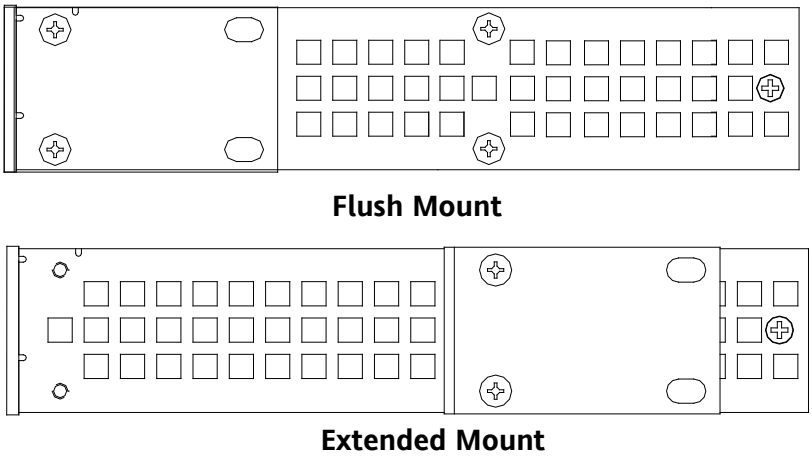


Figure 3-2 Local I/O Panel Mounting Options

3.2 POWER AND ECHELON® CONNECTION

A ten pin male cage clamp style connector is provided on the rear panel for termination of input power and the Echelon® twisted pair network connections. Input power has provisions for a Redundant Power Supply, Single Output Power Supply or a Battery Set. The primary source is provided with three common plus and minus connections for daisy chaining of power to and from other equipment. All sources are attached to a common buss internally and are direct coupled. The connector includes an A+ and B+ power inputs for use with an ORed A-B Hot Swap Redundant Power Supply, three source ground, three source plus, and two connections for Echelon® LonWorks® twisted pair.

Figure 3-3 displays the wiring configuration for an office installation using an AC-DC Power Supply source. Figure 3-4 is the connection using the Power A+/B+ terminals and a Redundant Power Supply. Figure 3-5 displays connections using a Battery Set and Figure 3-6 has connection of the Battery Set through the Siemens A53106 DC-DC Converter to provide isolation of the Battery Set from equipment connected to the I/O inputs and outputs.

NOTE

NOTE

The Power A+, B+, and the three Battery plus (+) terminals are internally connected in a common positive buss. The three Battery minus (-) are also internally connected in a common negative buss.

CAUTION

⚠ CAUTION

ONLY ONE POWER SOURCE CAN BE CONNECTED TO THE LOCAL I/O PANEL AT ANY TIME. CONECTION OF MULTIPLE POWER SOURCES WILL RESULT IN DAMAGE TO EQUIPMENT AND WIRING. CALL SIEMENS CUSTOMER SERVICE WITH ANY QUESTIONS BEFORE INSTALLING POWER FROM MULTIPLE SOURCES TO THIS UNIT.

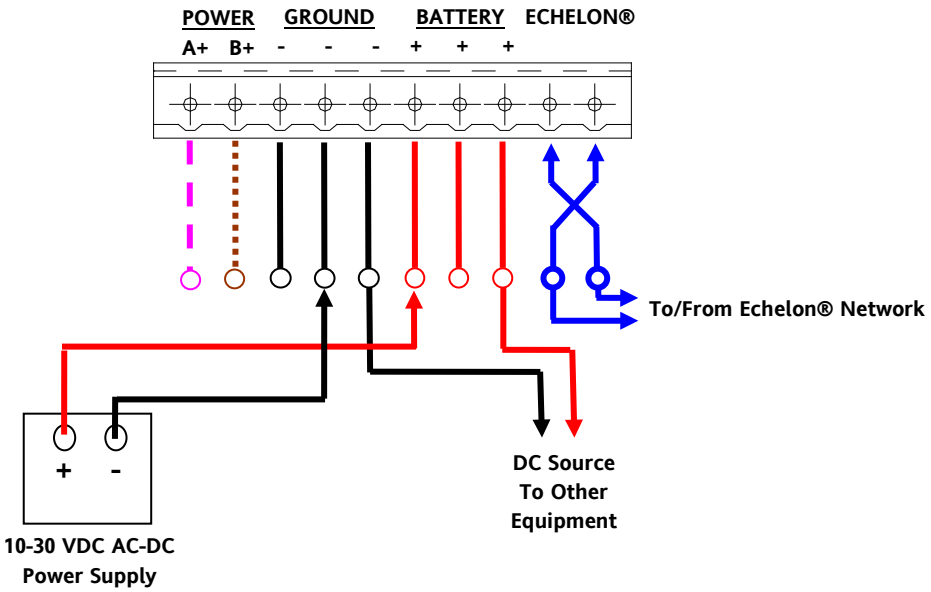


Figure 3-3 Power and Echelon® Connections - AC-DC Power Supply

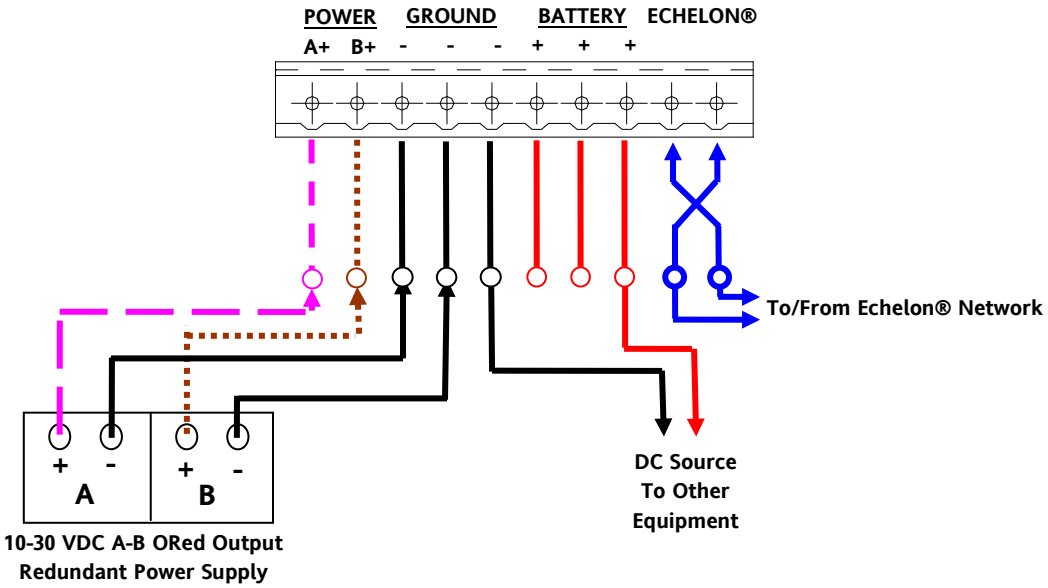


Figure 3-4 Power and Echelon® Connections - Redundant Power Supply

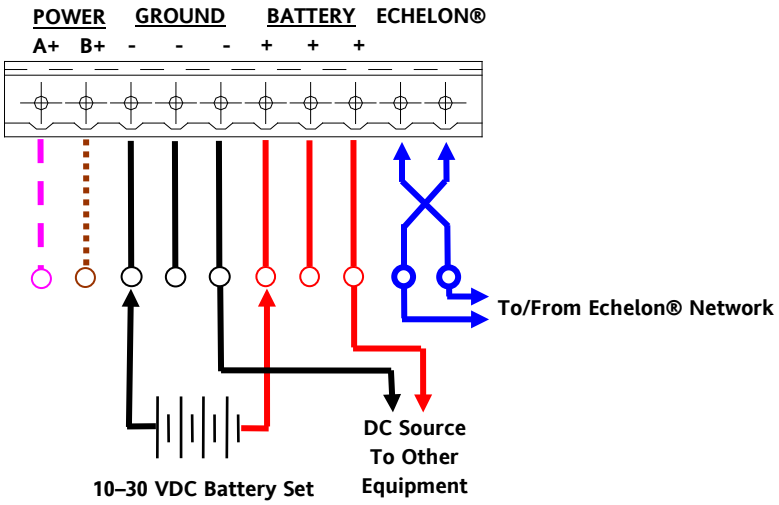


Figure 3-5 Power and Echelon® Connections - Battery Set

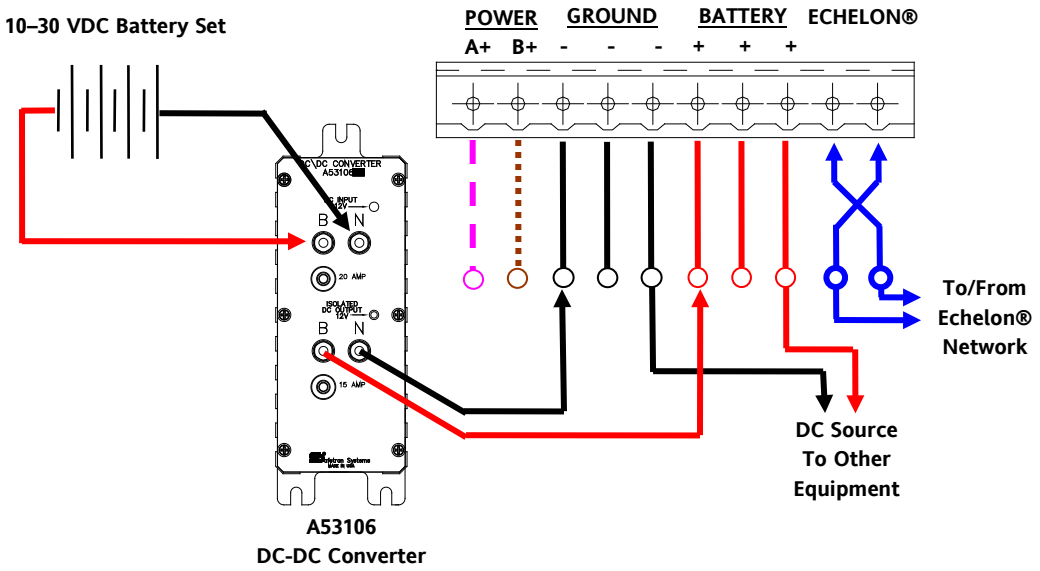


Figure 3-6 Power and Echelon® Connections - Battery Set with Isolation

3.3 I/O CONNECTORS

Three DB-50 Telco connectors are mounted on the rear panel to connect the inputs and outputs to the unit as shown in Figure 3-7. Each connector contains 48 connections with 2 grounds. Both grounds must be connected to provide ample ground wiring. For best results, assign inputs and outputs to a single connector. Multiple units may be used in the event that additional inputs and outputs are necessary. The A53406 provides 18 bi-directional 8-bit I/O ports (6 per DB-50 connector). Each 8-bit port is programmable as an input or an output. It is not recommended to exceed 12 8-bit inputs (4 per DB-50 connector). Exceeding 96 8-bit inputs will result in the panel not properly reporting input status.

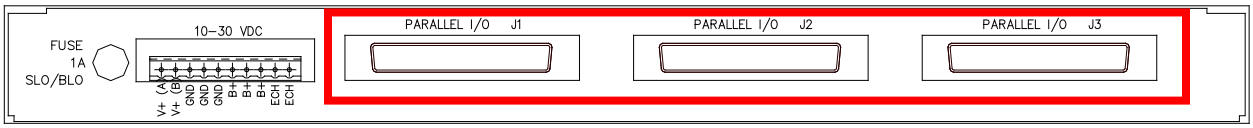


Figure 3-7 I/O Connectors

NOTE

NOTE

It is not recommended to exceed 12 8-bit inputs (4 inputs per DB-50 connector). Exceeding 12 8-bit inputs will result in the panel not properly reporting input status.

NOTE

NOTE

The ground connections on the I/O connectors (pins 49 and 50) are common to the Power Source minus (N) Installing the Siemens A53106 DC-DC Converter will provide isolation of the power source and I/O signals if required.

3.4 INTERCONNECT ACCESSORIES

Siemens provides a variety of accessories for interconnection of the Local I/O to other equipment. Contact Siemens Customer Service with any questions or assistance in obtaining accessories necessary to complete the desired installation.

3.4.1 A50618 Rail Mount I/O Breakout Panel with Surge Suppression

Figure 3-8 displays the A50618 rail mount I/O breakout panel with surge suppression. These units incorporate a DB-50 connector to screw terminals for wiring connection to equipment. Surge suppression is included for protection of equipment. A DIN-Rail is attached for mounting.

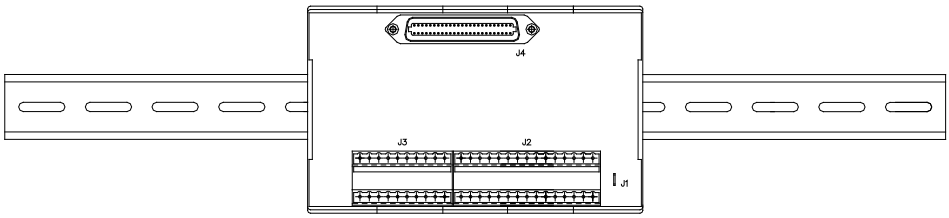


Figure 3-8 A50618 Rail Mount I/O Panel with Surge Suppression

3.4.2 A50619 I/O Breakout Panel with Surge Suppression

Figure 3-9 displays the Siemens I/O breakout panel with surge suppression. These units incorporate a DB-50 connector to screw terminals for wiring connection to equipment. Surge suppression is included for protection of equipment.

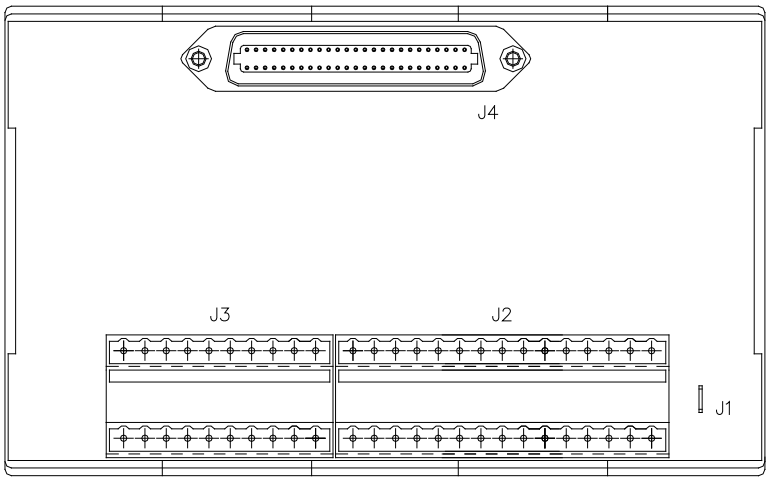


Figure 3-9 A50619 I/O Panel with Surge Suppression

3.4.3 A50623 I/O Panel with Opto-Isolation

Figure 3-10 displays the Siemens I/O breakout panel with opto-isolation. These units incorporate a DB-50 connector to 12-Pin connectors. Opto-Isolators provide total isolation between incoming equipment and the Local I/O Panel.

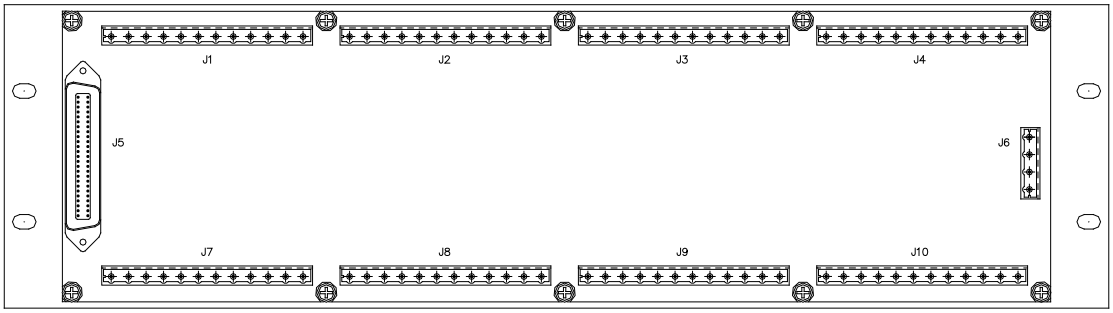


Figure 3-10 A50623 I/O Panel with Opto-Isolation

3.4.4 Telco DB-50 PBX Cable Assembly

The A53406 Local I/O Panel may be used with the A50618, A50619, and A50623 break-out panels. Interconnection between the Local I/O Panel and the break-out panels uses a customer supplied Telco PBX DB-50 25-pair, Category 2, male-to-male cable assembly like the Siemens Z706-02025-0000. These cables are available at various lengths through wire and cable suppliers.

SECTION 4
CONFIGURATION

4.0 CONFIGURATION

The A53406 Local I/O Panel operation is dependent on an attached Echelon® LonTalk® network device like the A53475 Communications Manager, A80273 SEAR II Event Analyzer Recorder, or the A53105 WCP CPU II to configure the Local I/O Panel to the network. The following procedures will detail the configuration process.

The Local I/O Panel has the following user adjustable parameters:

MODULE NAME: This entry enables the user to enter a name for each I/O Panel installed.

INPUT SIZE: This entry selects the number of 8 Bit Words required for the input of the Local I/O Panel. A maximum of 18 Input Bytes may be selected. The factory default is 9. The remaining Input Bytes (18 minus the number of Input Bytes) will be assigned as Output Bytes. Press the ENTER key to submit your selection. (Range: 0-18, Default = 9 ***Exceeding 12 inputs will result in the panel not properly reporting input statuses***).

INPUT OFFSET: This entry selects the value (in bytes) that the received data (S Bits) will start. (Range: 0-31, Default = 0)

OUTPUT OFFSET: This entry selects the value (in bytes) that the Control Data (L and F Bits) will start. (Range: 0-31, Default = 0)

INDICATOR HOLDOFF: This entry sets the amount of time the Panel will wait before sending the Indication Message. (Pre-select ranges: 50ms, 100ms, 200ms, 500ms, 1 sec, 2 sec) Default = 50ms.

CONTROL DELIVERY: This entry sets the amount of time the Panel will wait before applying the control. (Pre-select ranges: 50ms, 100ms, 200ms, 500ms, 1 sec, 2 sec) Default = 50ms.

4.1 LOCAL I/O AND COMMUNICATIONS MANAGER

The A53406 Local I/O Panel interfaces with the A53475 Communications Manager. The following section describes installation and configuration of the Local I/O Panel with the Communications Manager. For detailed information refer to the Communications Manager Installation & Operation Manual (Document Number: COM-00-08-13).

4.1.1 Local I/O Panel/Communications Manager Connections

Figure 4-1 shows the connection between the Local I/O Panel and Communications Manager using the Echelon® Network.

Figure 4-1 Local I/O Panel Connection to Communication Manager

4.1.2 Local I/O Panel Configuration Using Communications Manager LUI

The Local I/O Panel can be configured and installed using the keypad and display on the front panel of the Communications Manager.

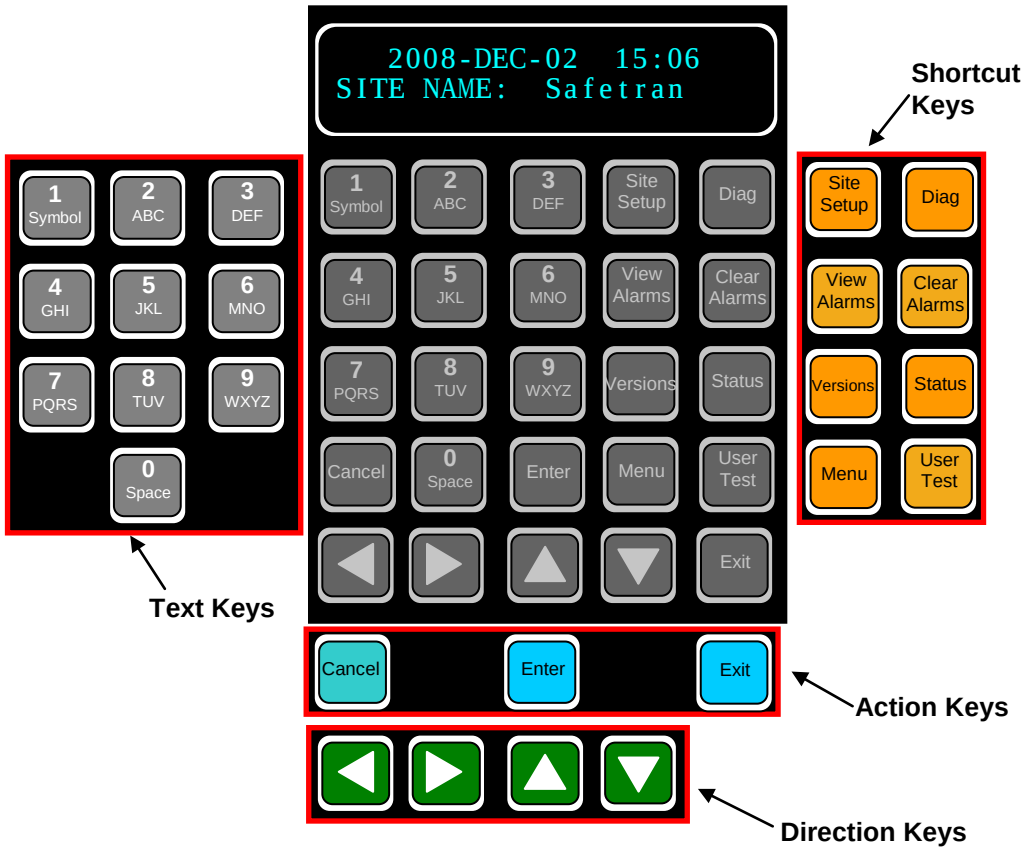
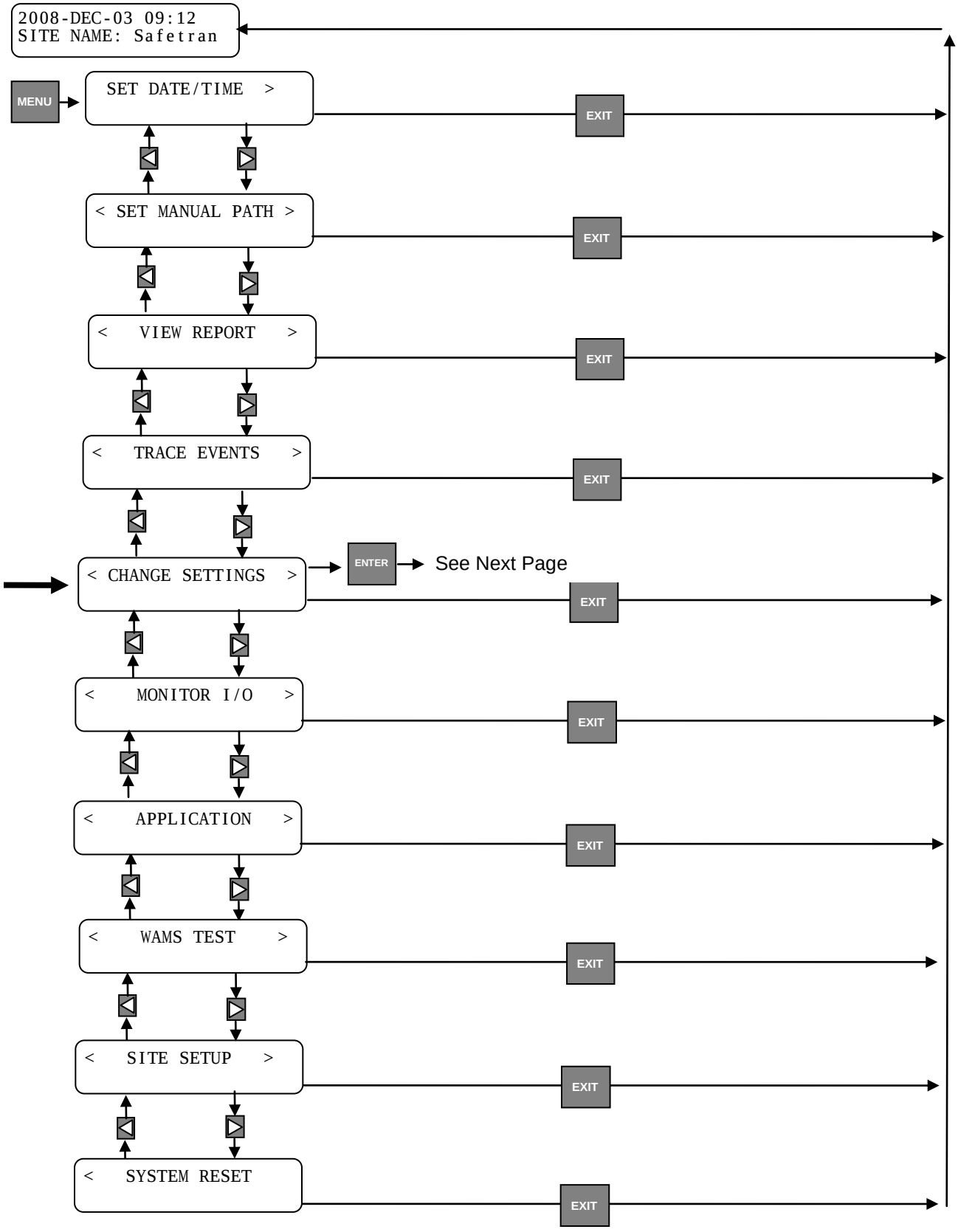
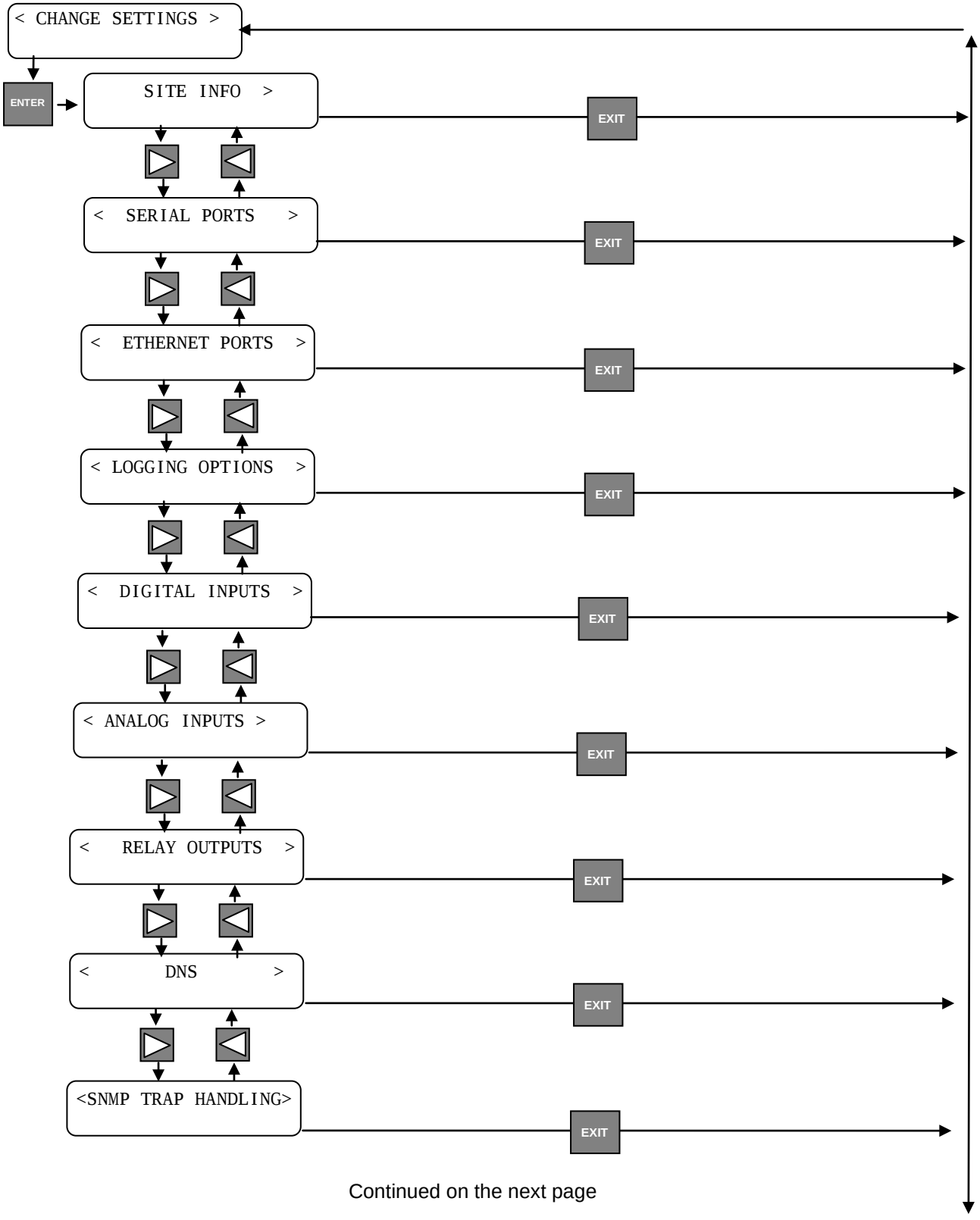


Figure 4-2 Communications Manager Keypad & Display (Local User Interface - LUI)

STEP 1 Select Change Settings.



STEP 2 Select Modules (On Next Page).



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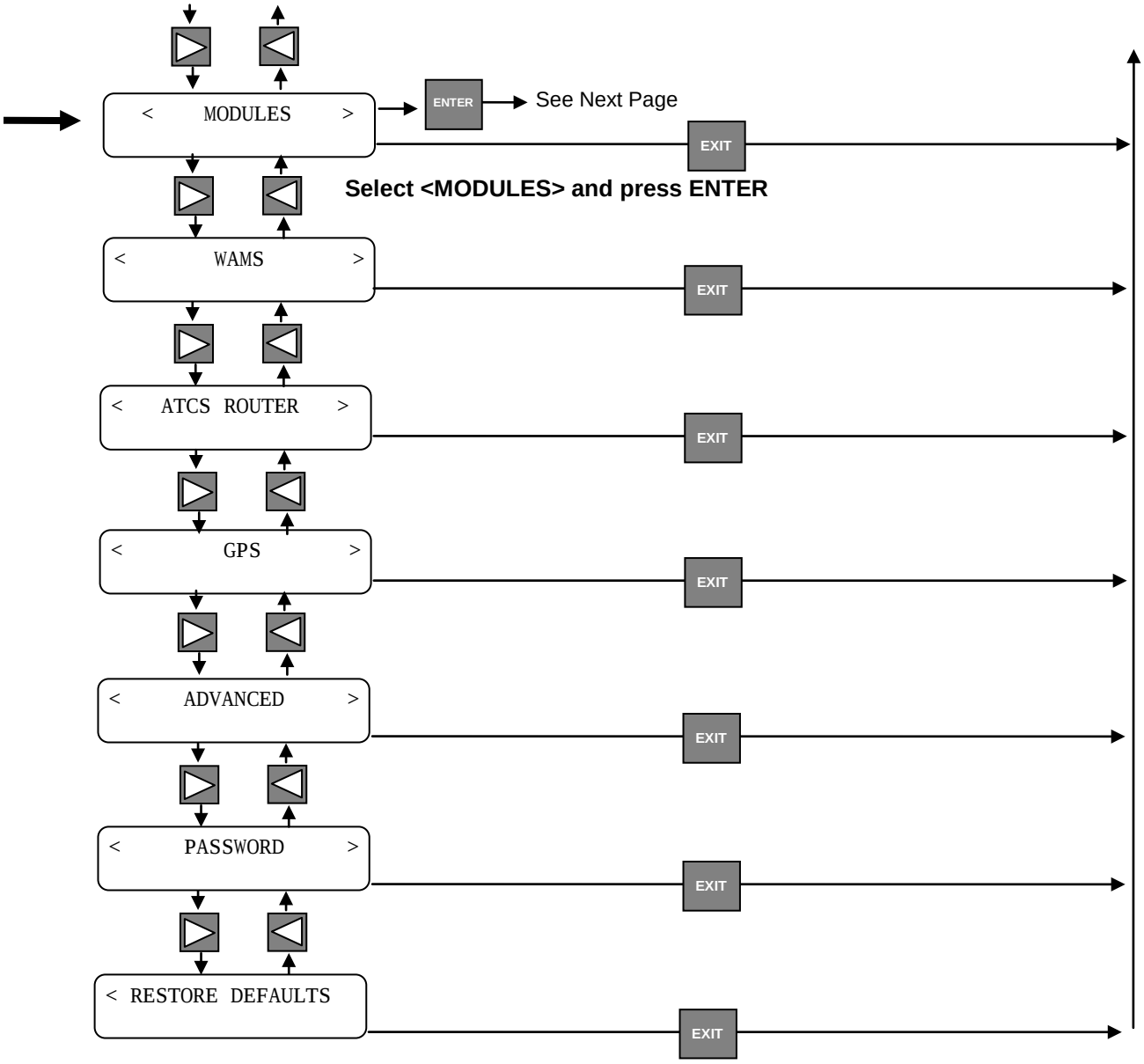
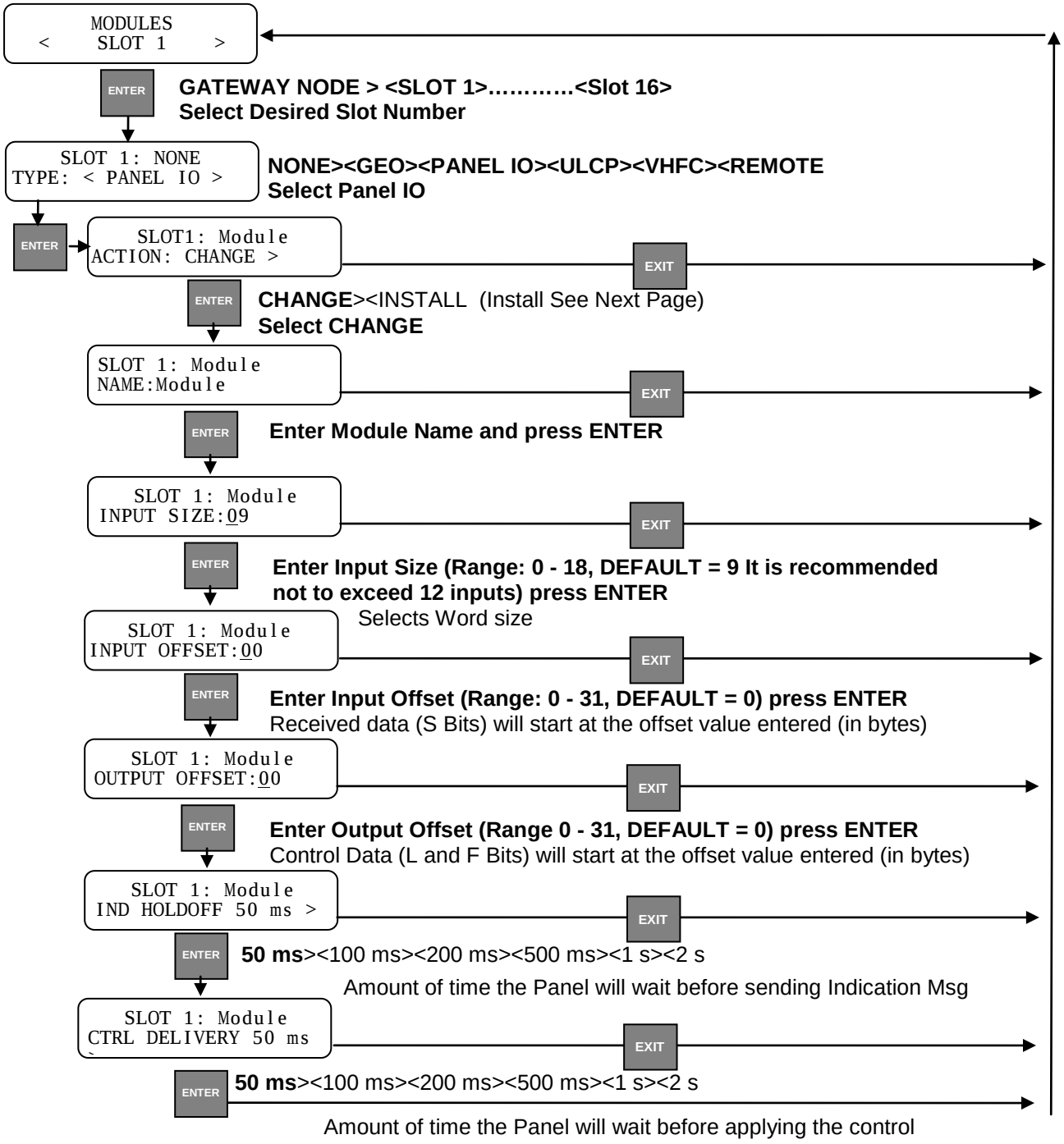
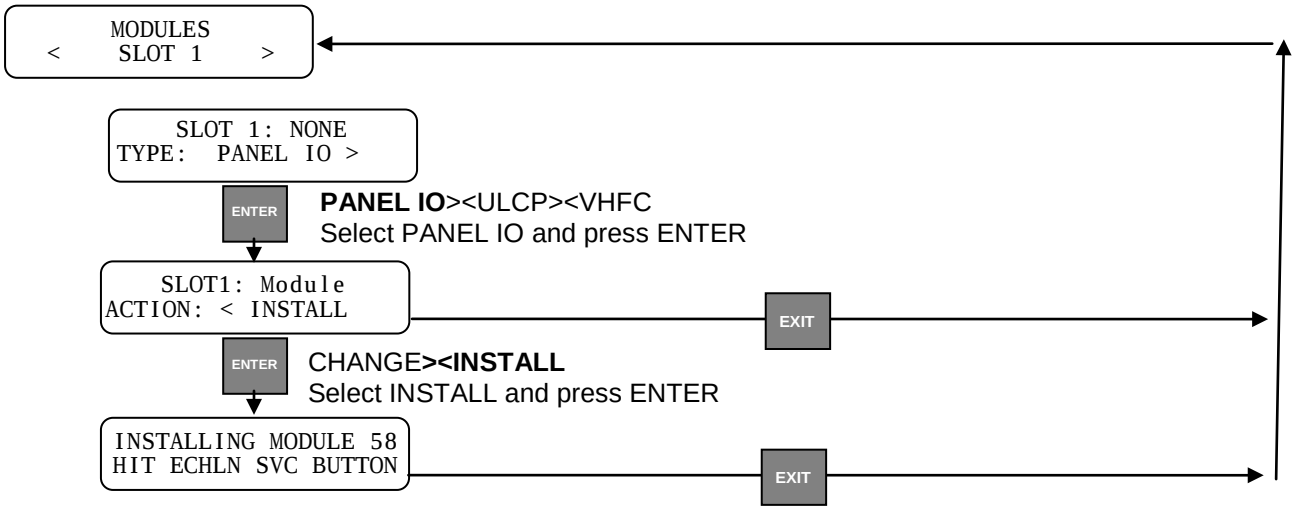


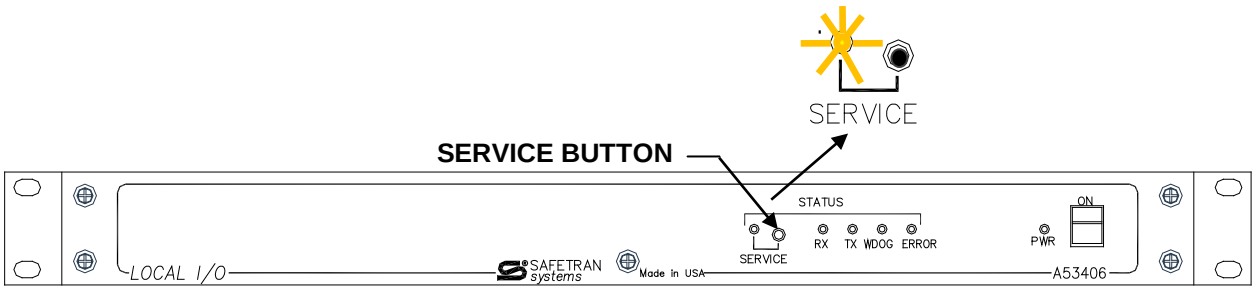
STEP 3 Using the Communications Manager keypad and display, navigate through the series of parameters to setup the Local I/O Panel Node.



STEP 4 Upon completion of setting the Local I/O Panel Node parameters, return to the beginning of the Slot setup and select Panel IO and press ENTER. Select INSTALL and press the ENTER key. The display will advise to press the SERVICE Button on the front panel of the Local I/O Panel. The SERVICE LAMP will flash then extinguish. The Local I/O panel installation is complete.



Press the **SERVICE** Button on the Local I/O Panel



4.1.3 Local I/O Panel Configuration Using Communications Manager WebUI

The Local I/O Panel can be configured and installed using the WebUI of the Communications Manager.

STEP 1 Log in to WebUI and navigate to the NON VITAL CONFIG Menu.

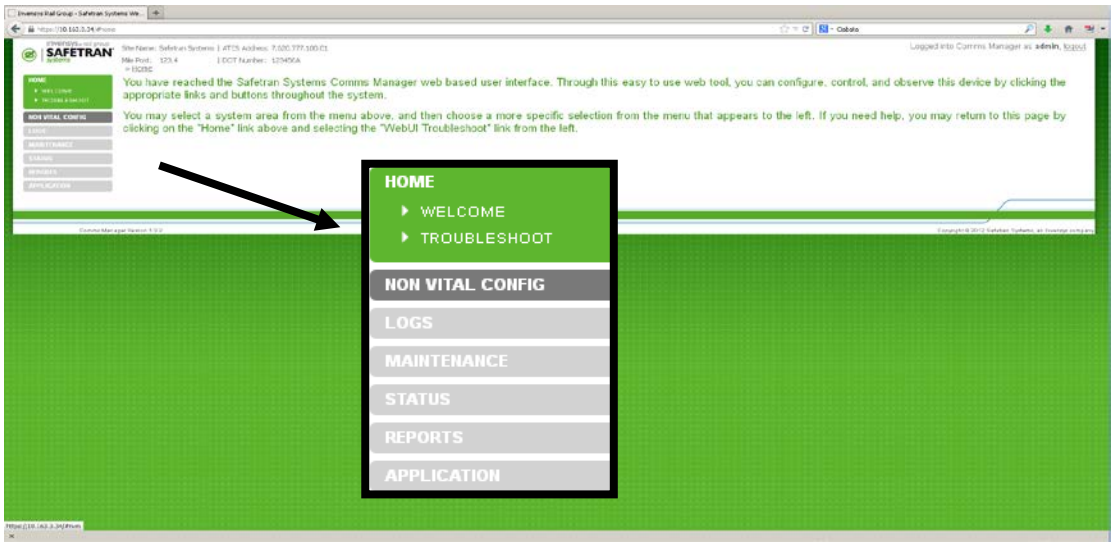


Figure 4-3 WebUI Main Menu

STEP 2 From the Non Vital Config menu select **MODULES**.

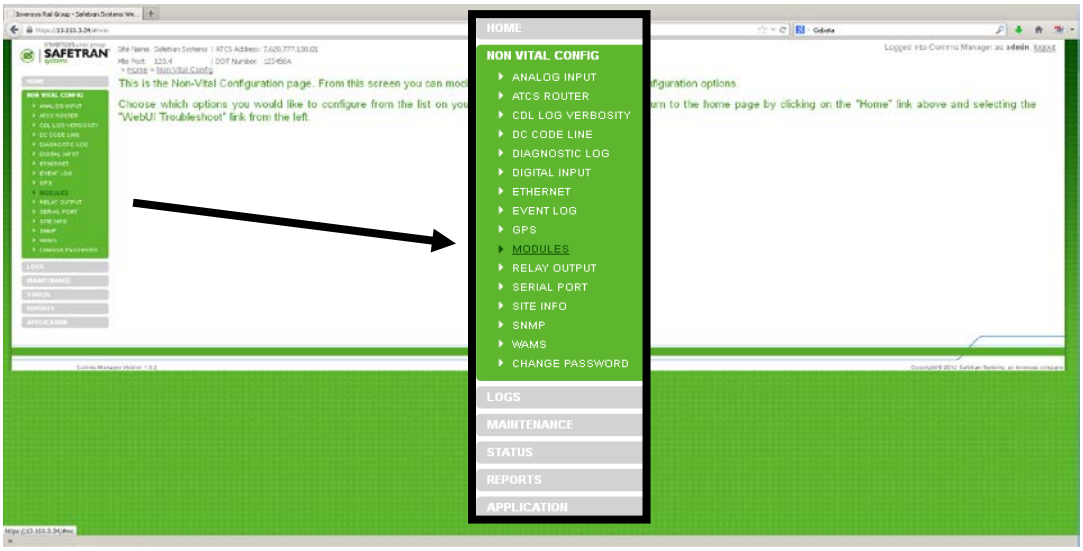


Figure 4-4 WebUI Non-Vital Config Menu

STEP 3 Select the Module Slot desired, either click on the text or click on the plus "+" to expand the parameters window.

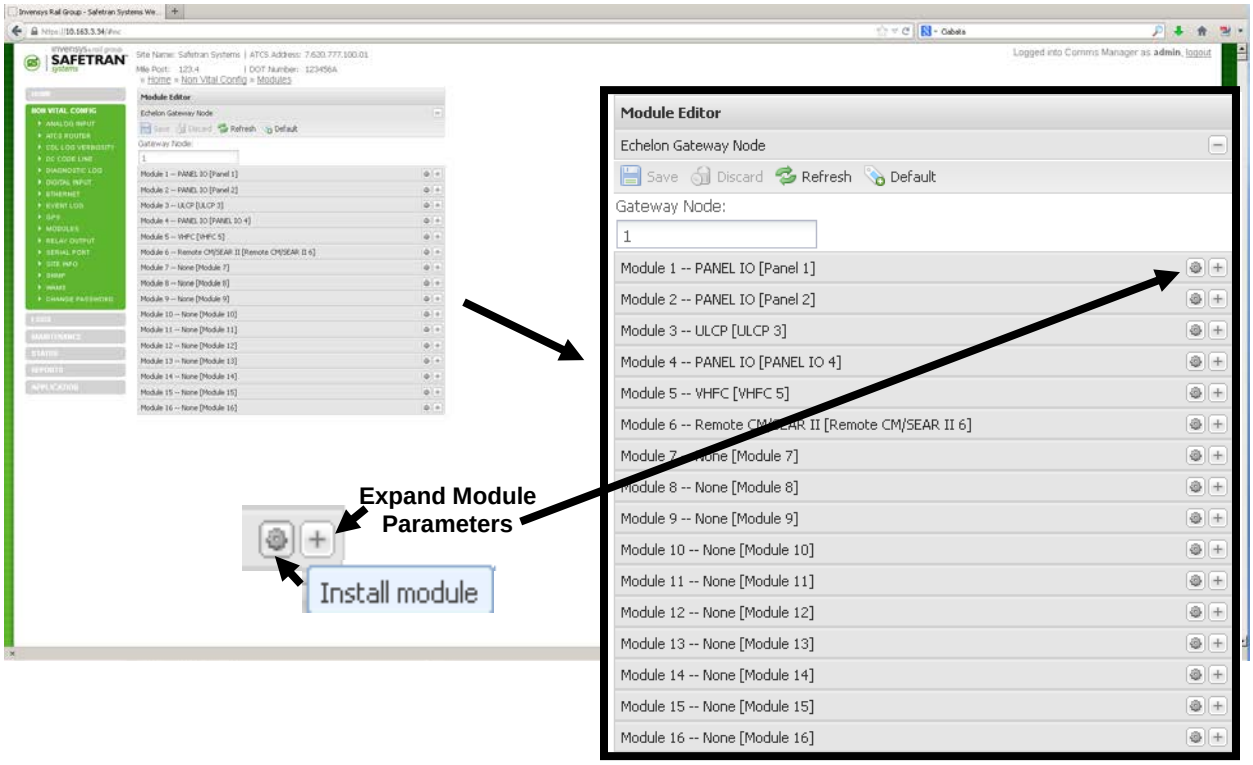


Figure 4-5 WebUI Modules Menu

STEP 4 The expanded screen displays the configurable parameters as follows:

1 **Module Type:** PANEL IO

2 **Module Name:** Enter name desired for panel (e.g. Panel 1)

3 **Input Size:** Enter the desired Word Size (Range: 1 -18, Default = 9)
This entry selects the number of 8 Bit Words required for the input of the Local I/O Panel. A maximum of 12 Input Bytes is recommended. The factory default is 9. The remaining Input Bytes (18 minus the number of Input Bytes) will be assigned as Output Bytes.

4 **Input Offset:** Enter desired value (Range: 0 - 31, Default = 0)
A transmitted indication message will be copied into the S bits of the Ladder Logic bitmap starting at this offset (in bytes).

5 **Output Offset:** Enter the desired value (Range: 0 - 31, Default = 0)
A received control message will copy the control data from the L and F bits of the ladder logic bitmap starting at this offset (in bytes).

6 **Indication Holdoff:** Select the desired value from the drop-down menu.
The parameter sets the amount of time the panel should wait for all changes to settle before sending the indication message.

7 **Control Delivery:** Select the desired value from the drop-down menu.
The parameter sets the amount of time the panel should wait for all controls to be received before applying the control.

8 **Install Module:** When all parameters have been configured click on the INSTALL MODULE button then press the SERVICE button on the front of the I/O Panel.

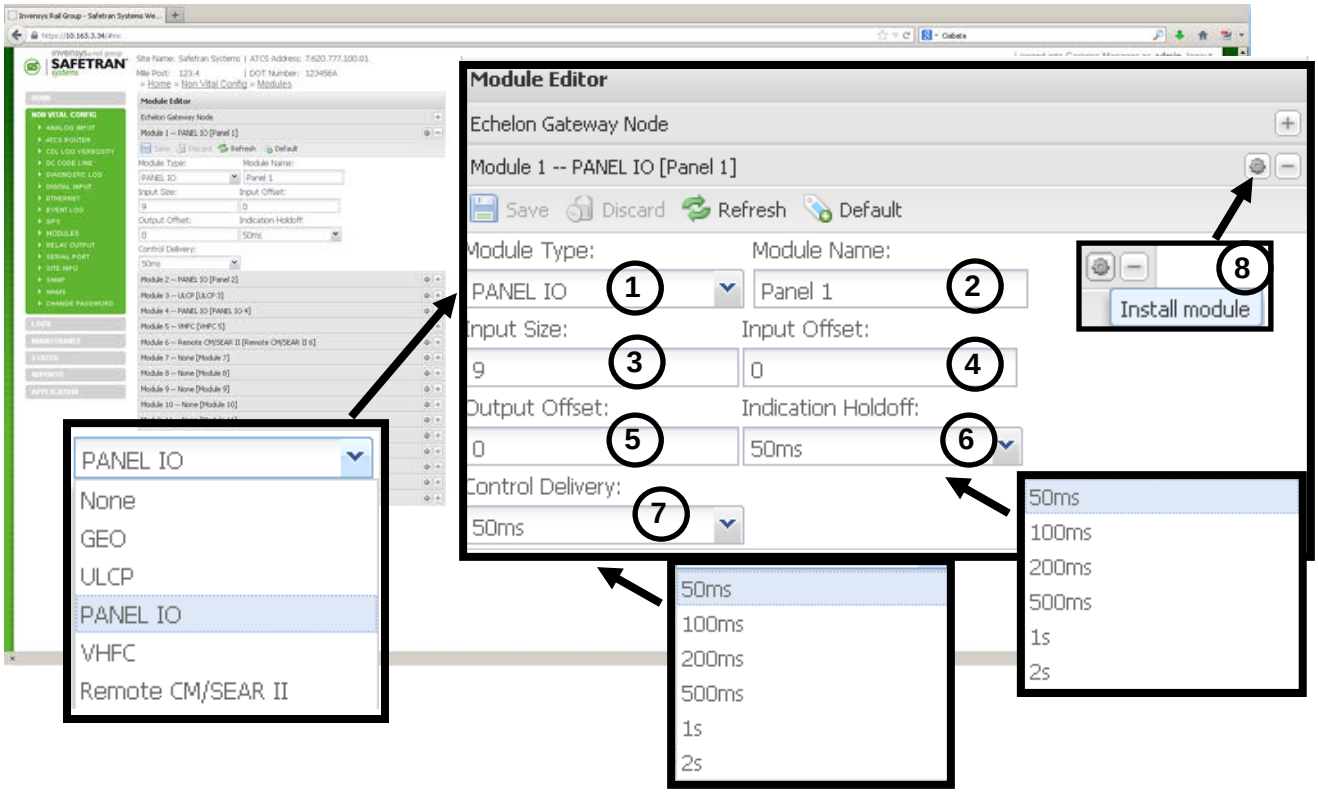


Figure 4-6 WebUI Module Editor

4.2 LOCAL I/O PANEL CONFIGURATION SET UP USING SEAR II LUI

The Local I/O can be easily configured using the Local User Interface (LUI) front panel controls of the SEAR II. With the Local I/O installed to the power source and the Echelon® network, as shown in Figure 4-7, apply power to the Local I/O Panel using the power switch on the front panel.

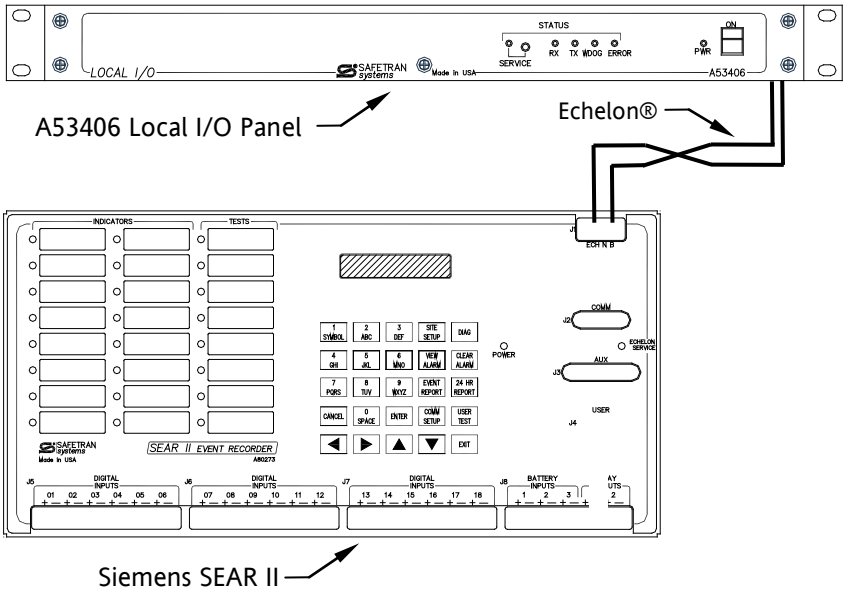


Figure 4-7 SEAR II - Local I/O Configuration using Local User Interface (LUI)

4.2.1 Local I/O Configuration Procedure SEAR II LUI

STEP 1 Using the SEAR II Local User Interface (LUI) Keypad, as shown in Figure 4-8, press the Menu key.

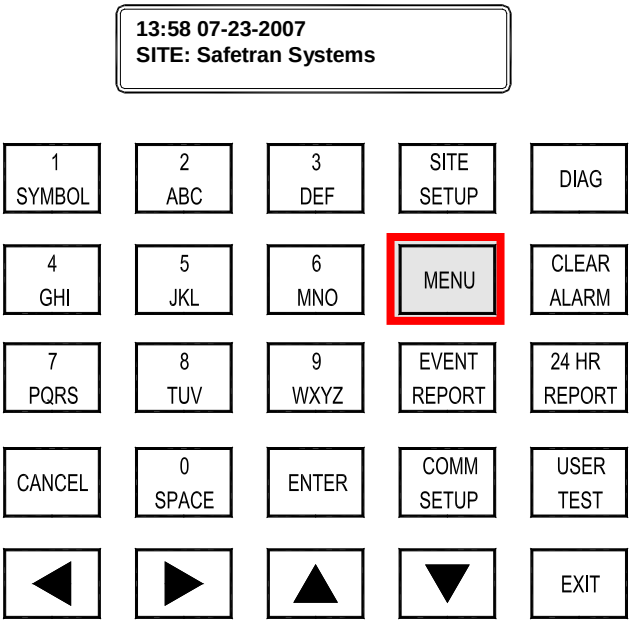


Figure 4-8 SEAR II Keypad Entries - Main Menu

Step 2 Pressing the Down Arrow key select Configuration and press the ENTER key as shown in Figure 4-9.

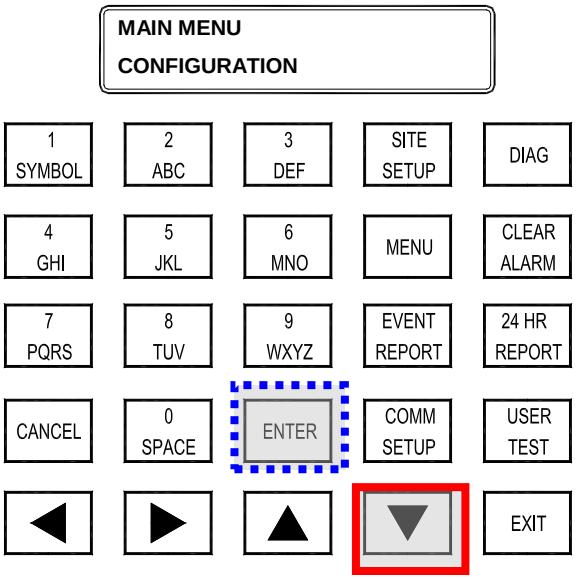


Figure 4-9 SEAR II Keypad Entries - Select Configuration

STEP 3 Use the Down Arrow Key, select Modules and press the ENTER Key as shown in Figure 4-10.

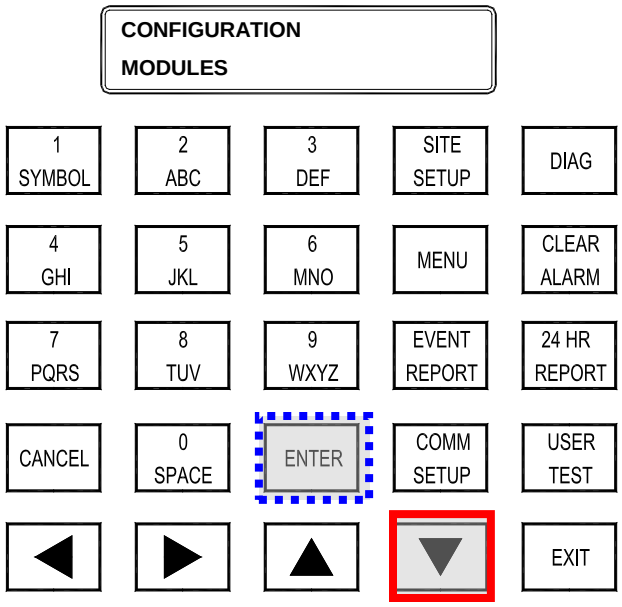


Figure 4-10 SEAR II Keypad Entries - Module Selection

STEP 4 Figure 4-11 displays the Module Menu. Select Add Module and press the ENTER key. For other options use the Down Arrow Key.

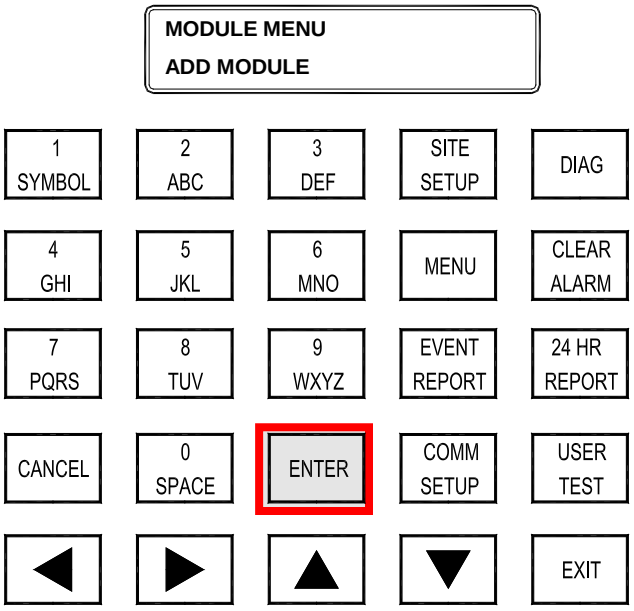


Figure 4-11 SEAR II LUI - Module Menu - Add Module

STEP 5 Figure 4-12 shows the next screen. Use the DOWN ARROW Key to select the A53406 Panel and press the ENTER key.

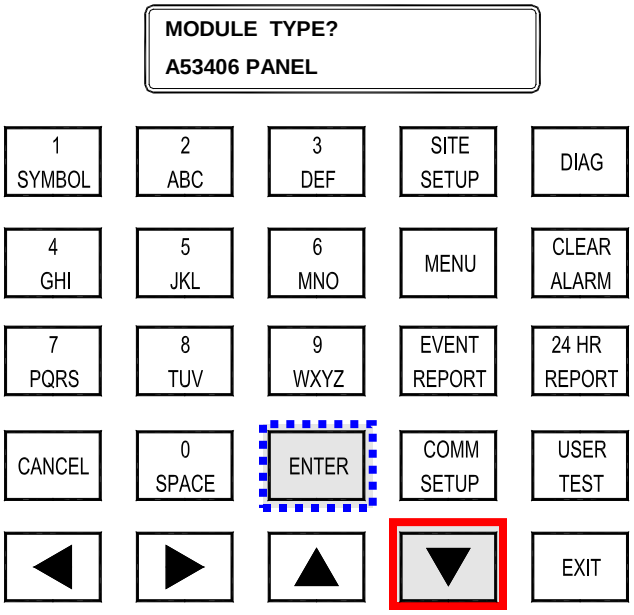


Figure 4-12 SEAR II LUI - Add Module - A53406 Panel Selection

STEP 6 Using the LUI Keypad, spell out the desired name for the I/O Panel (e.g. IO Panel A). Up to 10 alphanumeric characters including spaces are permitted. Upon completion of the label, press ENTER to continue as shown in Figure 4-13.

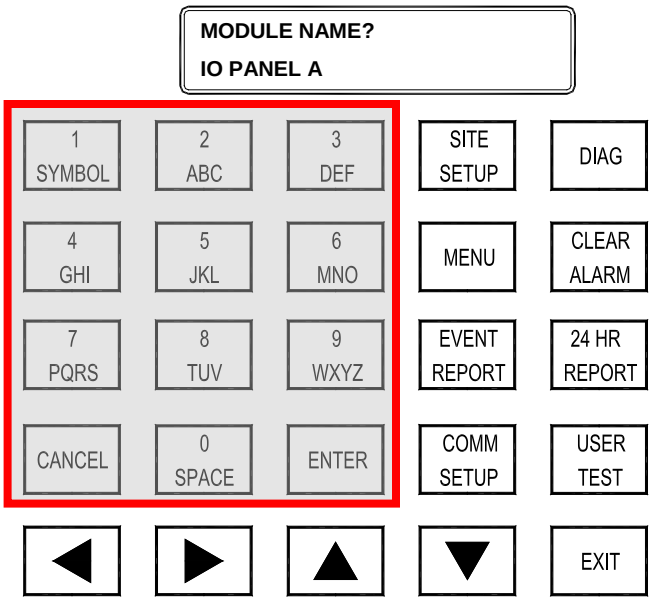


Figure 4-13 SEAR II LUI - Add Module - Module Name

STEP 7 Figure 4-14 displays the entry for number of Input Bytes. This entry selects the number of 8 Bit Words required for the input of the Local I/O Panel. A maximum of 12 Input Bytes is recommended. The factory default is 9. The remaining Input Bytes (18 minus the number of Input Bytes) will be assigned as Output Bytes. Press the ENTER key to submit your selection.

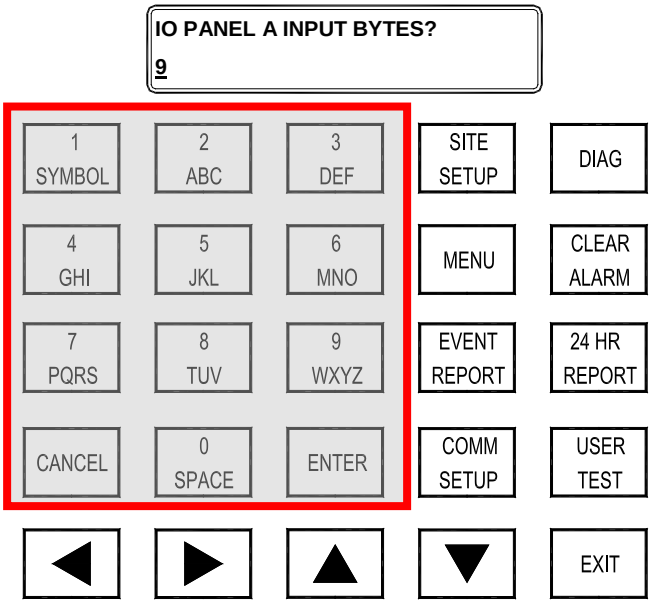


Figure 4-14 SEAR II LUI - Add Module - Input Byte Entry

STEP 8 The next parameter is Input Offset as shown in Figure 4-15. The default for the Local I/O Panel is zero.

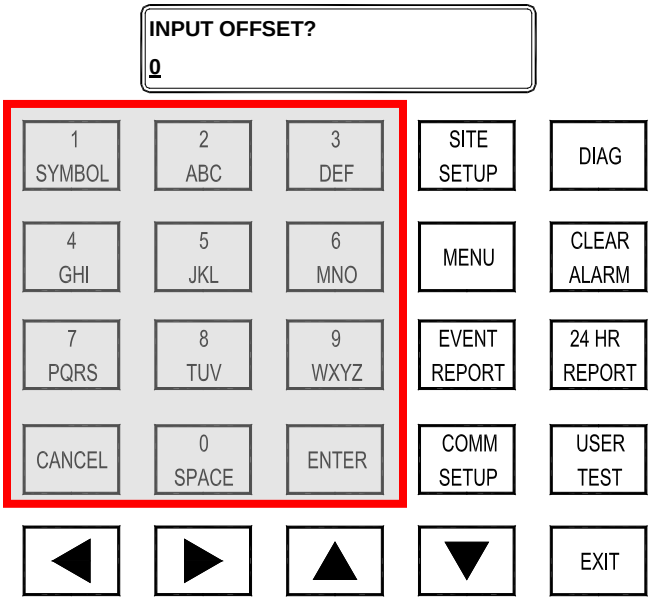


Figure 4-15 SEAR II LUI - Add Module - Input Offset

STEP 9 The following parameter is Output Offset as shown in Figure 4-16. The default setting for the Local I/O Panel is zero.

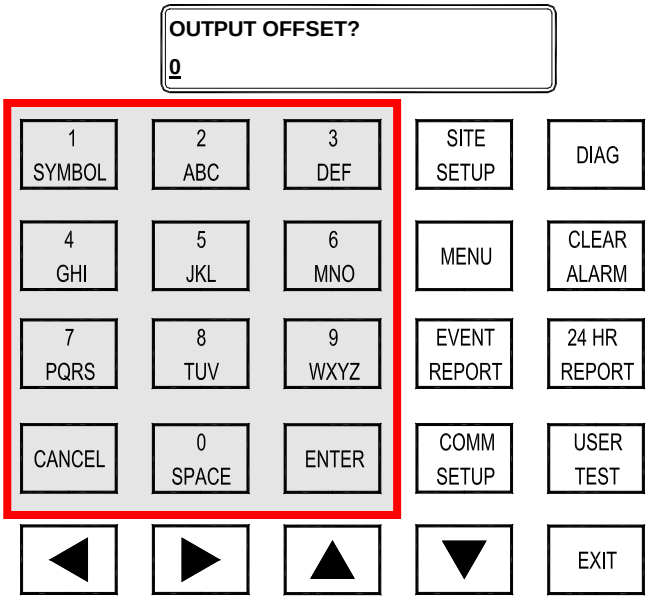


Figure 4-16 SEAR II LUI - Add Module - Output Offset

STEP 10 Indication Holdoff is the next parameter as shown in Figure 4-17. This entry sets the Delay Time following detection of an indication before the indication is read to ensure validity. Use the Up or Down Arrows to select from the available times: 50 ms, 100 ms, 200 ms, 500 ms, 1 sec, 2 sec. Press the ENTER key to submit your selection.

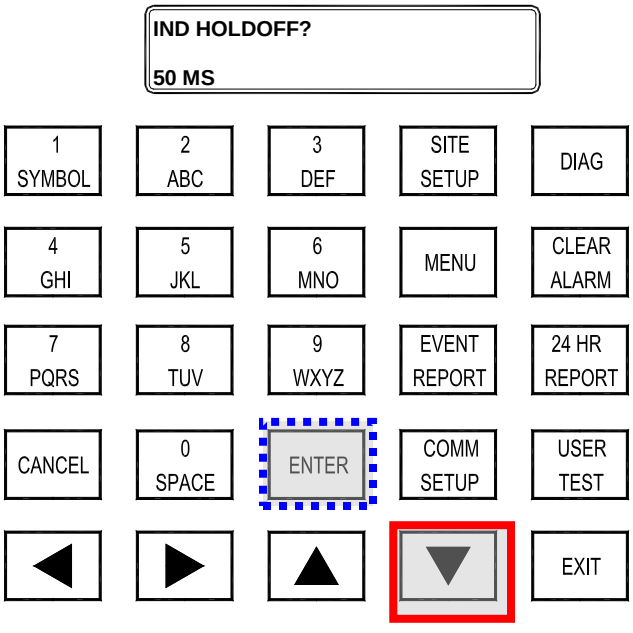


Figure 4-17 SEAR II LUI - Add Module - Indicator Holdoff

STEP 11 Figure 4-18 displays the Control Delivery parameter. This entry determines the amount of time an output will be delivered for control of stick relays. Use the Up or Down Arrows to select from the available times: 50 ms, 100 ms, 200 ms, 500 ms, 1 sec, 2 sec. Press the ENTER key to submit your selection.

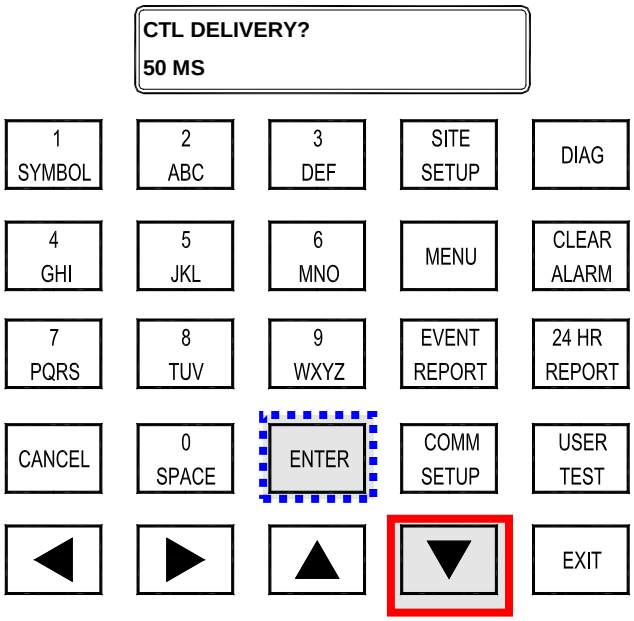


Figure 4-18 SEAR II LUI - Add Module - Control Delivery

STEP 12 Pressing ENTER for the CTL Delivery will submit the entry and conclude the configuration and save the settings in the SEAR for the module as shown in Figure 4-19.

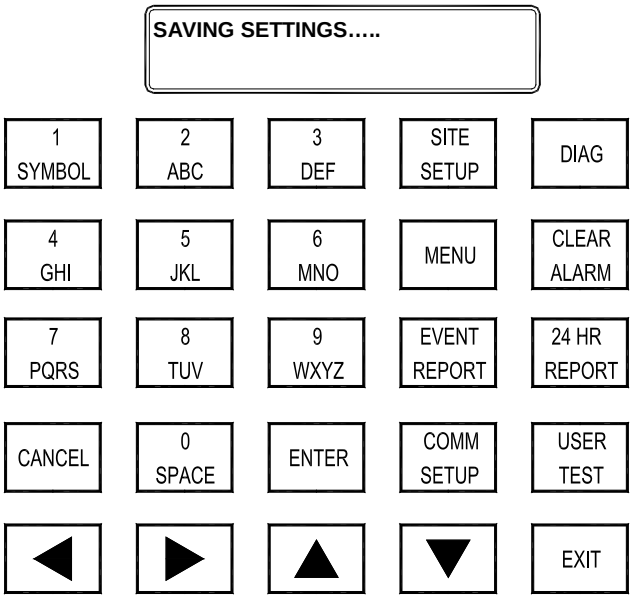


Figure 4-19 SEAR II LUI - Add Module - Saving Settings

STEP 13 The SEAR II will request the SERVICE BUTTON (Echelon Button) on the Local I/O Panel be pressed. This is a recessed button, as shown in Figure 4-20, and will require the use of a pen tip or small screwdriver. Press the Service Button on the Local I/O Panel. The Service Light to the left of the button will illuminate briefly during the transaction.

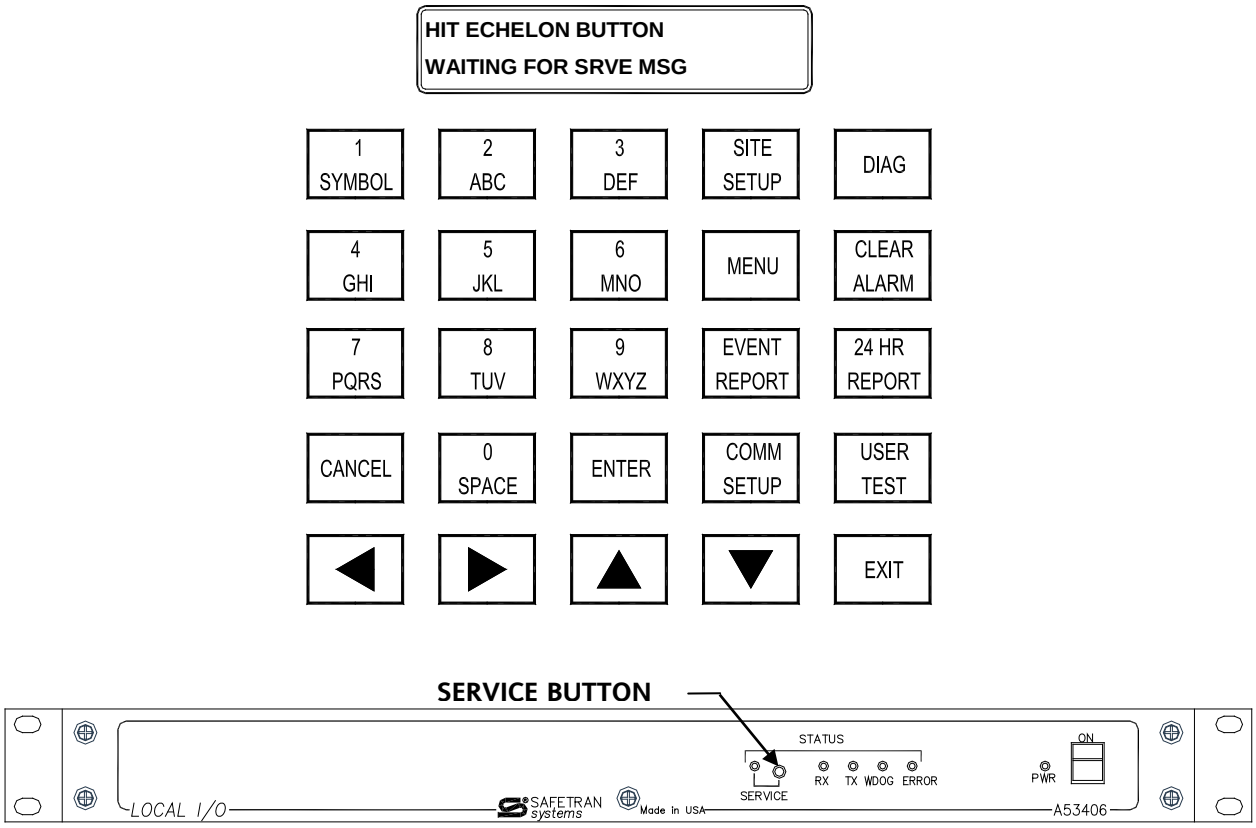


Figure 4-20 SEAR II LUI - Add Module - Add Module to Echelon® Network

STEP 14 Figure 4-21 and Figure 4-22 display the successive screens on the SEAR LUI readout during the handshake transaction over the Echelon® Network between the SEAR and the Local I/O Panel.

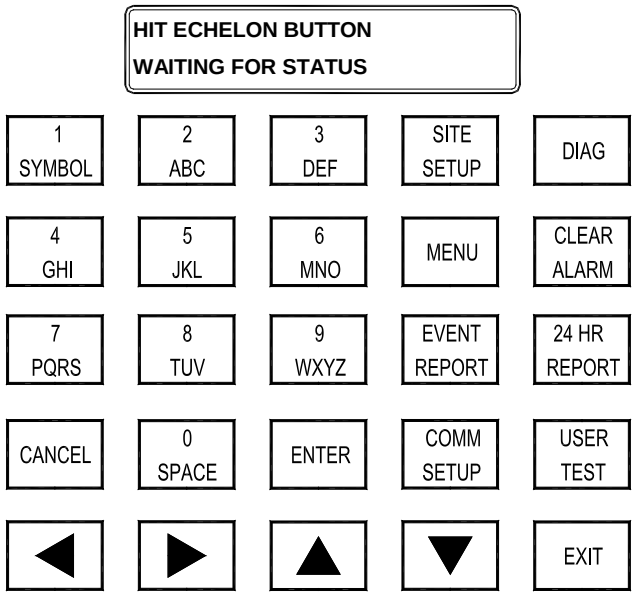


Figure 4-21 SEAR II LUI - Add Module - Waiting for Local I/O Module Status

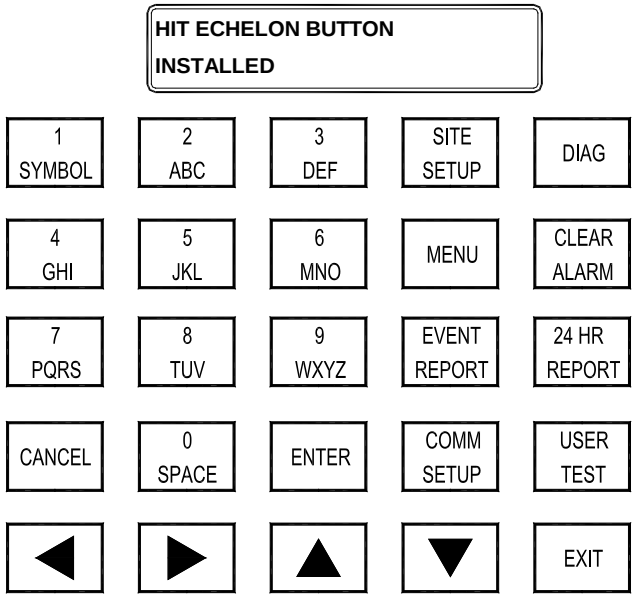


Figure 4-22 SEAR II LUI - Add Module - Local I/O Module Installed

STEP 15 Once the module is installed, the LUI screen returns to the Module Menu as shown in Figure 4-23. To add another module press ENTER and repeat the module configuration steps. If no additional modules are required, press the EXIT key.

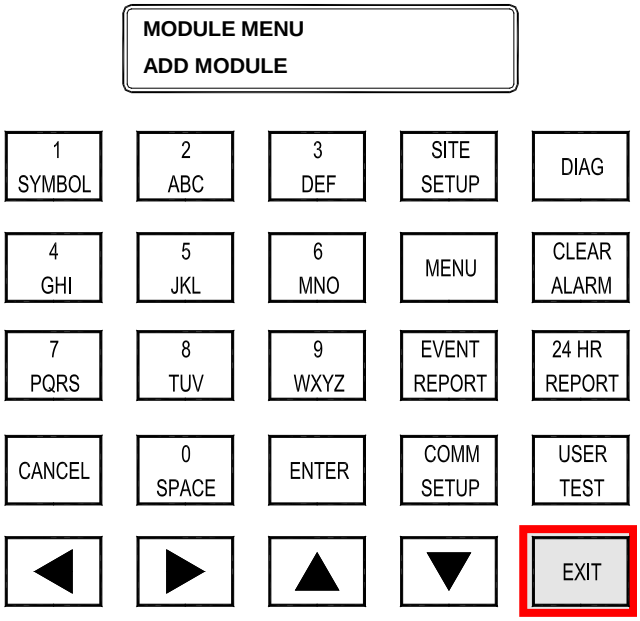


Figure 4-23 SEAR II LUI - Add Module - Exit

STEP 16 Exiting the Module Menu returns the SEAR LUI to the Configuration Menu as shown in Figure 4-24. To end the Configuration Session, press the EXIT key.

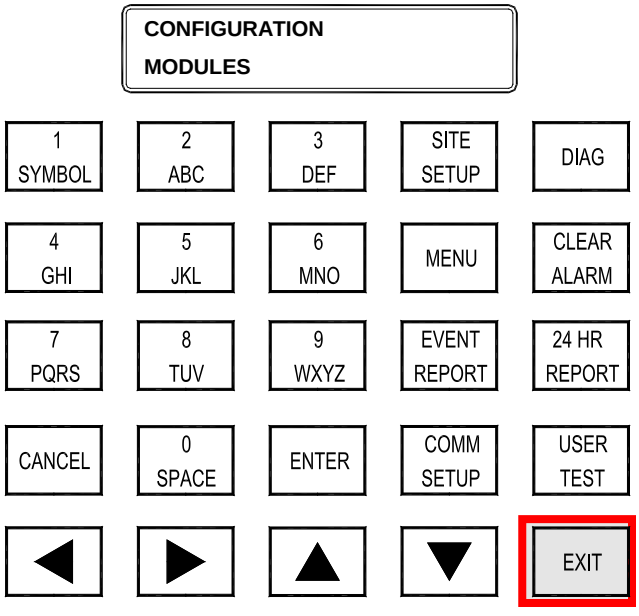


Figure 4-24 SEAR II LUI - Exit Configuration

STEP 17 When exiting the Configuration session the SEAR will ask to save the configuration changes, as shown in Figure 4-25. To SAVE Configuration Changes press the ENTER key. The screen in Figure 4-26 displays the confirmation the parameters have been saved. To not save changes, press any arrow key and NO will appear. Press ENTER and the SEAR will end the session without saving the parameters.

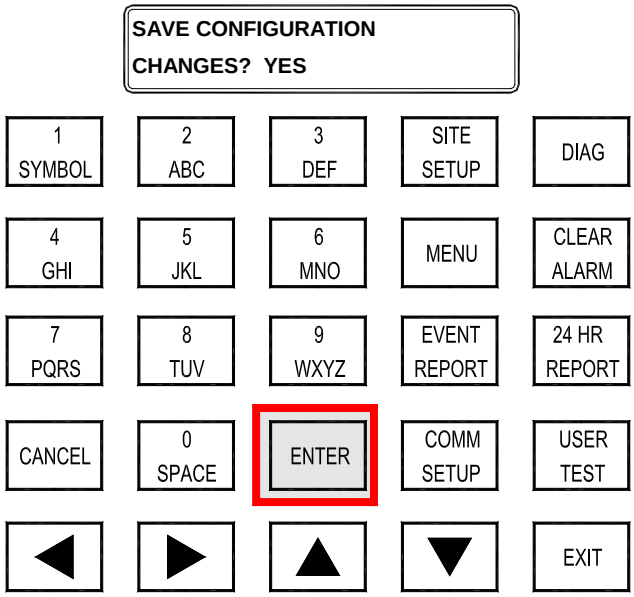


Figure 4-25 SEAR II LUI - Save Configuration Changes

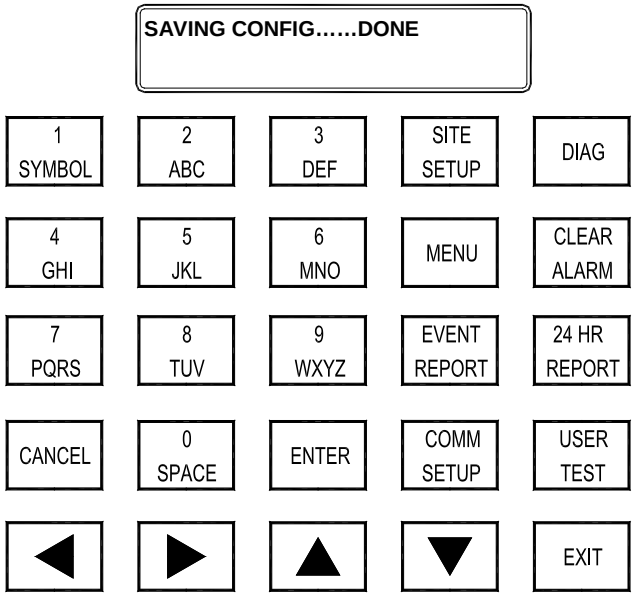


Figure 4-26 SEAR II LUI - Save Configuration Changes - Done

STEP 18 The screen in Figure 4-27 will appear at the conclusion of the Configuration session whether the parameters were saved or not saved. Press the EXIT key to return to the SEAR Monitoring screen as shown in Figure 4-28.

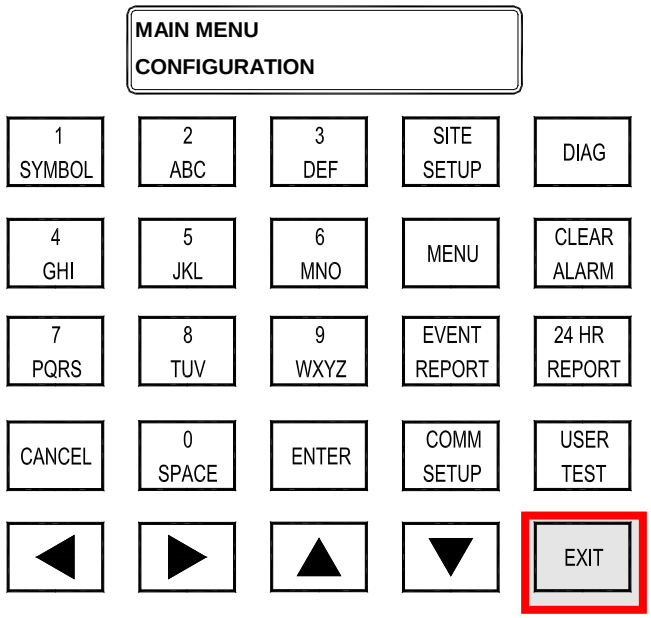


Figure 4-27 SEAR II LUI - Return to Main Menu

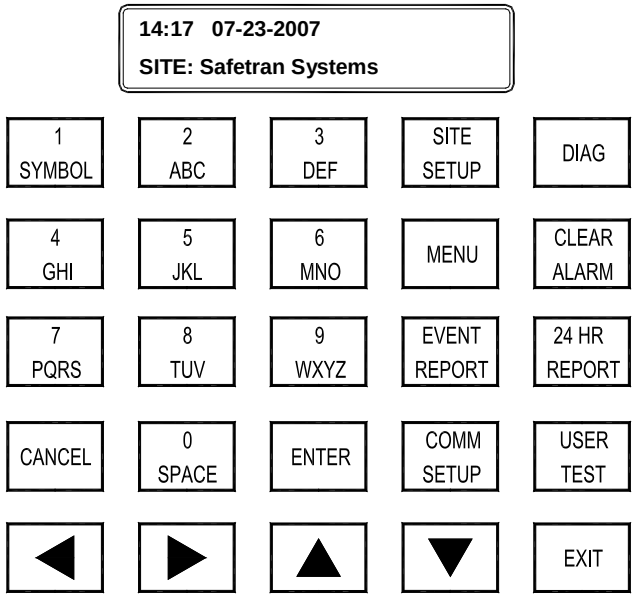


Figure 4-28 SEAR II - Return to Monitoring Screen

4.3 LOCAL I/O PANEL CONFIGURATION USING SEAR II USER INTERFACE

Connect the Local I/O Panel and a computer equipped with a Terminal Emulation program to the SEAR II User (J4) connector using straight through DB-9 serial cable as shown in Figure 4-29.

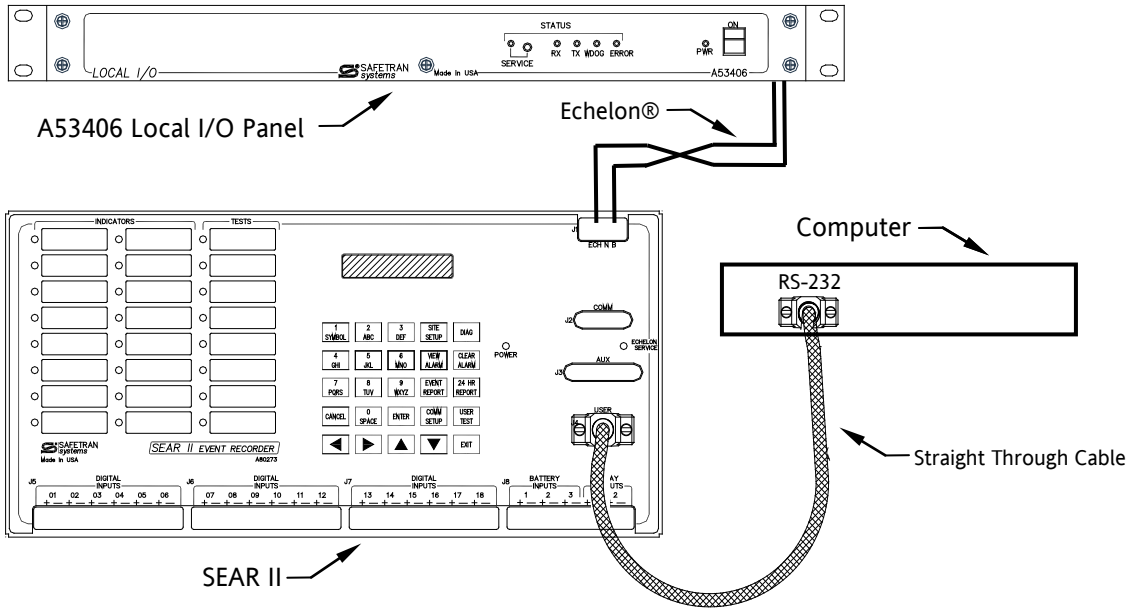


Figure 4-29 SEAR II - Local I/O Configuration Equipment Set Up - Computer RS-232

4.3.1 Local I/O Configuration Procedure SEAR II User Interface (RS232)

STEP 1 Open a Terminal Emulation program on the computer. Verify the User Port baud rate using the keypad on the SEAR II **(*MENU > MAIN MENU > CONFIGURATION > SERIAL PORTS > USER > BAUD*).** Configure the terminal program COM 1 to match the parameters of the SEAR II (default = 57600, 8, None, 1, None) as shown in Figure 4-30. Save the set up for future use. Press **<Ctrl+L>** to connect to the SEAR II.

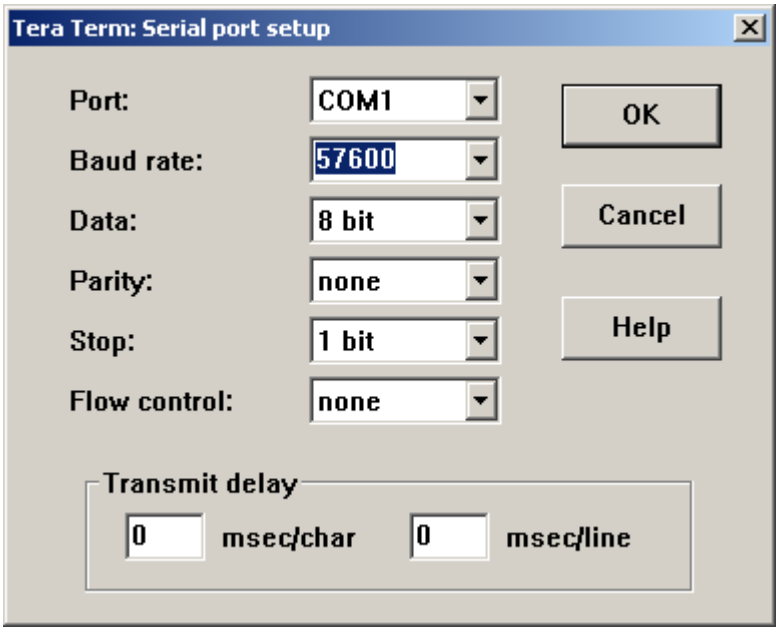


Figure 4-30 SEAR II - RS-232 COM 1 Terminal Emulation Set Up Screen

STEP 2 Figure 4-31 shows the opening screen from the SEAR II. Using the arrow keys or type the letter value to the left of the menu item and select Configuration [F] and press <ENTER> as shown in Figure 4-32

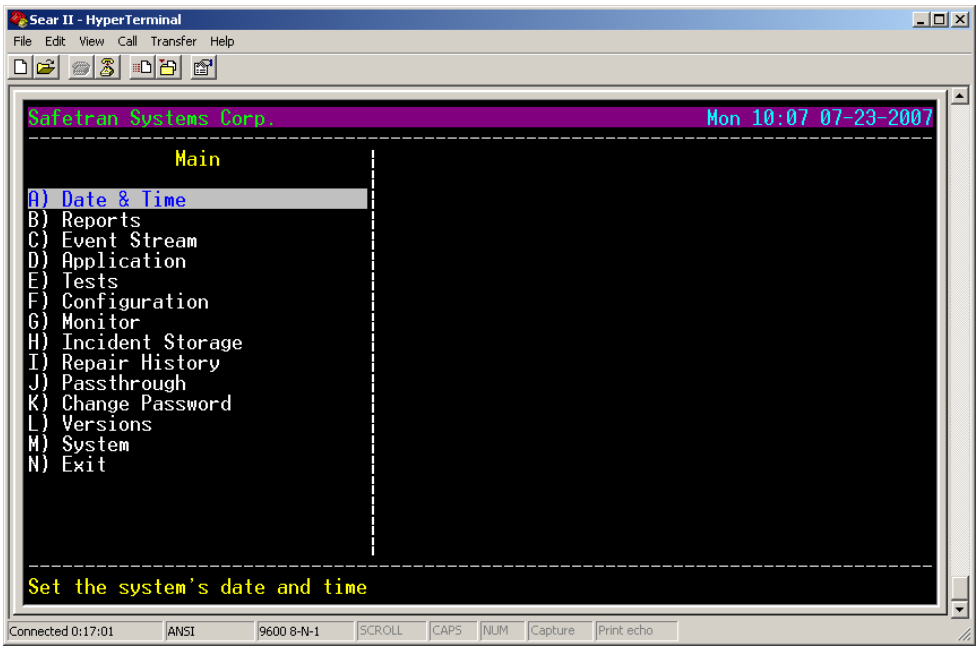


Figure 4-31 SEAR II - Main Menu

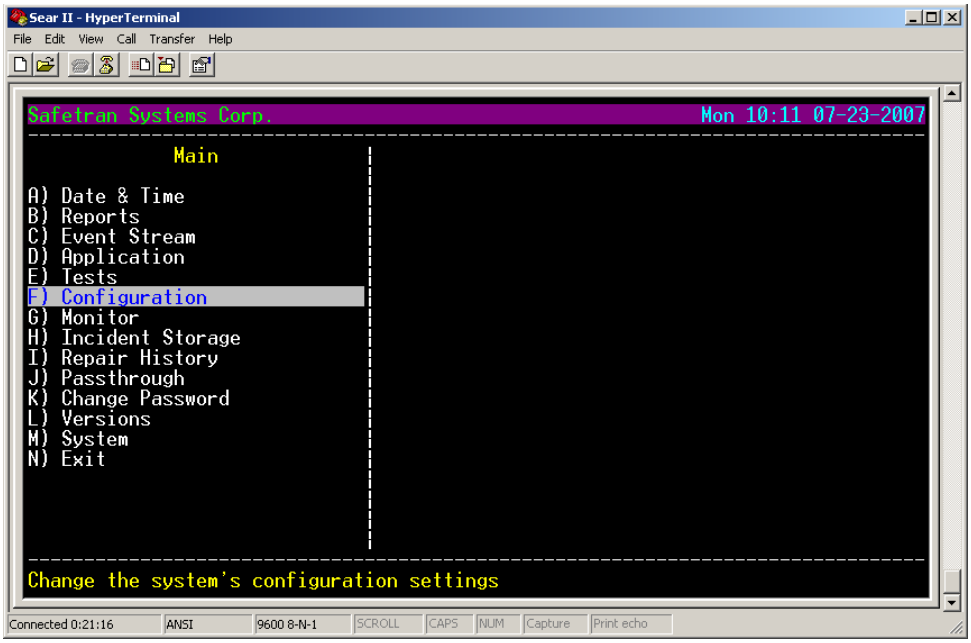


Figure 4-32 SEAR II - Main Menu - Configuration [F]

STEP 3 Figure 4-33 shows the Configuration Menu. Select Modules [J].

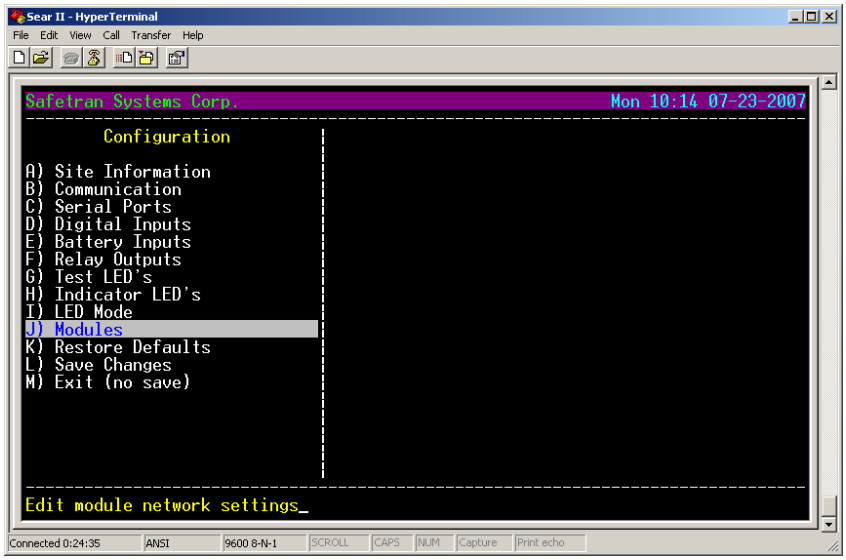


Figure 4-33 SEAR II - Configuration Menu - Modules [J]

STEP 4 From the Module Maintenance Menu select Add Module [A] and press <ENTER> as shown in Figure 4-34.

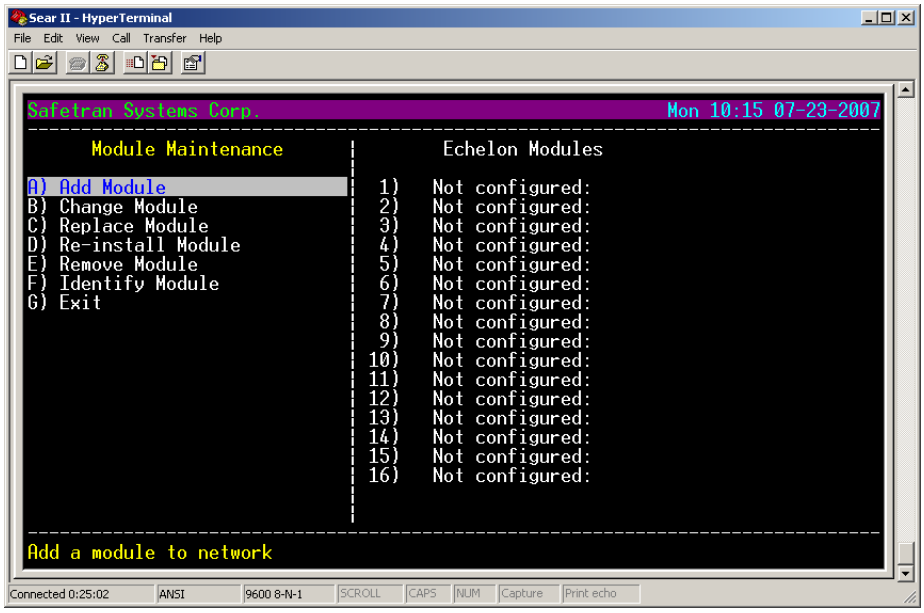


Figure 4-34 SEAR II - Module Maintenance Menu - Add Module [A]

STEP 5 Figure 4-35 displays the Add Module screen. From the right side of the screen select the Module Type. [A53406 Panel] ^v indicates a menu option field, use the arrow keys to scroll through the list of modules and find A53406 Panel and press <ENTER>.

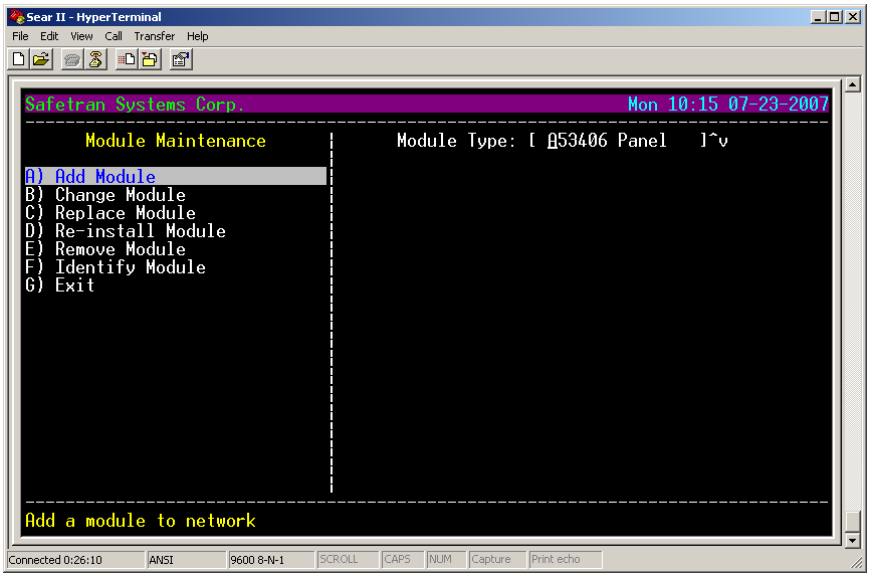


Figure 4-35 SEAR II - Module Maintenance - Select Module Type

STEP 6 Figure 4-36 shows the next screen. A request for Module Name is displayed. The brackets [ ] indicate a field that requires text to be entered (typed) within that area. Enter the desired label (up to ten alphanumeric characters) to identify the module. Press <ENTER> to continue.

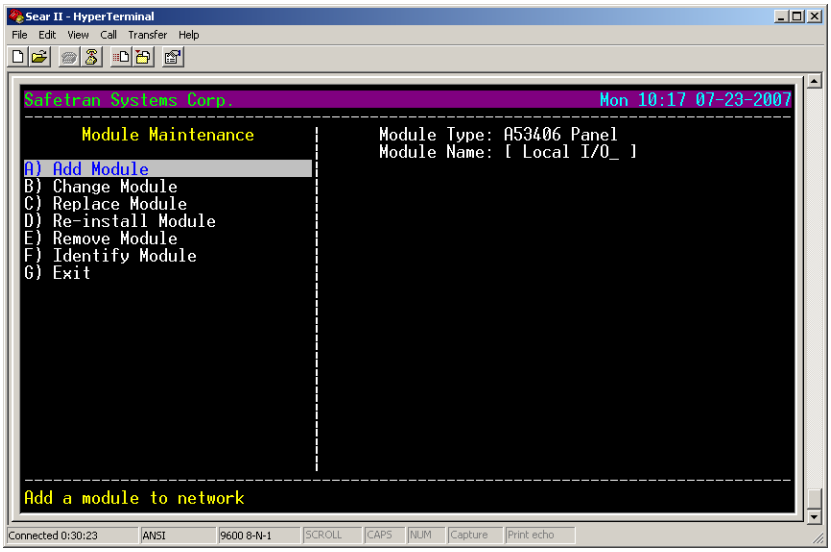


Figure 4-36 SEAR II - Module Maintenance - Module Name Entry

STEP 7 The next entry is Edit Settings, use the Arrow keys to select YES or NO as shown in Figure 4-37.

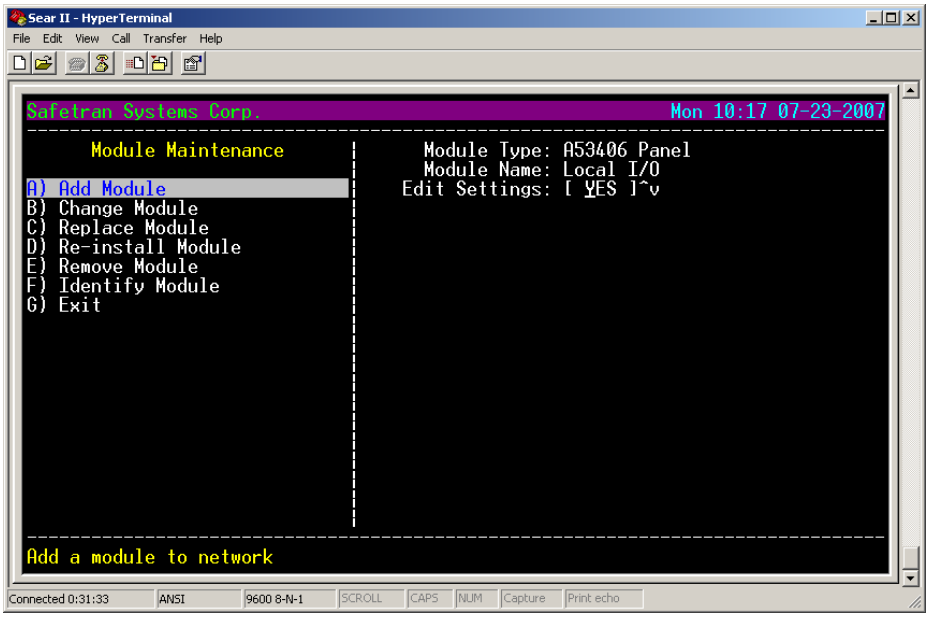


Figure 4-37 SEAR II - Module Maintenance - Edit Setting Selection

STEP 8 Figure 4-38 displays the next screen to select Edit Settings or Exit. Select Edit Settings and press <ENTER>.

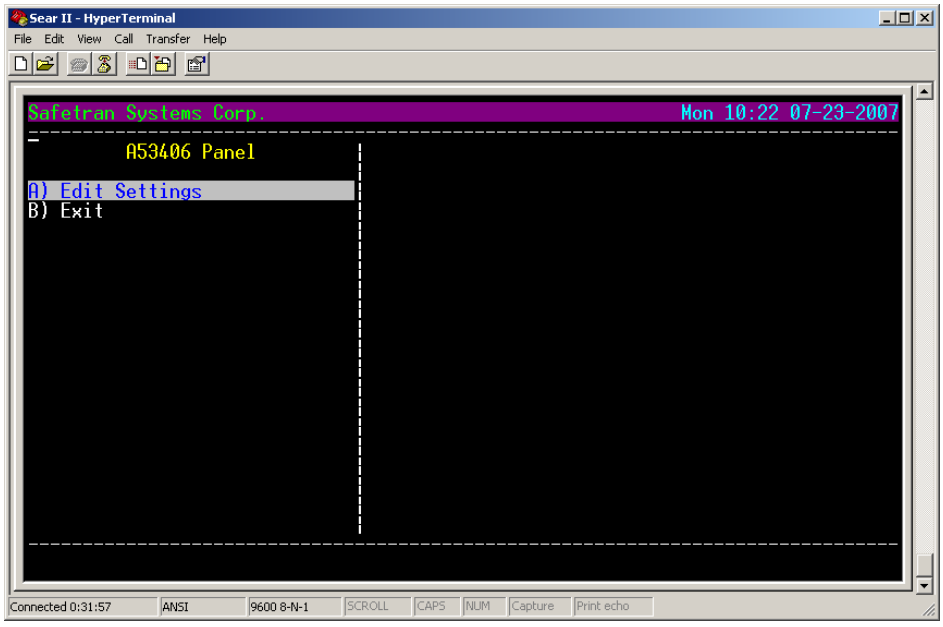


Figure 4-38 SEAR II - A53406 Panel - Edit Settings

STEP 9 Figure 4-39 shows the Edit Settings Menu. Five parameters are available for configuration. The first parameter is Input Bytes. This entry selects the number of 8 Bit Words required for the input of the Local I/O Panel. A maximum of 12 Input Bytes is recommended. The factory default is 9. The remaining Input Bytes (18 minus the number of Input Bytes) will be assigned as Output Bytes. Type the number of Input Bytes desired and press the <ENTER> key to submit your selection.

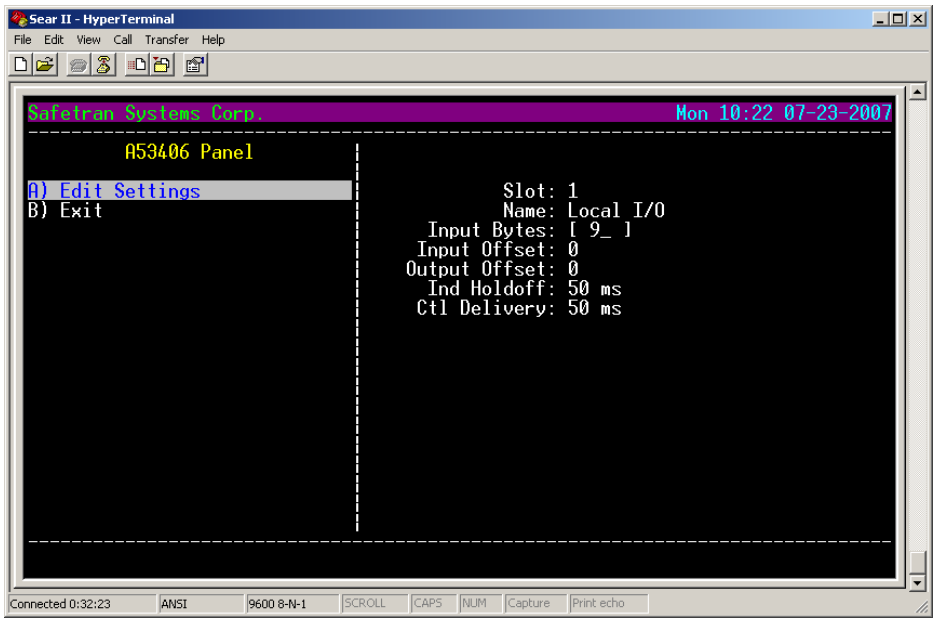


Figure 4-39 SEAR II - Edit Settings - Input Bytes Entry

STEP 10 The next parameter is Input Offset as shown in Figure 4-40. The range is 0 - 15 with the default 0. Type in the desired value and press <ENTER> to submit your selection.

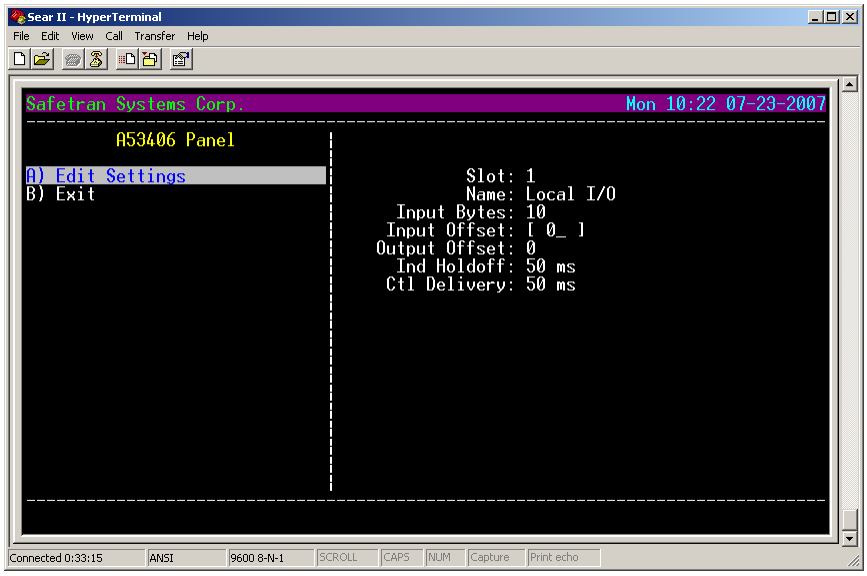


Figure 4-40 SEAR II - Edit Settings - Input Offset Entry

STEP 11 The following parameter is Output Offset as shown in Figure 4-41. The default setting for the Local I/O Panel is zero. Use the keyboard to enter the desired value and press the <ENTER> key.

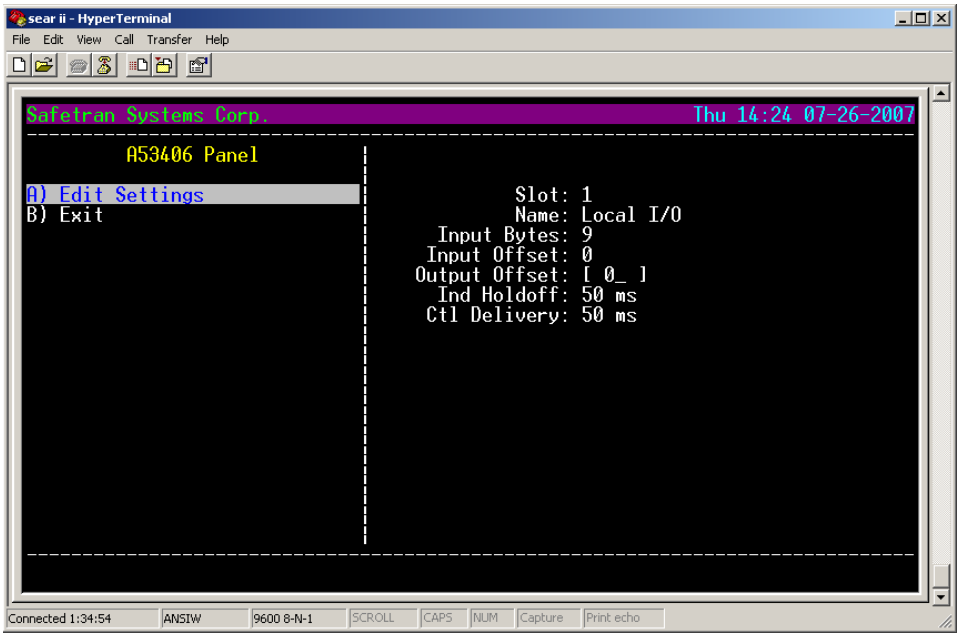


Figure 4-41 SEAR II - Edit Settings - Output Offset Entry

STEP 12 Indication Holdoff is the next parameter as shown in Figure 4-42. This entry sets the Delay Time following detection of an indication before the indication is read to ensure validity. Use the Arrow Keys to select from the available times: 50 ms, 100 ms, 200 ms, 500 ms, 1 sec, 2 sec. Press the <ENTER> key to submit your selection.

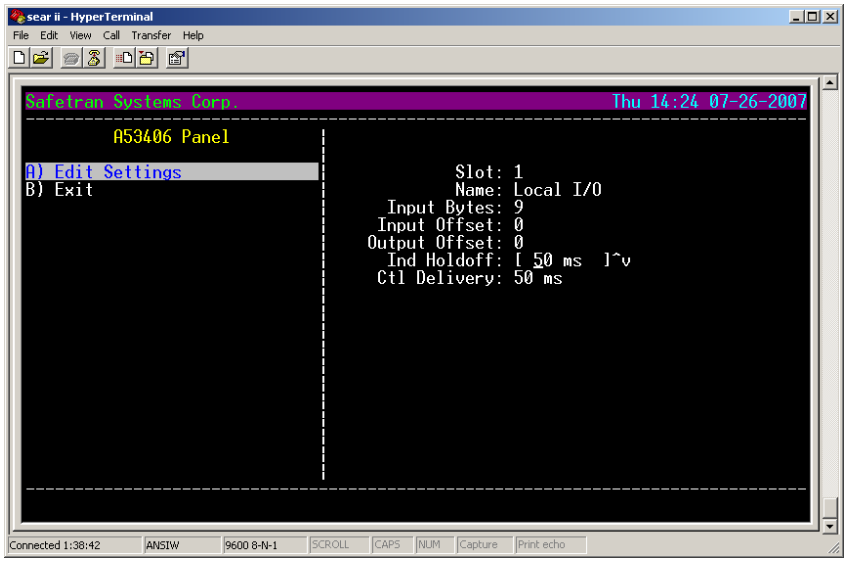


Figure 4-42 SEAR II - Edit Settings - Indication Holdoff Entry

STEP 13 Figure 4-43 displays the Control Delivery parameter. This entry determines the amount of time an output will be delivered for control of stick relays. Use the arrow keys to select from the available times: 50 ms, 100 ms, 200 ms, 500 ms, 1 sec, 2 sec. Press the <ENTER> key to submit your selection.

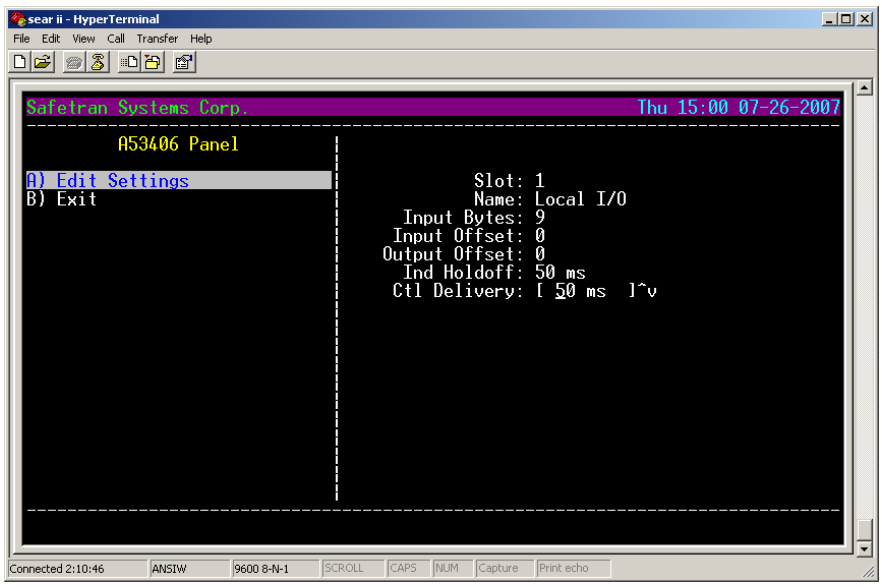


Figure 4-43 SEAR II - Edit Settings - Control Delivery

STEP 14 Once the Control Delivery settings are entered the Edit Settings screen will appear as shown in Figure 4-44. If all settings are satisfactory, use the arrow keys or type [B] to select EXIT and press <ENTER>. Should a setting require modification, simply remain in Edit Settings press <ENTER> and cycle through the settings and make corrections and adjustments as necessary and return to this screen.

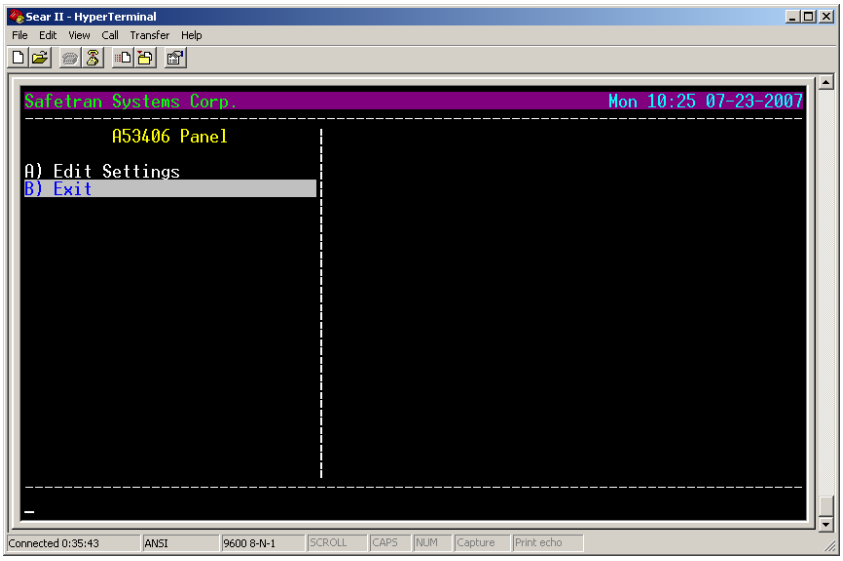


Figure 4-44 SEAR II - Edit Settings - Exit

STEP 15 Exit of the Edit Settings session will Save Settings as shown in Figure 4-45. When complete, the screen in Figure 4-46 will appear to verify the settings were saved.

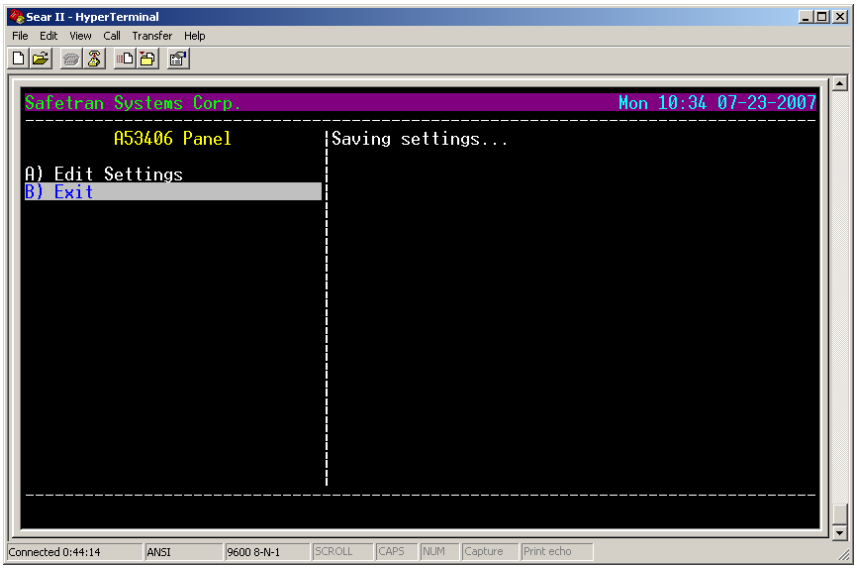


Figure 4-45 SEAR II - A53406 Panel - Saving Settings

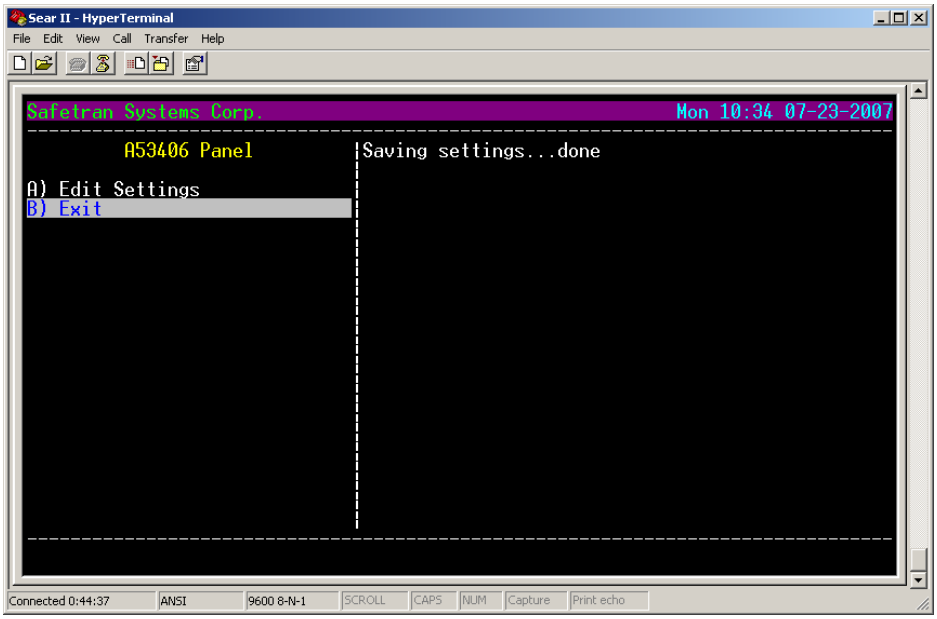


Figure 4-46 SEAR II - A53406 Panel - Saving Settings - Done

STEP 16 The SEAR II will request the SERVICE BUTTON (Waiting for Service Message) on the Local I/O Panel be pressed. This is a recessed button, as shown in Figure 4-47, and will require the use of a pen tip or small screwdriver. Press the Service Button on the Local I/O Panel. The Service Light to the left of the button will illuminate briefly during the transaction.

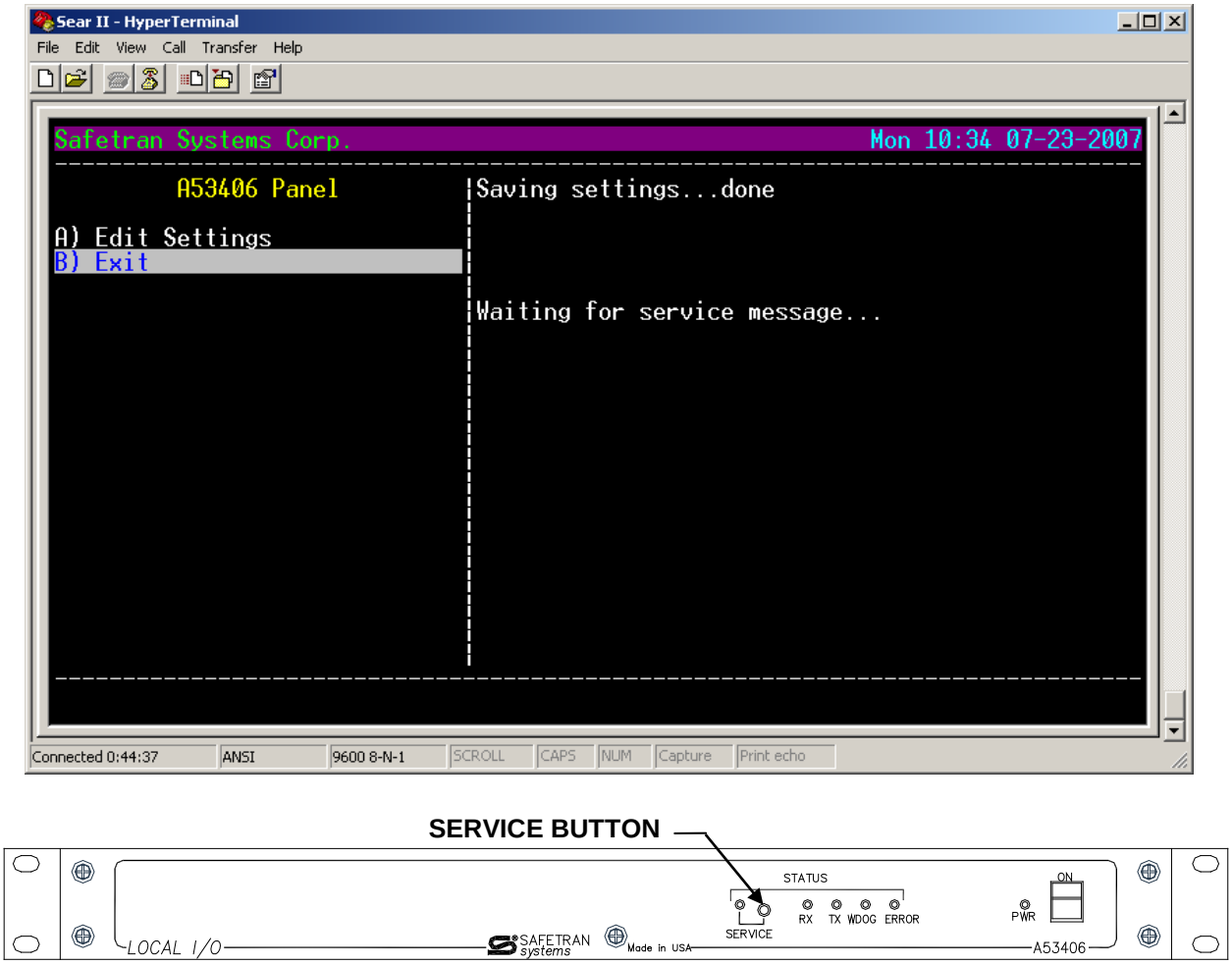


Figure 4-47 SEAR II - Interface Local I/O Panel to Echelon® Network

STEP 17 During the handshake transaction between the Local I/O and the SEAR II, the terminal screen will track the progress as shown in Figure 4-48. When the Local I/O installed message appears, use the arrow keys or type [B] to select EXIT and press <ENTER> to conclude the configuration of the Local I/O Panel.

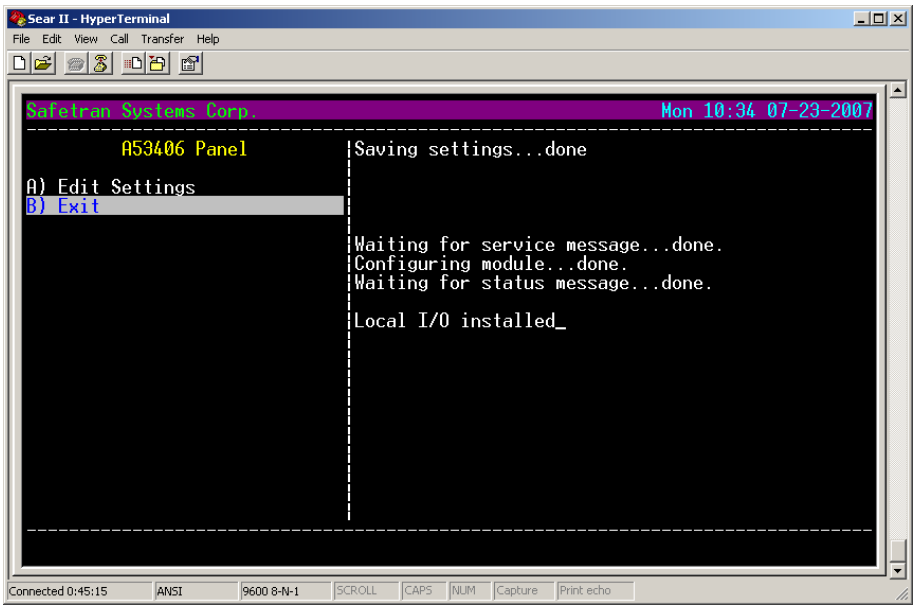


Figure 4-48 SEAR II - Local I/O Panel Installation to Echelon® Network

STEP 18 The screen displayed in Figure 4-49 will appear at the completion of the Local I/O installation. Use the arrow keys or type [G] to select EXIT and press <ENTER>.

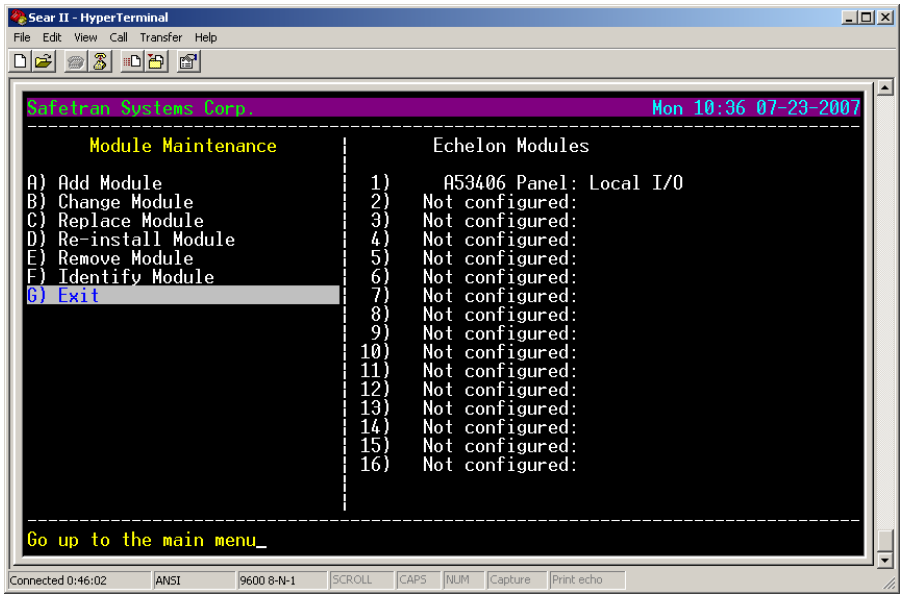


Figure 4-49 SEAR II - Module Maintenance - Exit

STEP 19 Exiting Module Maintenance will bring up the Configuration Menu. Use the arrow keys or type [L] to select SAVE CHANGES and press <ENTER> as shown in Figure 4-50.

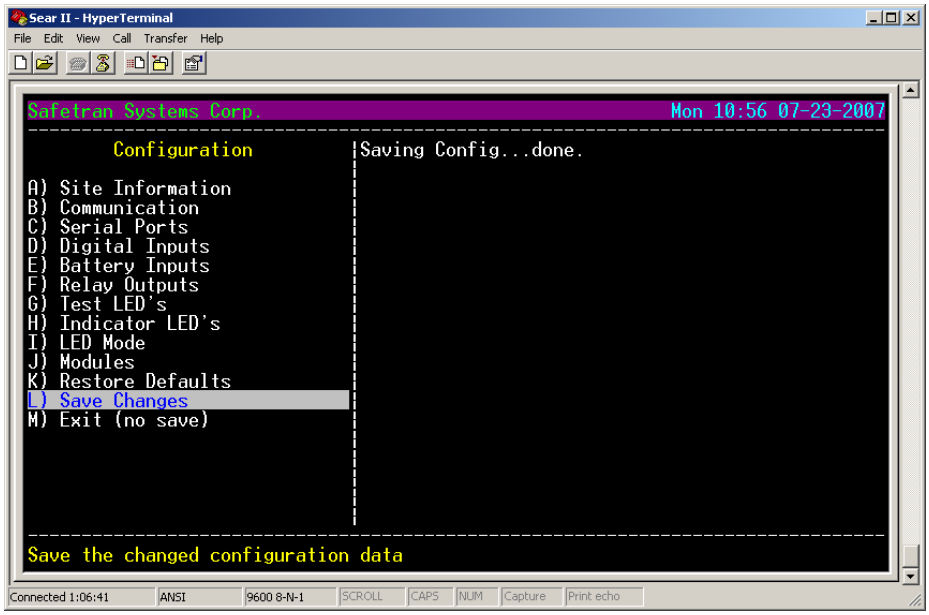


Figure 4-50 SEAR II - Configuration Menu - Save Changes

STEP 20 To exit the Configuration session use the arrow keys or type [M] to select EXIT (no save), and press <ENTER> as shown in Figure 4-51.

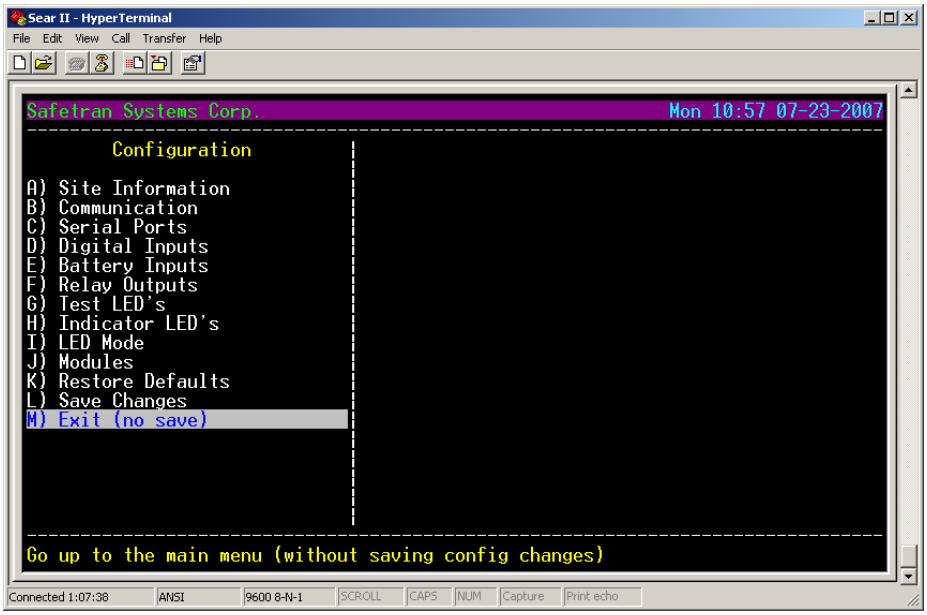


Figure 4-51 SEAR II - Exit Configuration Menu

STEP 21 The Main Menu will appear as shown in Figure 4-52. Use the arrow keys or type [N] to select EXIT and press <ENTER> to disconnect from the SEAR II.

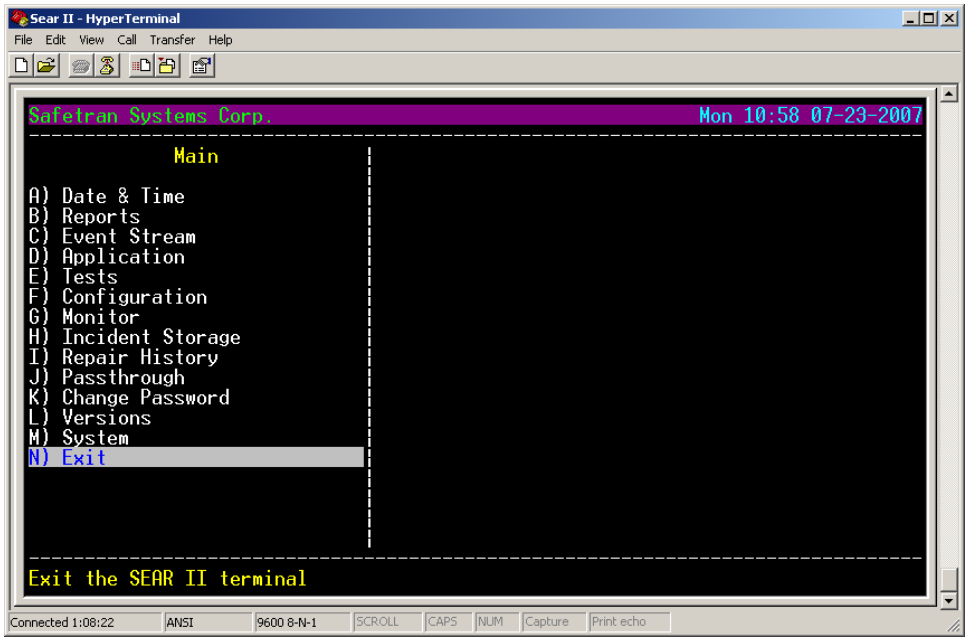


Figure 4-52 SEAR II - Exit Terminal Program

4.4 LOCAL I/O CONFIGURATION USING WCP CPU II DIAGNOSTICS PORT

Configuring the Local I/O Panel using the Siemens A53105 WCP CPU II requires a DOS compatible computer or laptop with a serial port (USB type serial ports are not recommended) with the Utility Software (XCMMAINT.EXE) provided with the A53105 WCP CPU II installed. Figure 4-53 shows the equipment set up for configuration of the Local I/O Panel using the WCP CPU II. Apply power to the equipment and start the XCMMAINT utility software to begin the configuration process.

NOTE

USB type serial ports will not work properly with this application.

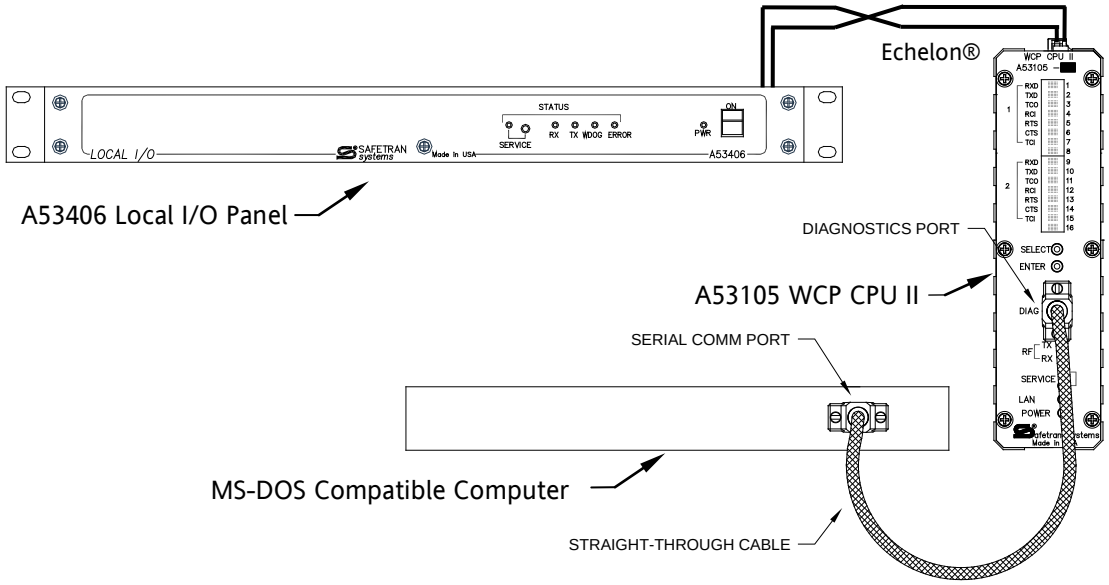


Figure 4-53 CPU II - Local I/O Configuration Equipment Setup

4.4.1 CPU II - Local I/O Configuration Procedure – XCMMAINT.EXE

STEP 1 Starting the XCMMAINT.EXE program will open with the screen in Figure 4-54. The program will ask for a Codeplug File. To view saved files press the <ENTER> key.

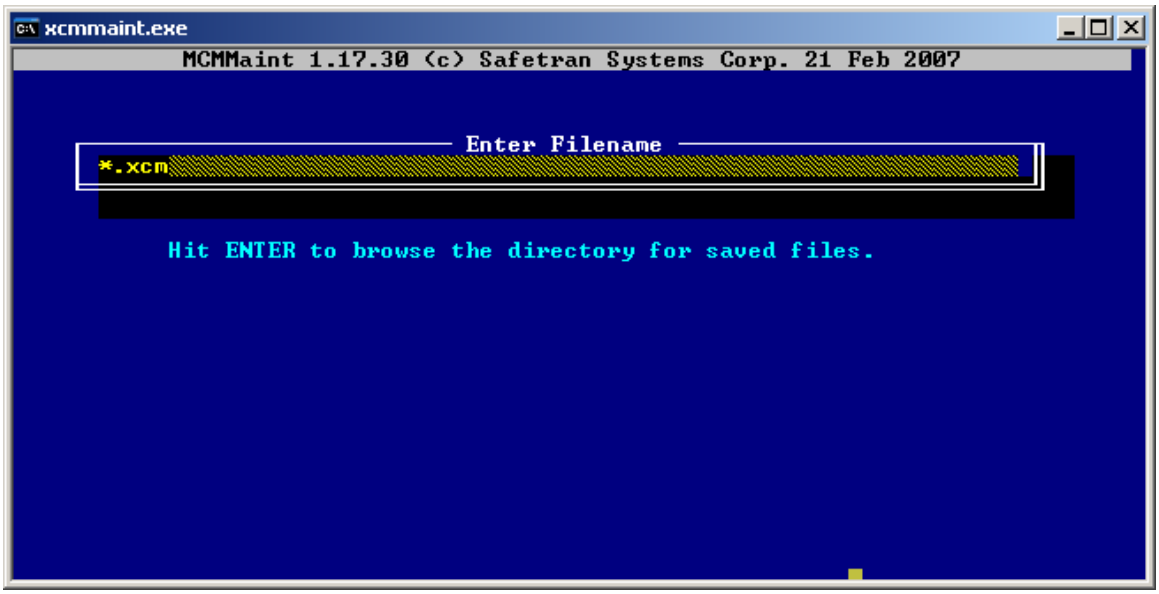


Figure 4-54 CPU II XCMMAINT - Opening Screen

STEP 2 Figure 4-55 displays the saved files directory. Using the arrow keys to highlight the desired file and press the <ENTER> key. If existing files are not present, select the default and press the <ENTER> key.

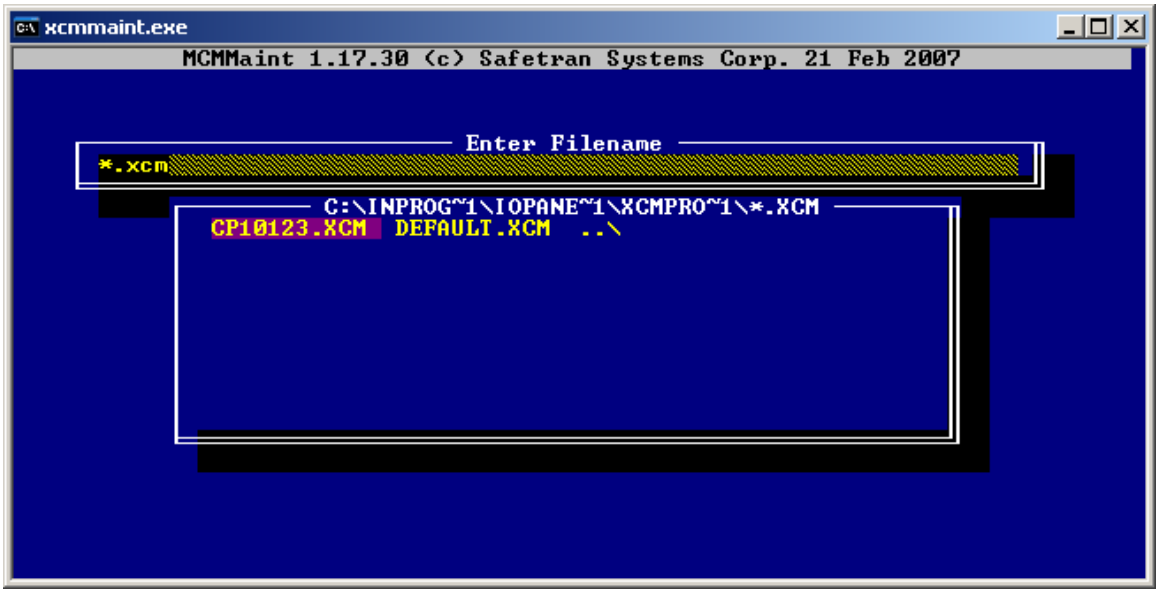


Figure 4-55 CPU II XCMMAINT - Codeplug File Directory

STEP 3 Figure 4-56 is the opening screen for the Main Editor. The screen has four sections, Radio Settings, Site Settings, and Lontalk-Network-Configuration, and Port-Protocol.

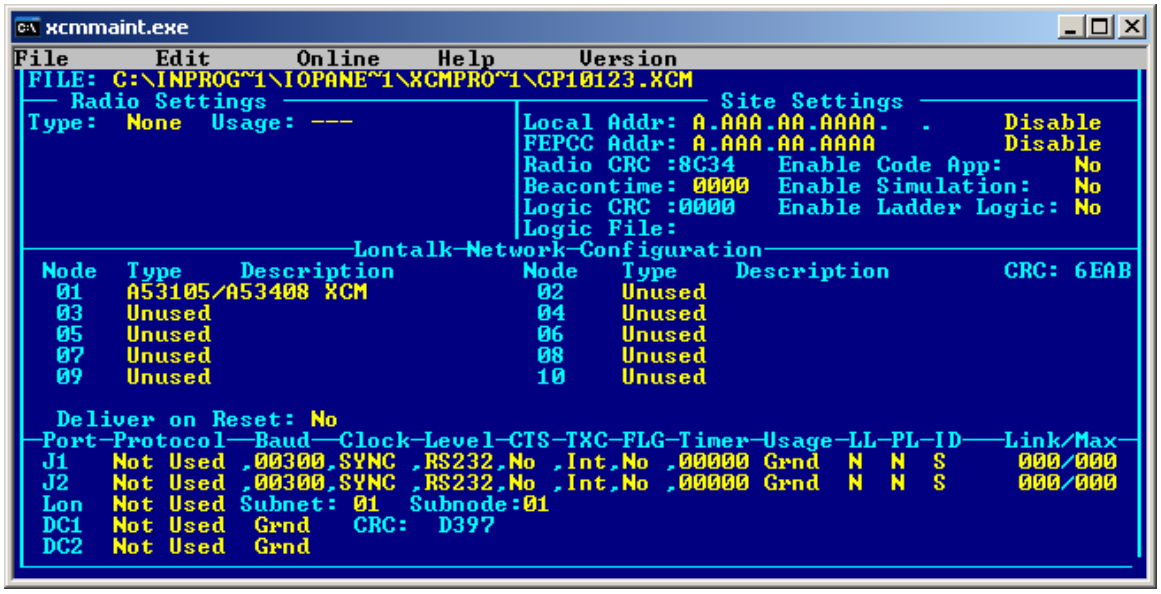


Figure 4-56 CPU II XCMMAINT - Main Editor

STEP 4 Installation of the A53406 Local I/O Panel requires the configuration of following Site Settings elements. Using the arrow keys move to the Enable Code App: and using the <SPACE BAR> select YES. Figure 4-57 shows the location of the entry.

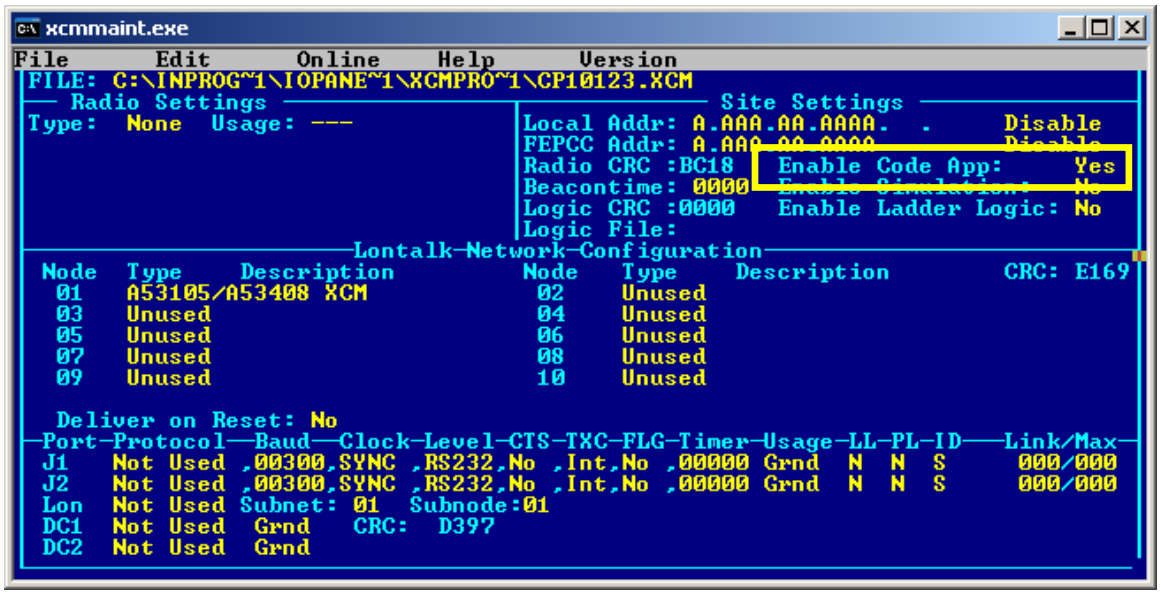


Figure 4-57 CPU II XCMMAINT - Main Editor - Site Settings - Enable Code App

STEP 5 Using the arrow keys move to Enable Simulation: and using the space bar select YES. Figure 4-58 shows the location of the entry.

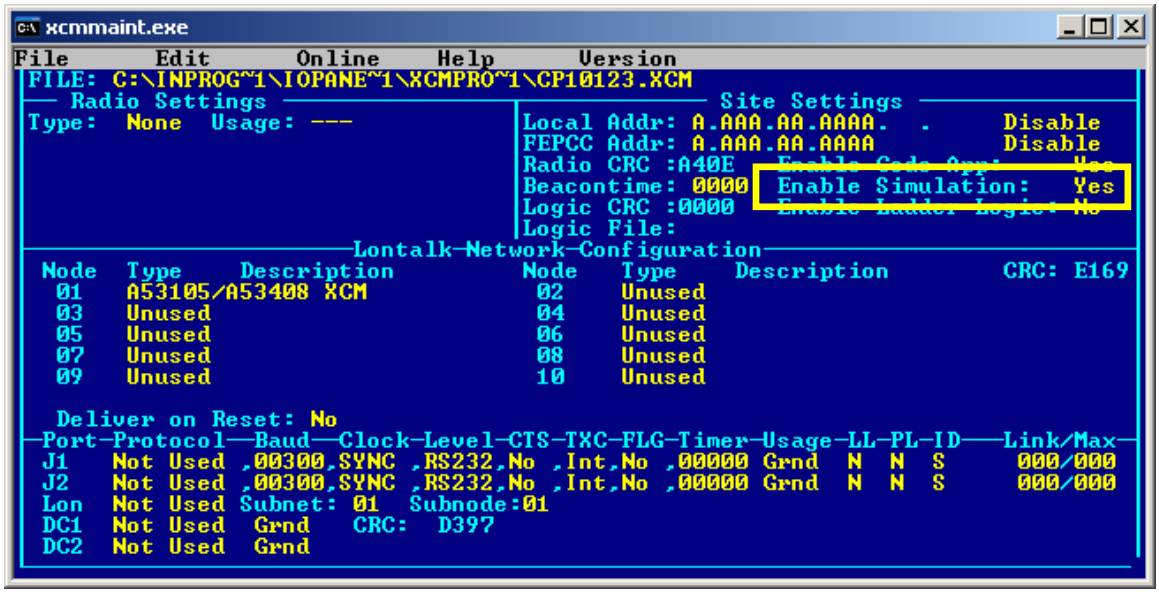


Figure 4-58 COU II XCMMAINT - Main Editor - Site Settings - Enable Simulation

STEP 6 If Ladder Logic is to be used use the arrow keys and move to Enable Ladder Logic: and using the <SPACE BAR> select YES. Figure 4-59 shows the location of the entry.

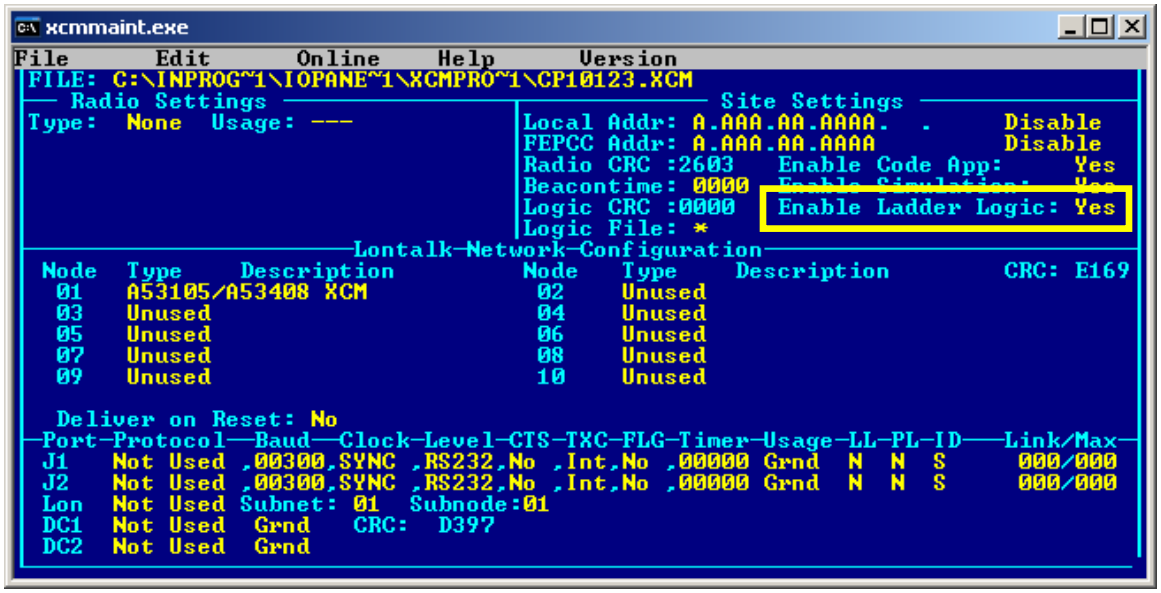


Figure 4-59 CPU II XCMMAINT - Main Editor - Site Settings - Enable Ladder Logic

STEP 7 Selecting YES on the Enable Ladder Logic entry will launch a pop up screen requesting the path of the Ladder Logic file as seen in Figure 4-60 below.

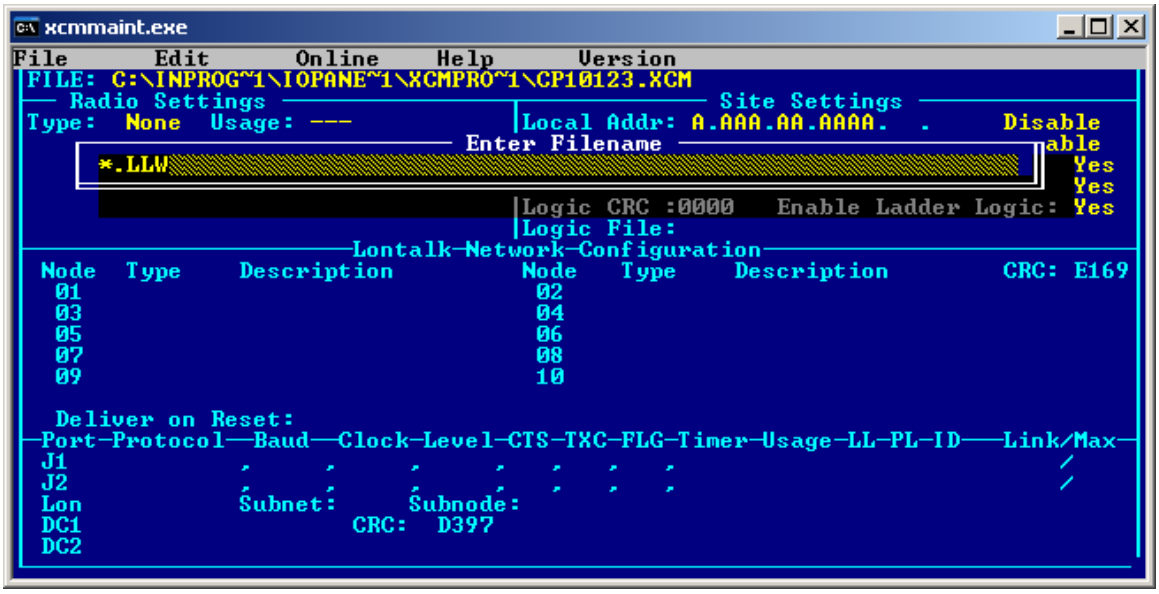


Figure 4-60 CPU II XCMMAINT - Main Editor - Ladder Logic File Request

STEP 8 Enter the Path and Filename of the Ladder Logic File or press ENTER and use the arrow keys to navigate through the system to locate the desired file. An example is shown in Figure 4-61.

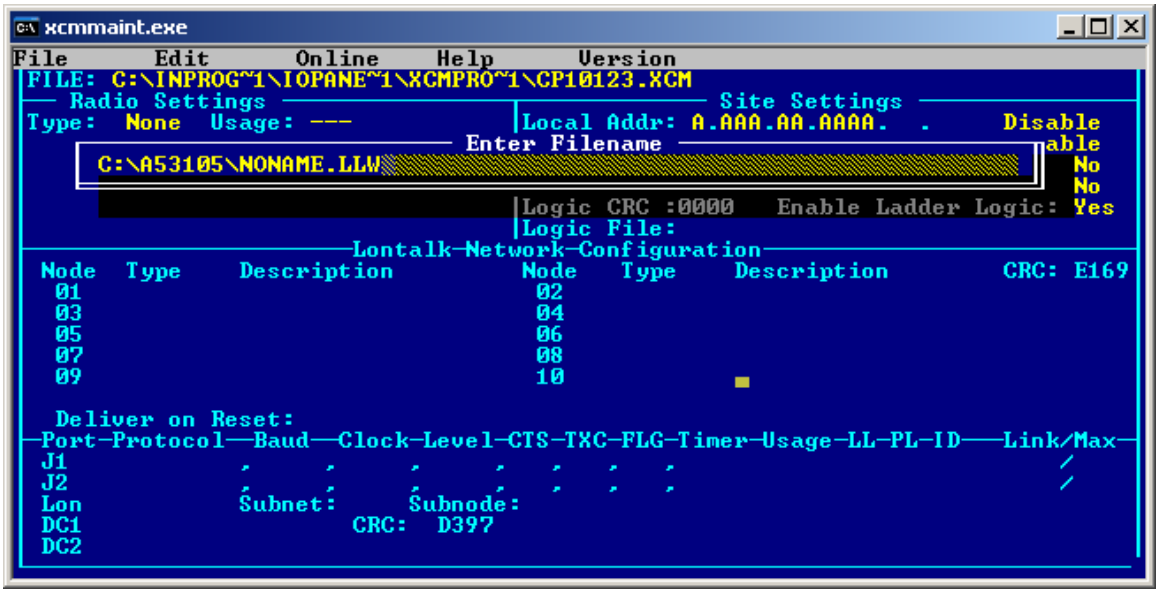


Figure 4-61 CPU II XCMMAINT - Main Editor - Ladder Logic File Entry

STEP 9 Press <ENTER> and the entry will appear in the Logic File: section of the Site Settings as seen in Figure 4-62.

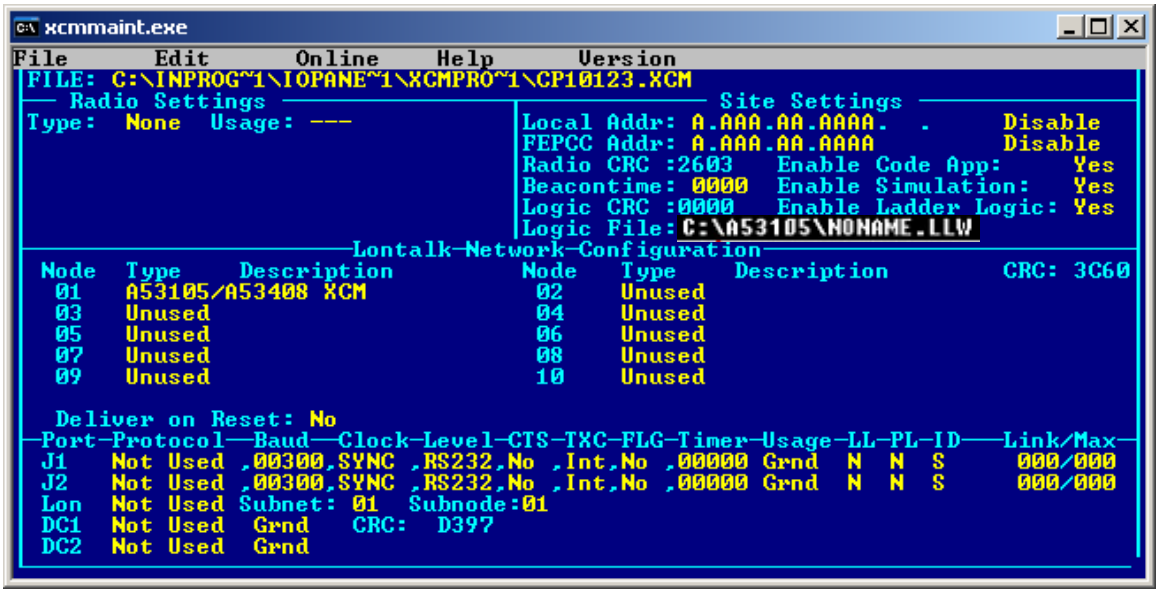


Figure 4-62 CPU II XCMMAINT - Main Editor - Logic File Path and Filename Entry

STEP 10 The LonTalk-Network-Configuration section of the Main Editor Screen seen in Figure 4-63 is where the Siemens A53406 Local I/O is assigned to an Echelon® Node. Node 01 is reserved for the A53105 WCP CPU or A53444 BCM and Node 02 is reserved for the A53325 SS (Spread Spectrum) Radio. Nodes 3 through 10 will accept all equipment.

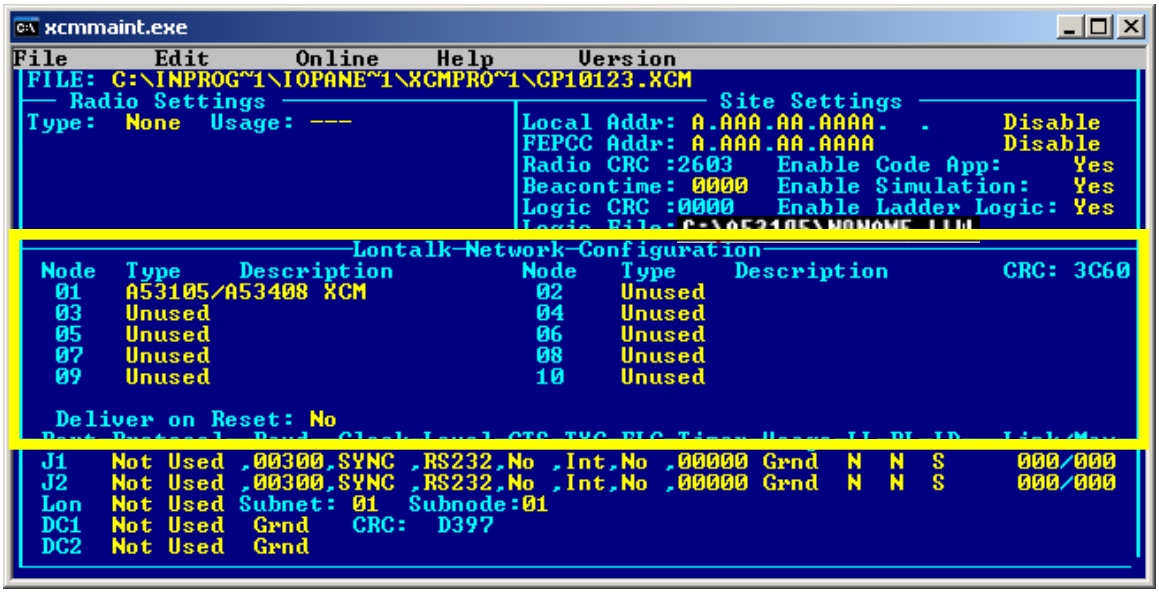


Figure 4-63 CPU II XCMMAINT - Main Editor - Lontalk® Network Configuration

The following are the equipment lists for the corresponding nodes:

Node 01 Selection:	A53105WCP CPU/A53444 BCM
Node 02 Selection:	Unused A53325 SS Radio
Nodes 03-10 Selections:	Unused A53101 Bipolar I/O A53102 Unipolar I/O A53103 Relay Output A53105/A53444 BCM A53325 SS Radio A53406 Local Panel A53XXX Geo Intlock A50692 Universal LCP

Each LanTalk® network node requires individual configuration and installation. Use the arrow key to place the cursor line on the Node to be configured (e.g. Node 3). Press the <Space Bar> until the A53406 Local Panel is displayed as shown in Figure 4-64

.

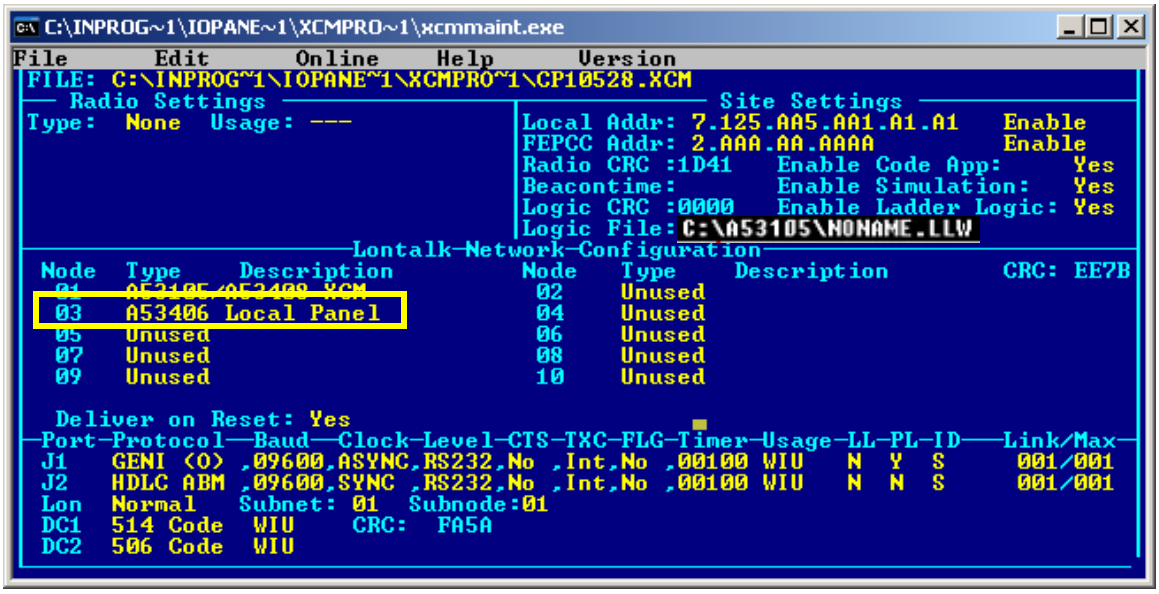


Figure 4-64 CPU II XCMMAINT - Main Editor - Node Configuration

STEP 11 Press <Alt + E> and the Local I/O Configuration screen displays as seen in Figure 4-65. Use the arrow keys to move through the window, the underscore __ indicates where in the screen the user's cursor is and the field that the user can edit.

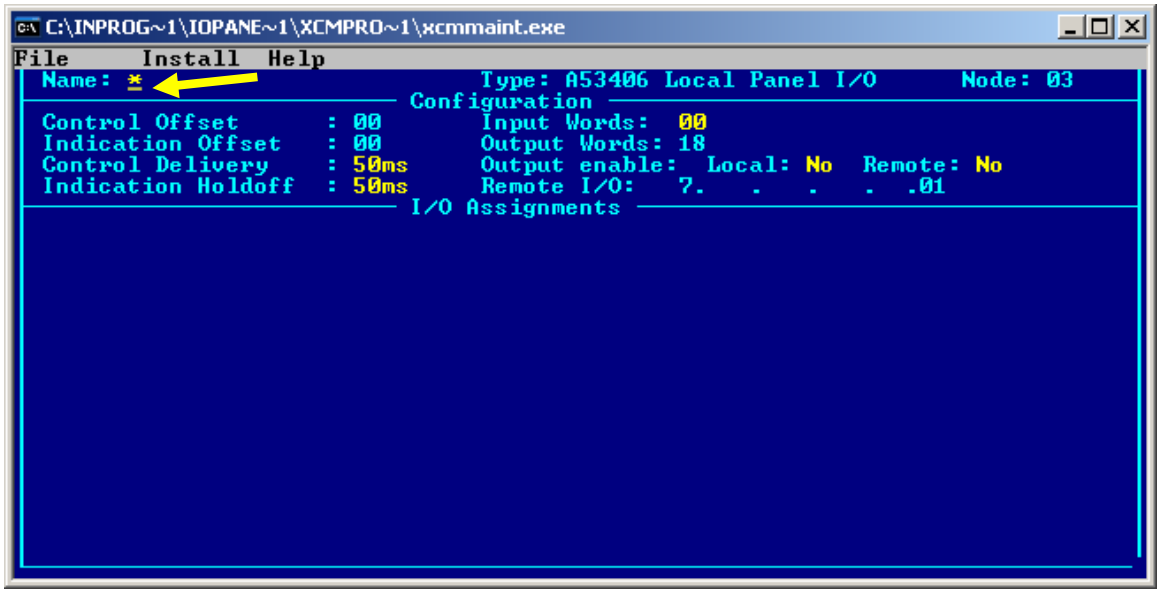


Figure 4-65 CPU II XCMMAINT - Node Editor - I/O Configuration

STEP 12 Select the Name field and press <Enter>. The Enter String window displays as in Figure 4-66 Enter a descriptive name for the module to be configured (e.g. Local I/O 01).

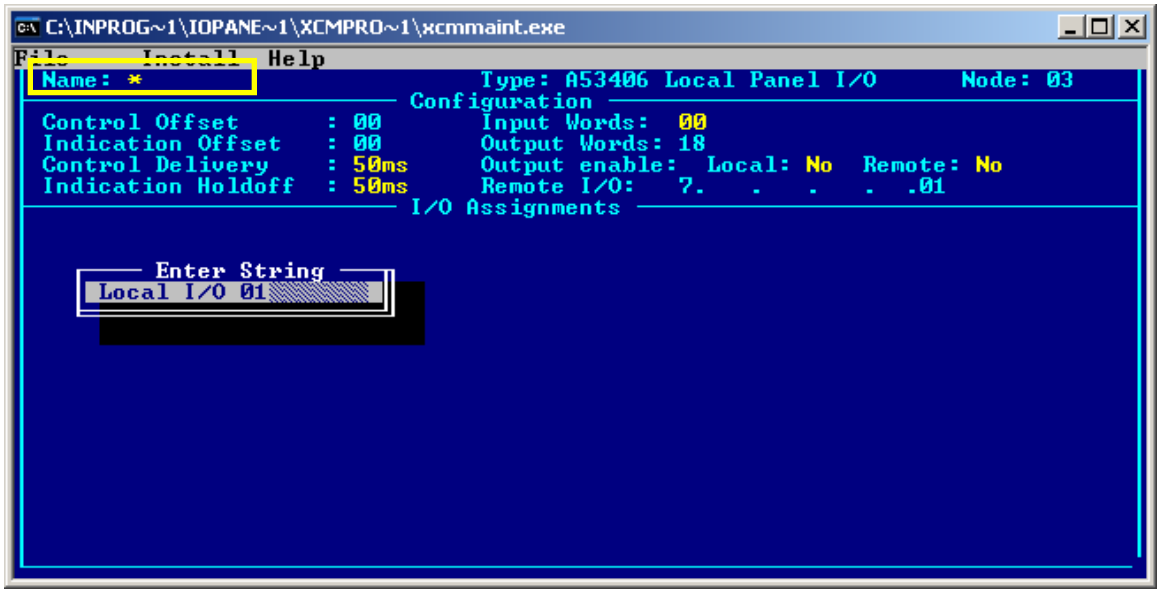


Figure 4-66 CPU II XCMMAINT - Node Editor - Enter Node Name

STEP 13 Press <Enter>. The name entered appears in the Name field as seen in Figure 4-67. The options with yellow text are fields that can be changed by the user. Grayed out fields cannot be changed.

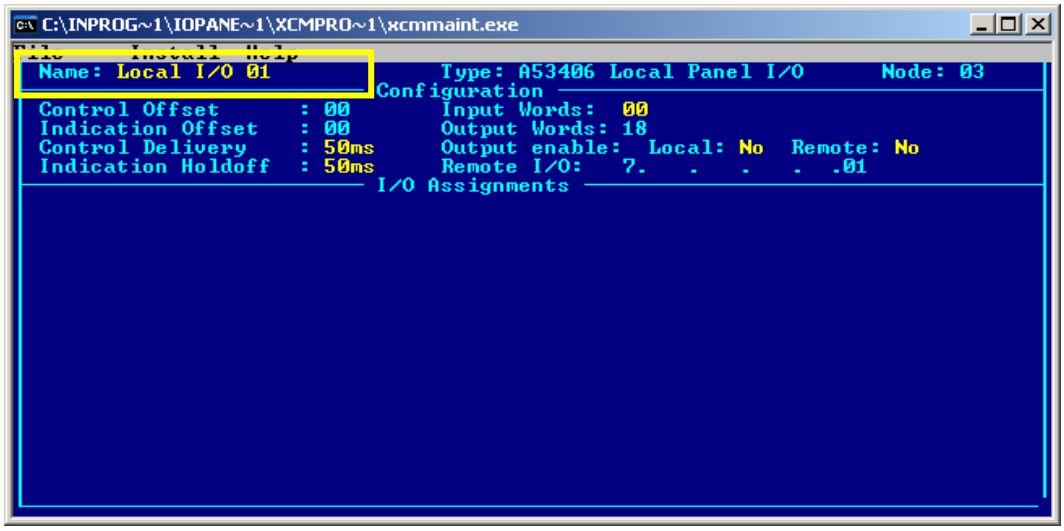


Figure 4-67 CPU II XCMMAINT - Node Editor - Node Name Field

STEP 14 Using the arrow keys select the Input Words: field as shown in Figure 4-68.

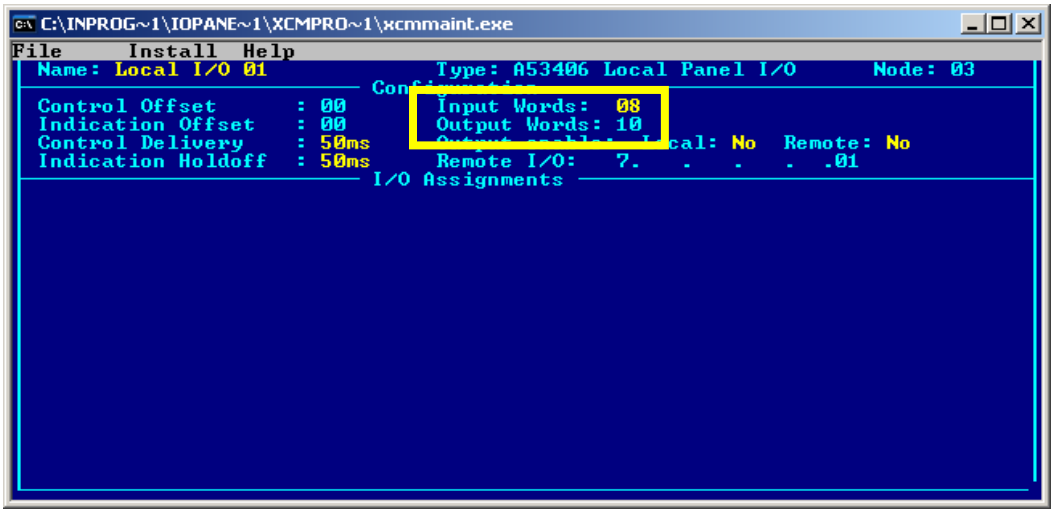


Figure 4-68 CPU II XCMMAINT - Node Editor - Input and Output Words Field

The Input Words field is a keyboard selection. Enter the number of Input Words to be configured on this Local I/O Panel. The total number of input words available is 18. Any words remaining after the selection will be placed in the Output Words field (e.g. A selection of **8 Input Words** will net **10 Output Words**). It is recommended not to exceed 12 inputs as the panel will not properly report the input statuses.

STEP 15 Using the arrow keys to navigate through the display and select the Control Delivery field as shown in Figure 4-69. The Control Delivery field determines the duration time of the output signal. Press the <Space Bar>, to select the desired Control Delivery time. The Control Delivery Time is the duration of time that a requested output will stay energized.

Field selection range:

50ms
100ms
200ms
500ms
1sec
2sec
Latch

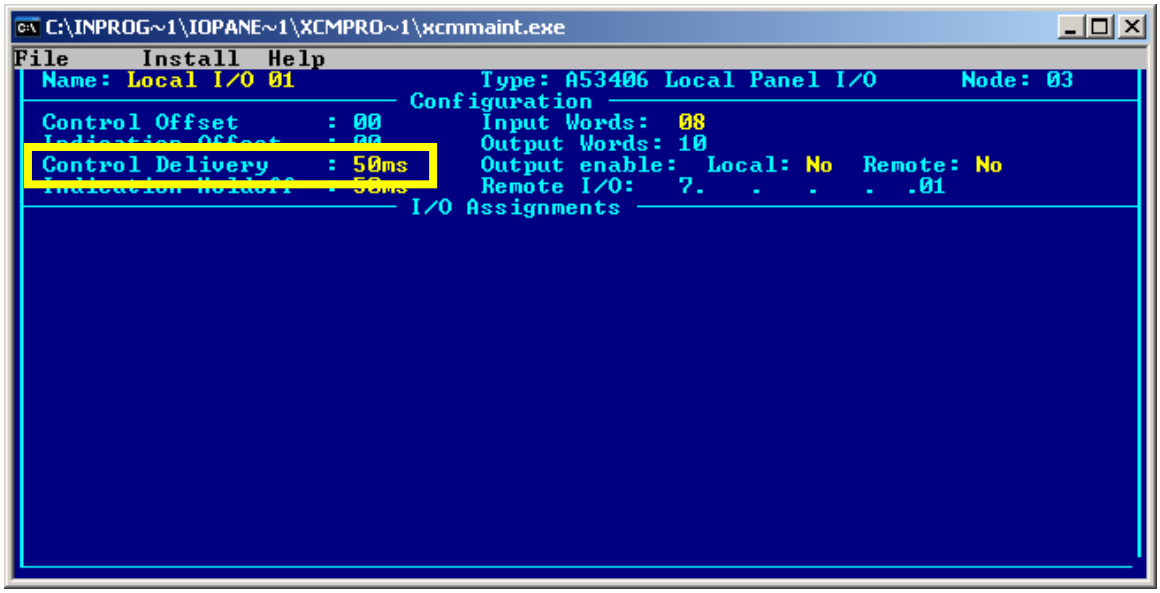


Figure 4-69 CPU II XCMMAINT - Node Editor - Control Delivery Field

STEP 16 Select the Indication Holdoff field displayed in Figure 4-70. The Indication Holdoff field determines the delay time between the receipt of an input signal and initiation of an output signal. Press the <Space Bar> to select the desired Indication Holdoff time.

Field selection range:

50ms
100ms
200ms
500ms
1sec
2sec

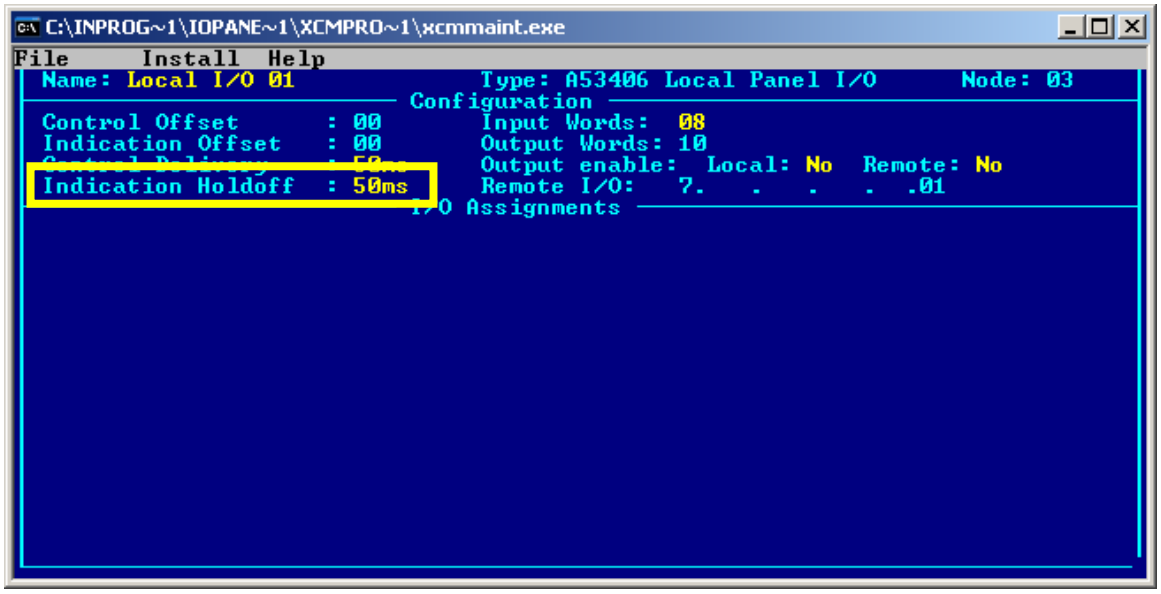


Figure 4-70 CPU II XCMMAINT - Node Editor - Indication Holdoff Field

STEP 17 Press <Alt+I> and the Install drop-down menu will appear as in Figure 4-71.

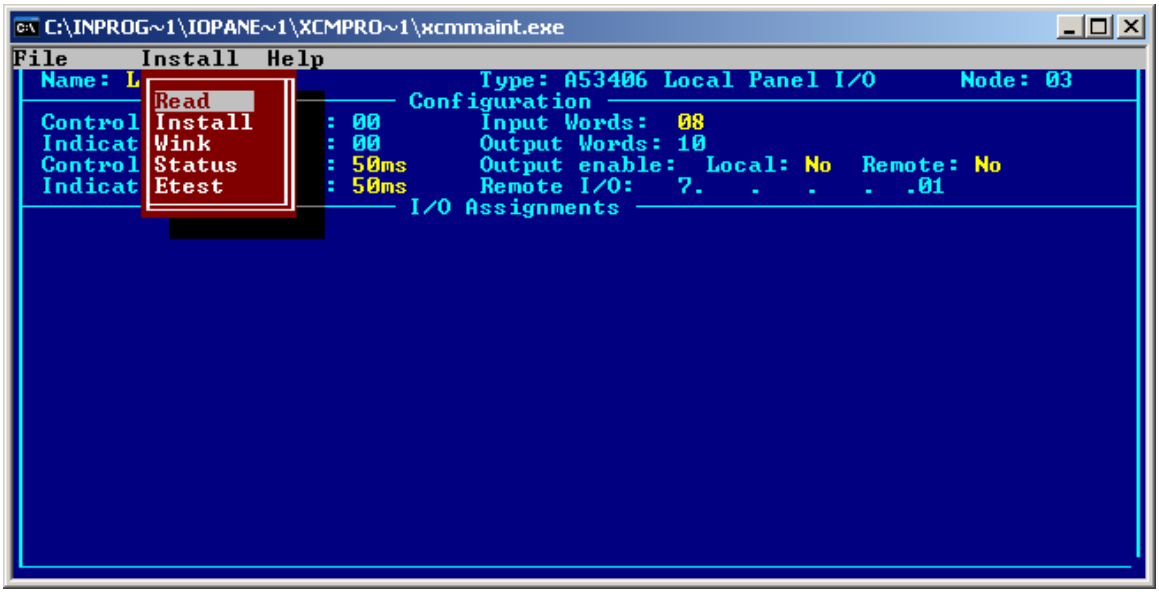


Figure 4-71 CPU II XCMMAINT - Node Editor - Install Menu

STEP 18 Using the arrow keys highlight Install on the menu as shown in Figure 4-72.

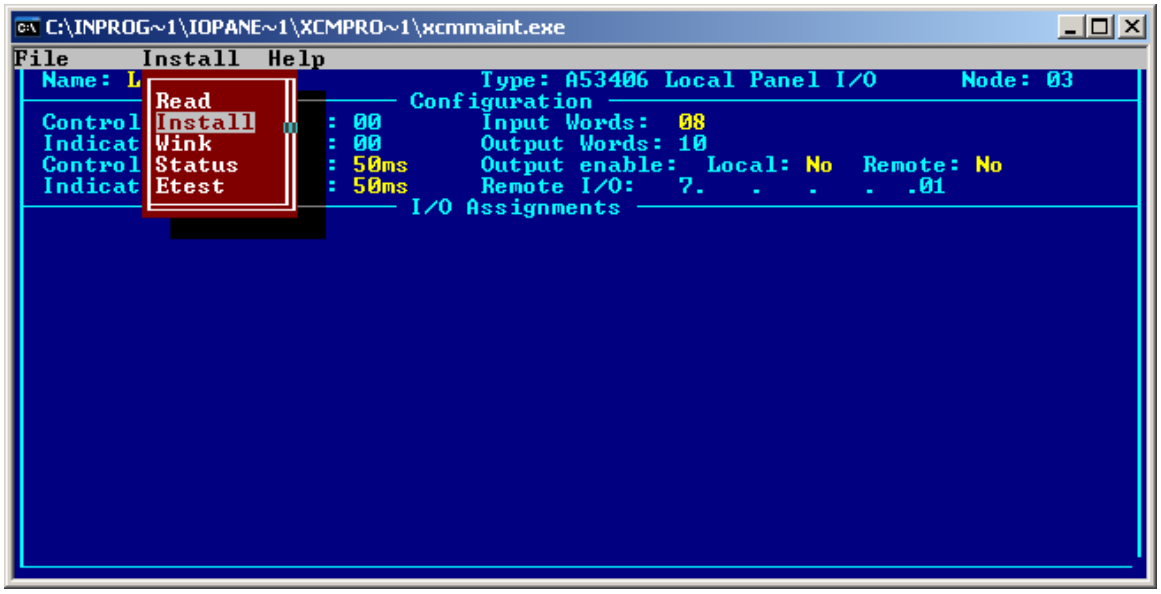
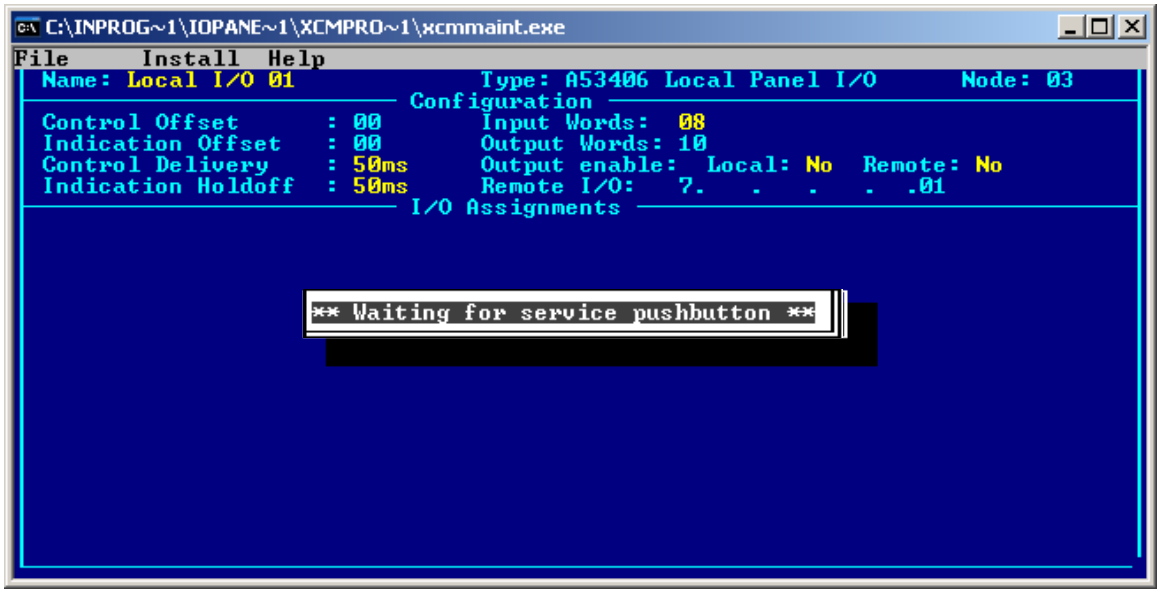


Figure 4-72 CPU II XCMMAINT - Node Editor - Install Menu - Install Entry

STEP 19 Press the <Enter> key, a popup menu will appear requesting the Service Pushbutton on the Local I/O Panel be pressed as shown in Figure 4-73. The Service Pushbutton is recessed to avoid accidental activation, therefore a pen or stylus can be used to press the button. The Service LED (Yellow) will illuminate during the data exchange via the Echelon® network. This process identifies the Local I/O Panel and it's parameters to the network.



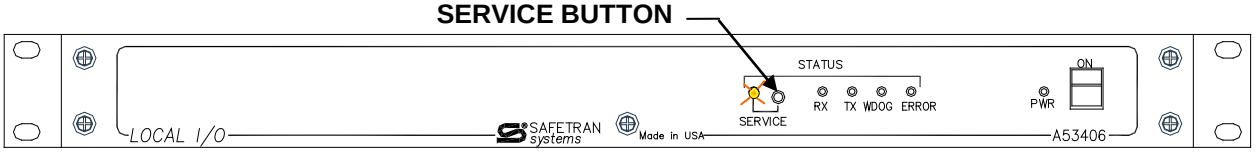


Figure 4-73 CPU II XCMMAINT - Node Editor - Install Menu - Service Pushbutton

STEP 20 The successful installation of the Local I/O Panel can be verified by using the WINK function located on the Install drop menu. From the Install (Alt+I) drop down menu, use the arrow keys to select the WINK command and press <ENTER>. The software will strobe the Local I/O Panel under configuration. If the Local I/O Panel has been properly installed, the RX, TX WDOG and ERROR LED's will flash once as shown in Figure 4-74.

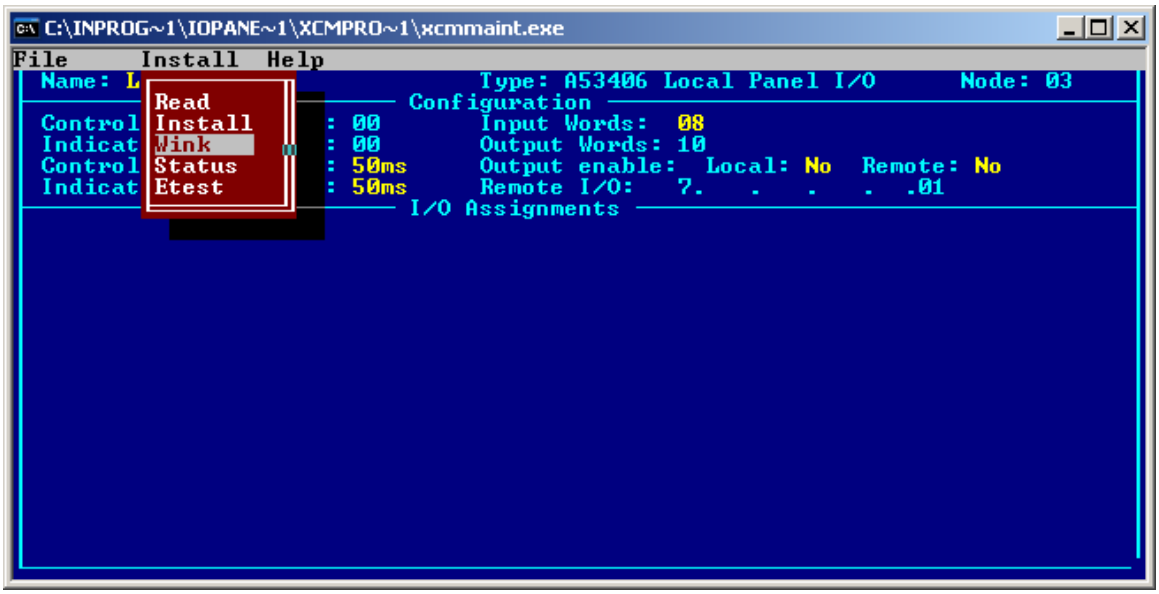


Figure 4-74 CPU II XCMMAINT - Installation Verification

STEP 21 To exit the Configuration session, press <ALT+F> and the File Drop Menu will appear as displayed in Figure 4-75. Highlight RETURN and press <ENTER> to return to the Main Editor Screen as shown in Figure 4-76.

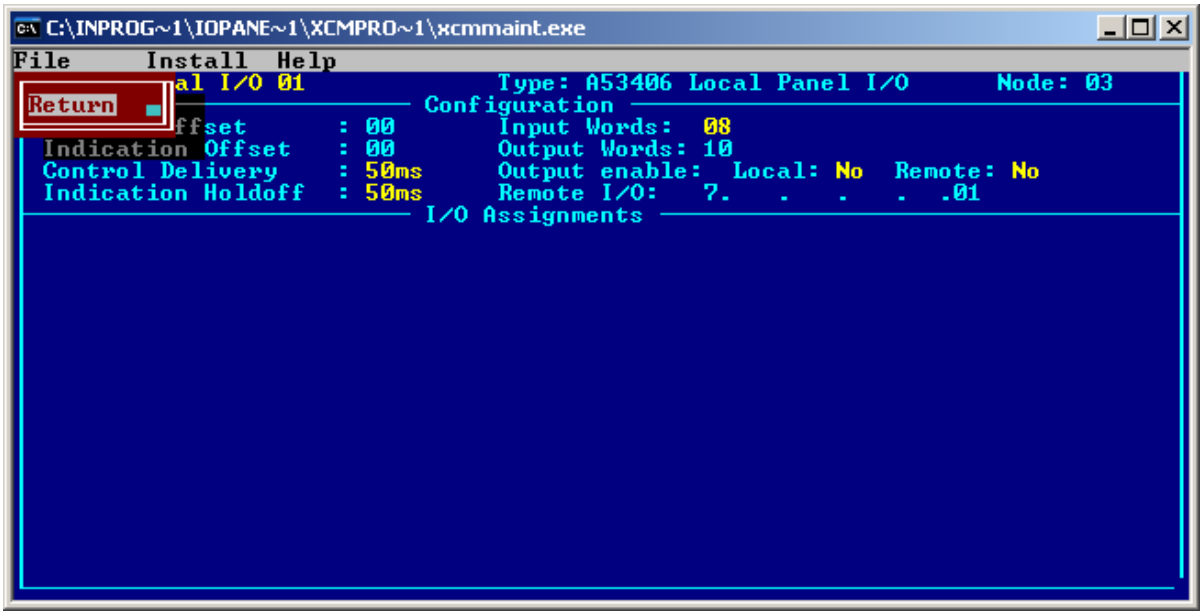


Figure 4-75 CPU II XCMMAINT - Exit Configuration Session

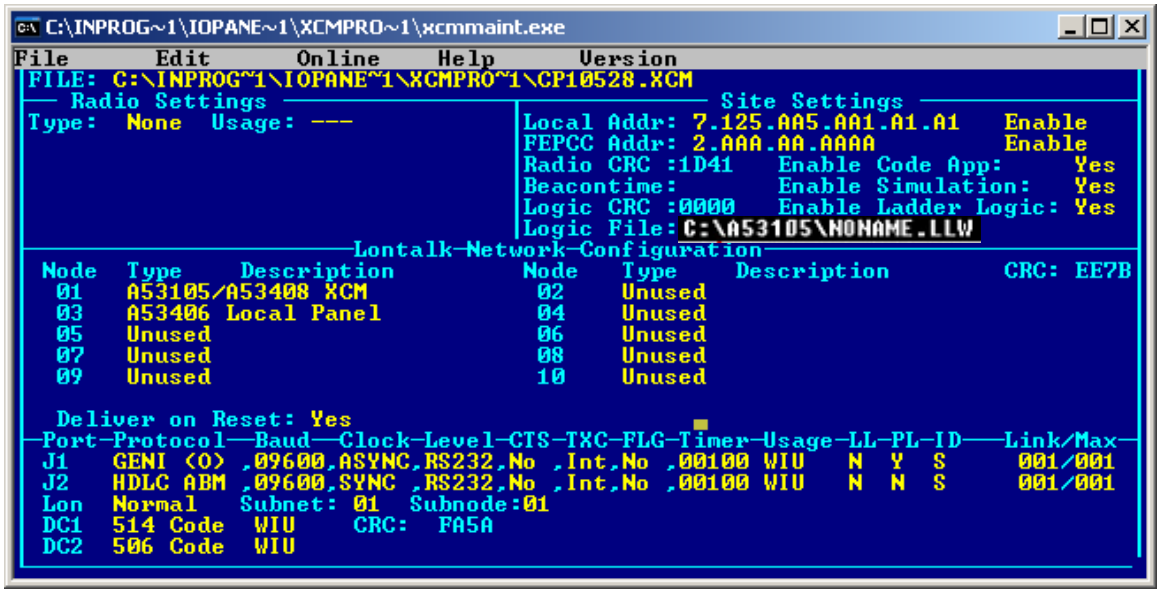


Figure 4-76 CPU II XCMMAINT - Return to Main Editor

STEP 22 To exit the XCMMAINT Program press <ALT+F> and the FILE drop menu will appear as displayed in Figure 4-77. To save the configuration parameters by use the arrow keys to scroll to the SAVE or SAVE AS commands. The SAVE command will save the new Configuration Parameters in the file used to open the session. Use the SAVE AS command to make a new file to hold the Configuration data as shown in Figure 4-78. Rename the new file based upon the preference of the railroad or governing authority.

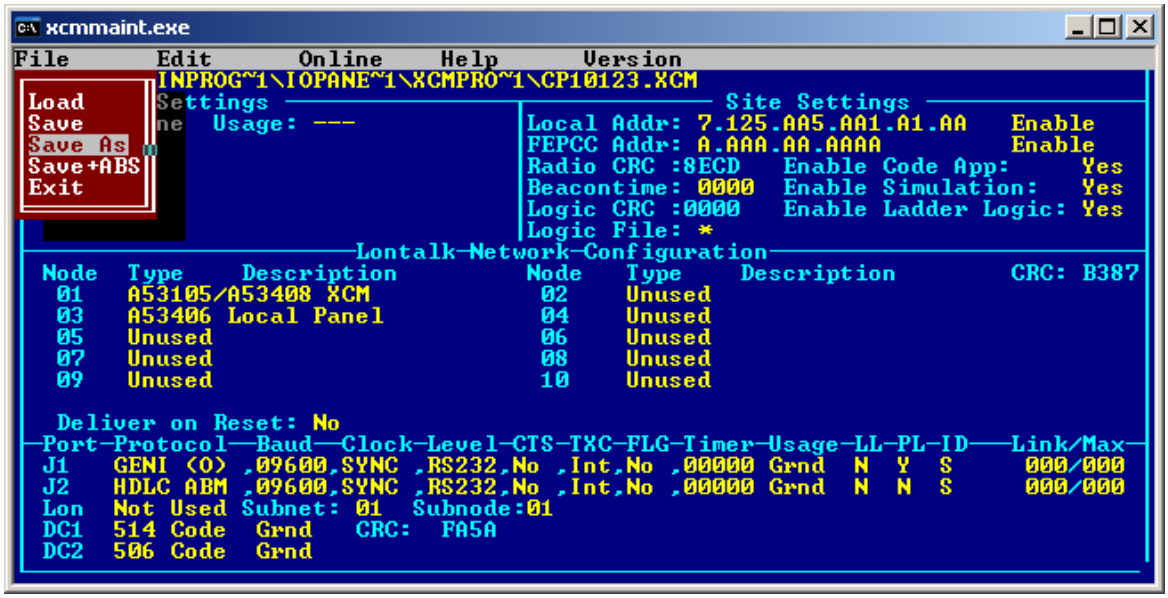


Figure 4-77 CPU II XCMMAINT - Saving Configuration Parameters

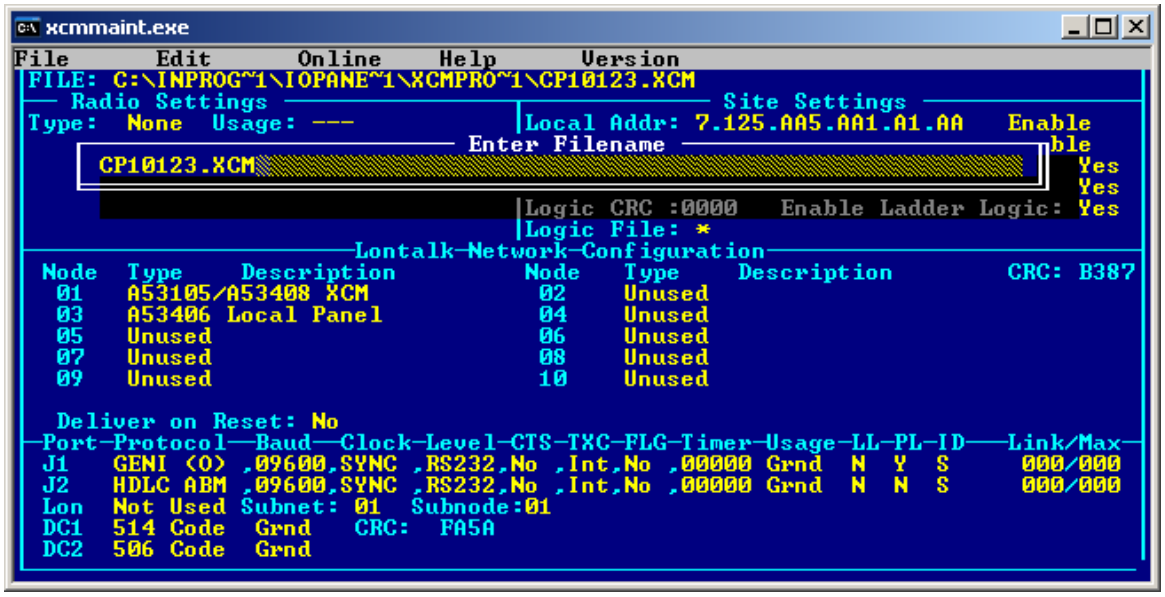


Figure 4-78 CPU II XCMMAINT - Save As File Name

STEP 23 To conclude the Configuration session press <ALT+F> and use the arrow keys to scroll down to select EXIT or highlight EXIT, and press <ENTER> to close the program as shown in Figure 4-79.

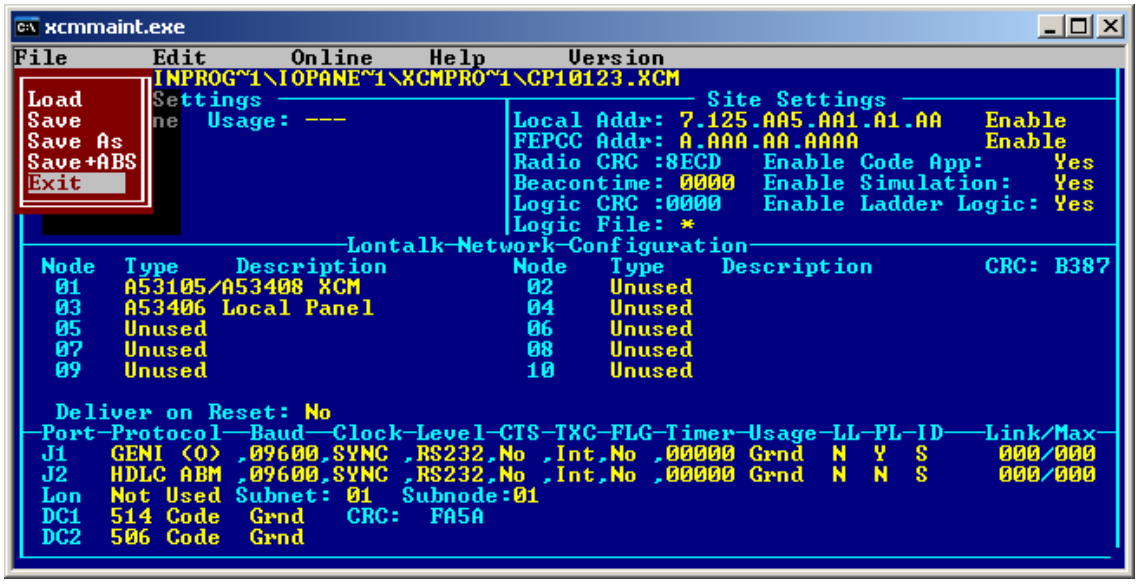


Figure 4-79 CPU II XCMMAINT - Exiting Program

SECTION 5
MAINTENANCE & TROUBLESHOOTING

5.0 MAINTENANCE & TROUBLESHOOTING

The Siemens A53406 Local I/O Panel contains no user serviceable parts. This section will address maintenance and test procedures for the Local I/O Panel.

5.1 LOCAL I/O PANEL MAINTENANCE

Periodic maintenance of the Local I/O Panel is recommended. Inspect the unit for any damage. Clean any dirt and debris from the vent holes on the sides of the cabinet. Check the rear panel and verify the connectors installed are secure and wiring is properly terminated. The front panel Watch Dog (WDOG) LED flashes every 50 ms to 2 seconds depending on the setting for Control Delivery. This LED serves as an indicator that the unit is operating. Every few seconds the RX and TX LED's will flash indicating the Local I/O Panel is communicating with the network.

5.2 IDENTIFY A LOCAL I/O PANEL

The Local I/O Panel can be identified using the SEAR II or the WCP CPU II. The identify command will provide which node the Local I/O Panel is configured. Procedures to identify the Local I/O panel using the SEAR II or the WCP CPU II are detailed in the following paragraphs. The Communications Manager does not support an identify feature, however, refer to sections 4.1.2 or 4.1.3 and follow the installation procedure to view the configured parameters.

5.2.1 Identify a Local I/O Using the SEAR II LUI

Using the SEAR II LUI keypad press the MENU key to enter the Main Menu as shown in **Error! Reference source not found.**. Perform the following procedure:

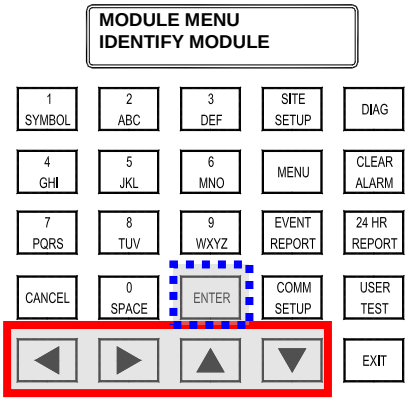


Figure 5-1 SEAR II LUI - Main Menu

STEP 1 With the arrow keys navigate to CONFIGURATION and press the ENTER key.

```
MAIN MENU
CONFIGURATION
```

STEP 2 With the arrow keys navigate to MODULES and press the ENTER key.

```
CONFIGURATION MENU
MODULES
```

STEP 3 With the arrow keys navigate to IDENTIFY MODULE and press the ENTER key.

```
MODULE MENU
IDENTIFY MODULE
```

STEP 4 Press the SERVICE Button on the Local I/O Panel.

```
HIT SERVICE BUTTON
OR EXIT TO QUIT
```

STEP 5 The information from the Local I/O Panel will be displayed on the SEAR II screen.

```
TYPE  A53406 PANEL
SLOT: 1 PANEL IO
```

STEP 6 Press the EXIT Button four (4) times to return to the Main Monitor Screen.

```
HIT SERVICE BUTTON
OR EXIT TO QUIT
```

5.2.2 Identify a Local I/O Using the SEAR II Terminal Program

Using the SEAR II Terminal Program navigate to the Module Maintenance Menu and select the Identify Module entry. Pressing ENTER will bring up a request to push the Echelon® Service Button on the Local I/O front panel. Pushing the service button will invoke a read out on the terminal screen with the Local I/O Panel information as shown in Figure 5-2.

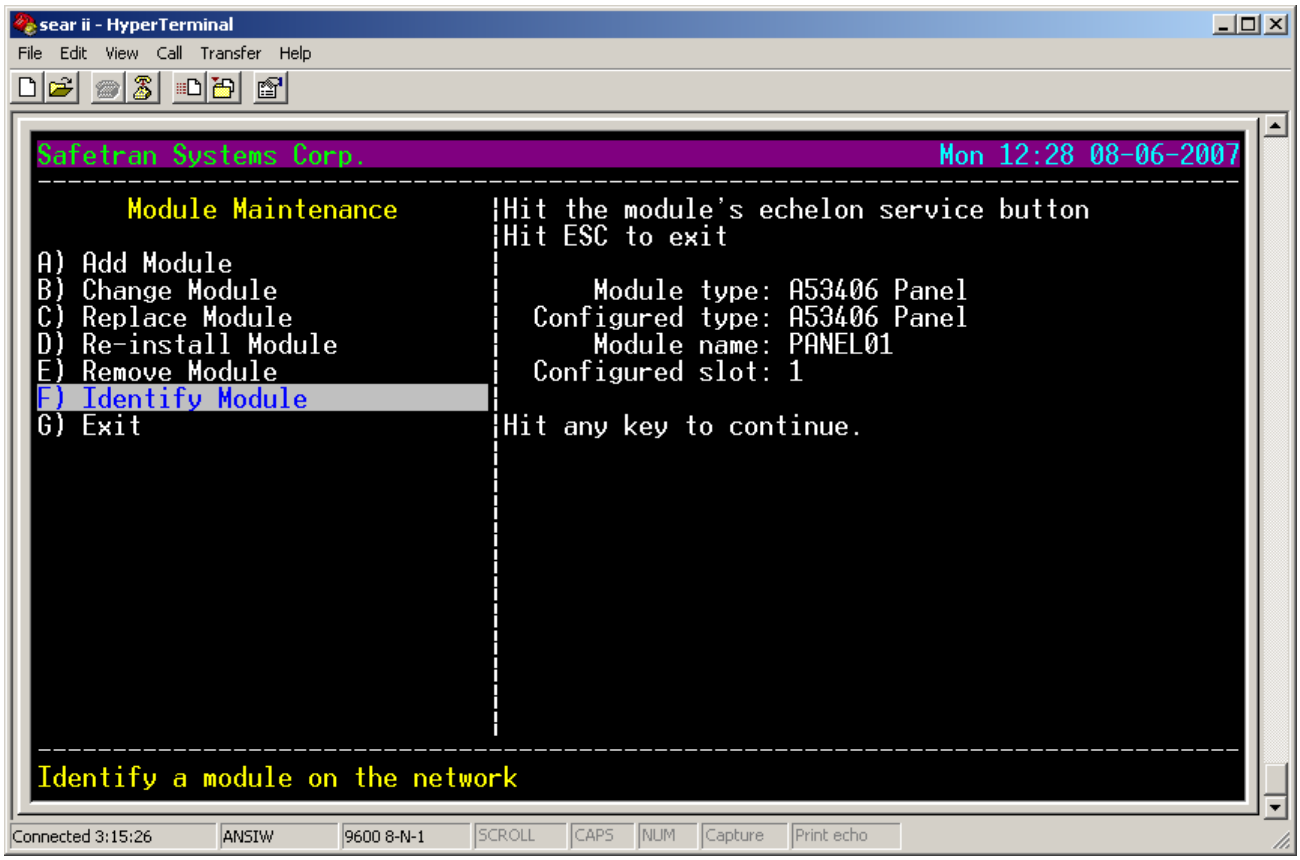


Figure 5-2 SEAR II Terminal Program - Identify Module

5.2.3 Identify a Local I/O Using the WCP CPU II

To identify the Local I/O Panel using the WCP CPU II the use of the XCMMAINT.EXE program is required. Navigate to the Local I/O Configuration Menu press ALT+I select READ, and press ENTER as shown in Figure 5-3. A pop-up menu will appear as shown in Figure 5-4 while the data on the configuration of the Local I/O Panel is read.

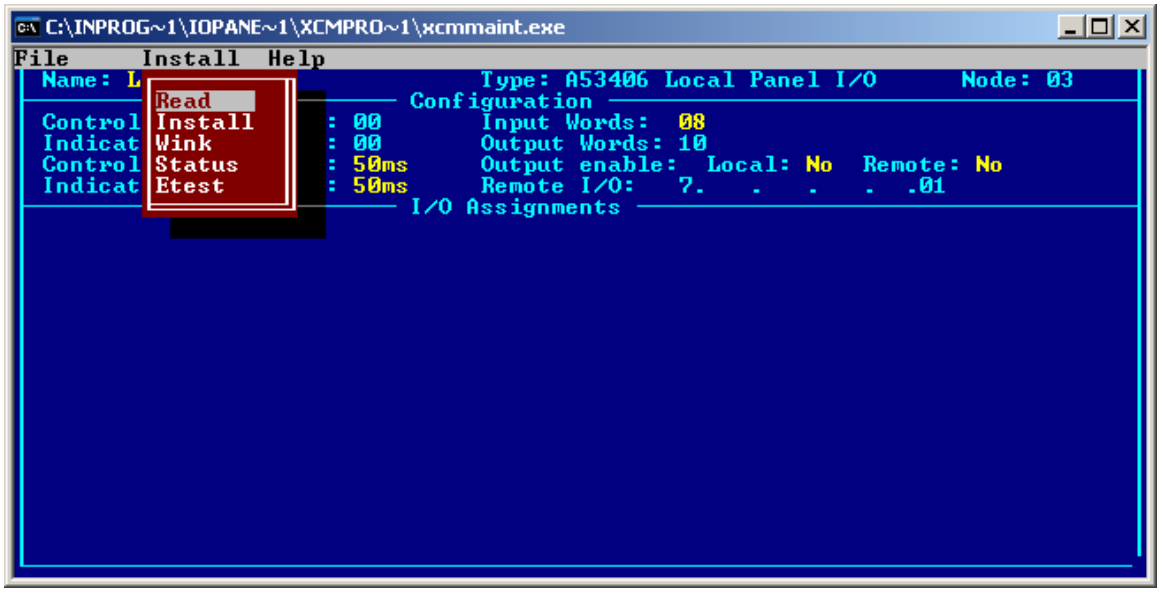


Figure 5-3 WCP CPU II - Read Command

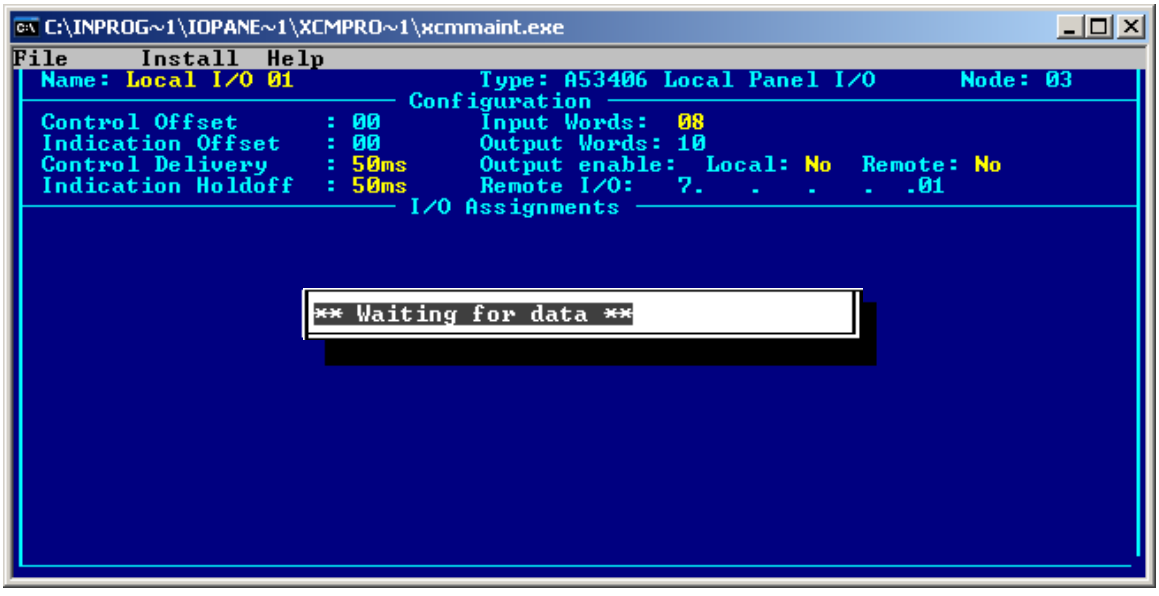


Figure 5-4 WCP CPU II - Reading Local I/O Panel Parameters

5.3 LOCAL I/O PANEL REPLACEMENT PROCEDURE

Should a Local I/O Panel require replacement, perform the following procedure:

STEP 1 Turn off the power to the Local I/O Panel to be replaced.

STEP 2 Remove the connectors from the rear panel. Mark the DB-50 connectors to assure their re-installation in the proper locations.

STEP 2A Remove the Power/Echelon connector from the unit.

STEP 3 Unbolt the Local I/O Panel and remove from the rack.

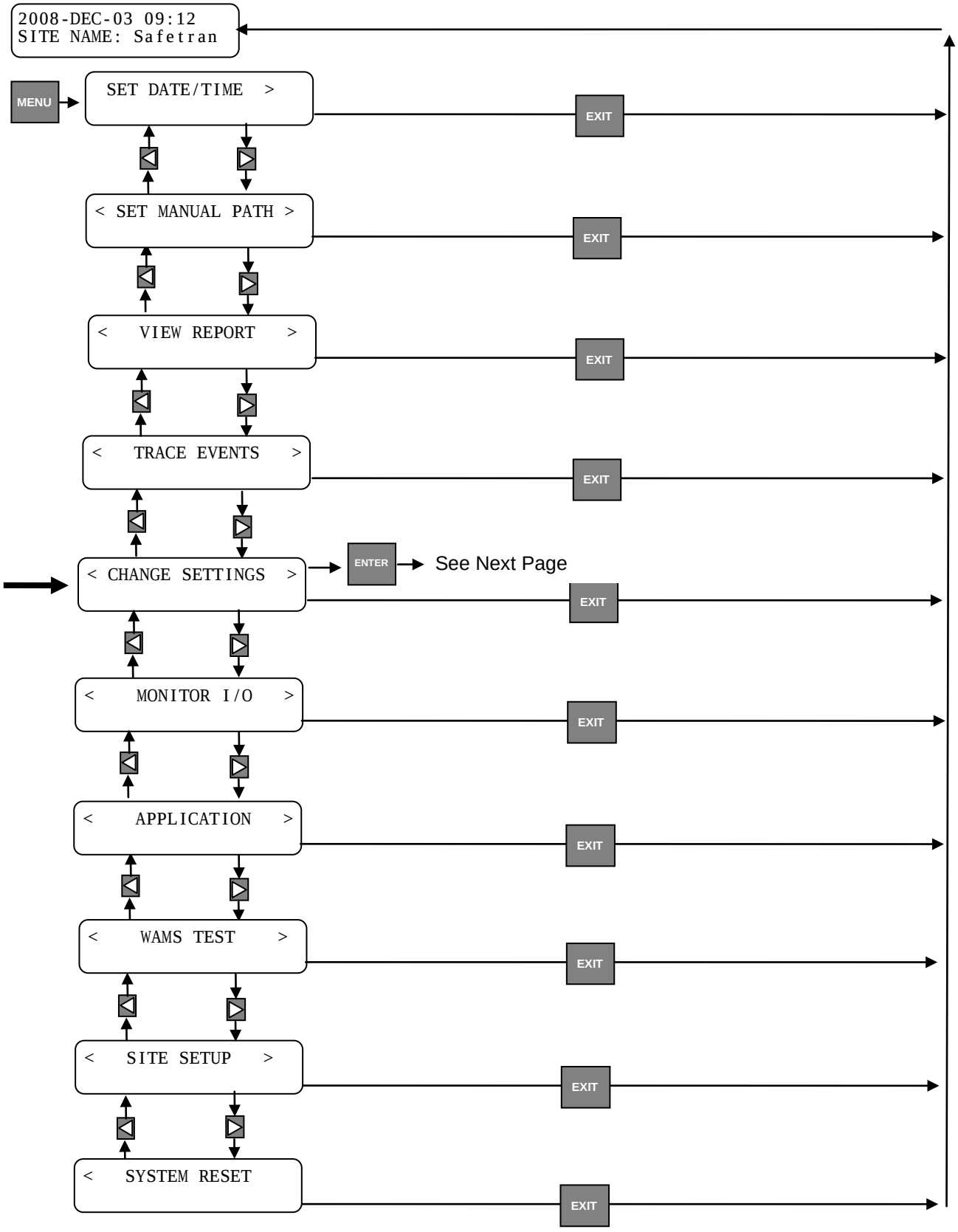
STEP 4 Install replacement Local I/O Panel. Connect power and Echelon® connector and the DB-50 connectors. Make sure the DB-50 connectors are installed in the same locations (J1, J2, and J3) as the unit removed from service.

STEP 5 Apply power to the Local I/O Panel using the power switch on the front panel.

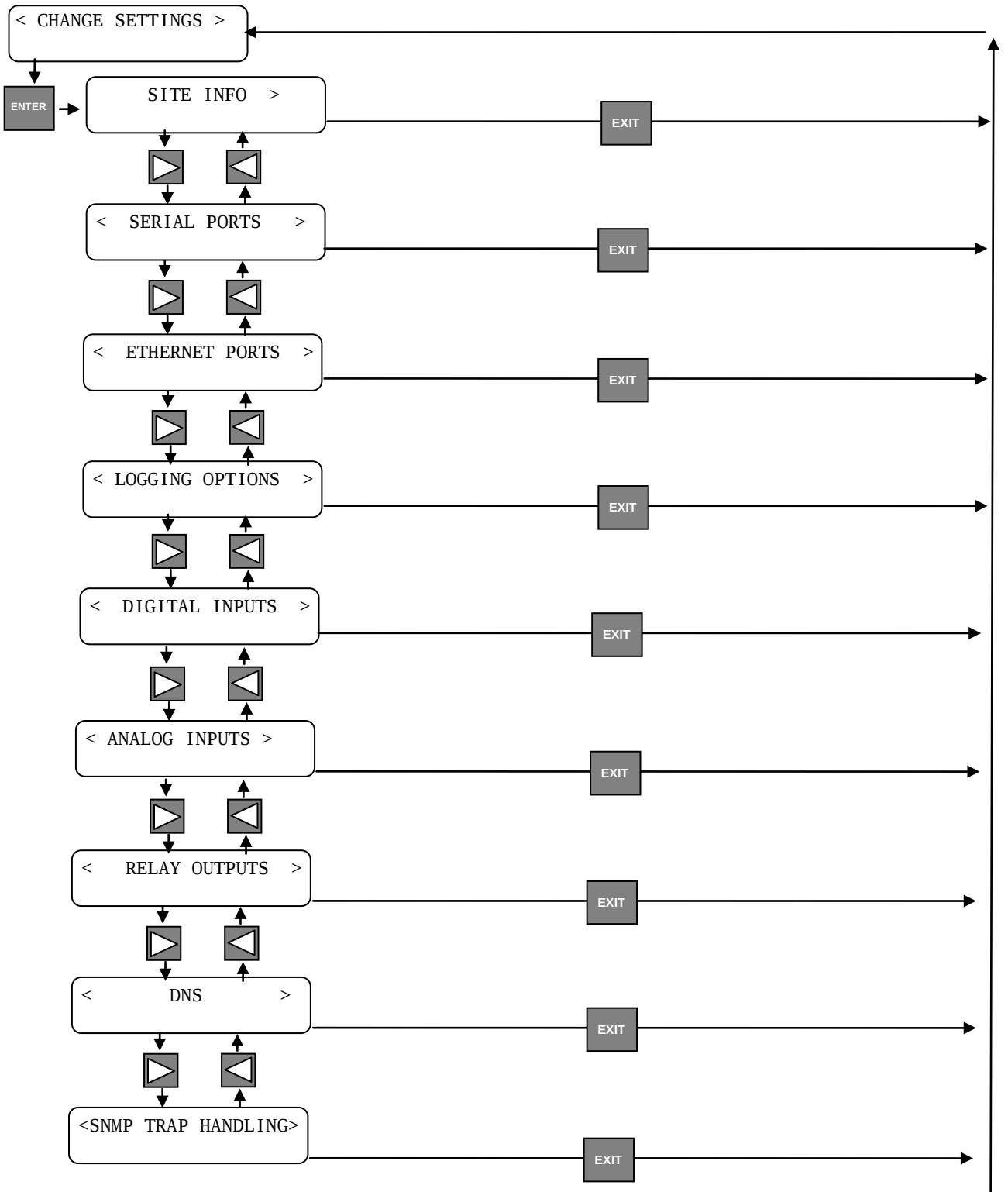
To install using the Communications Manager LUI go to **STEP 6A**
To install using the Communications Manager WebUI go to **STEP 6B**
To install using the SEAR II LUI go to **STEP 6C.**
To install using the SEAR II Terminal Program go to **STEP 6D.**
To install using the WCP CPU II go to **STEP 6E.**

STEP 6A Using the Communications Manager front panel keypad, perform the following procedure:

STEP A1 Select CHANGE SETTING

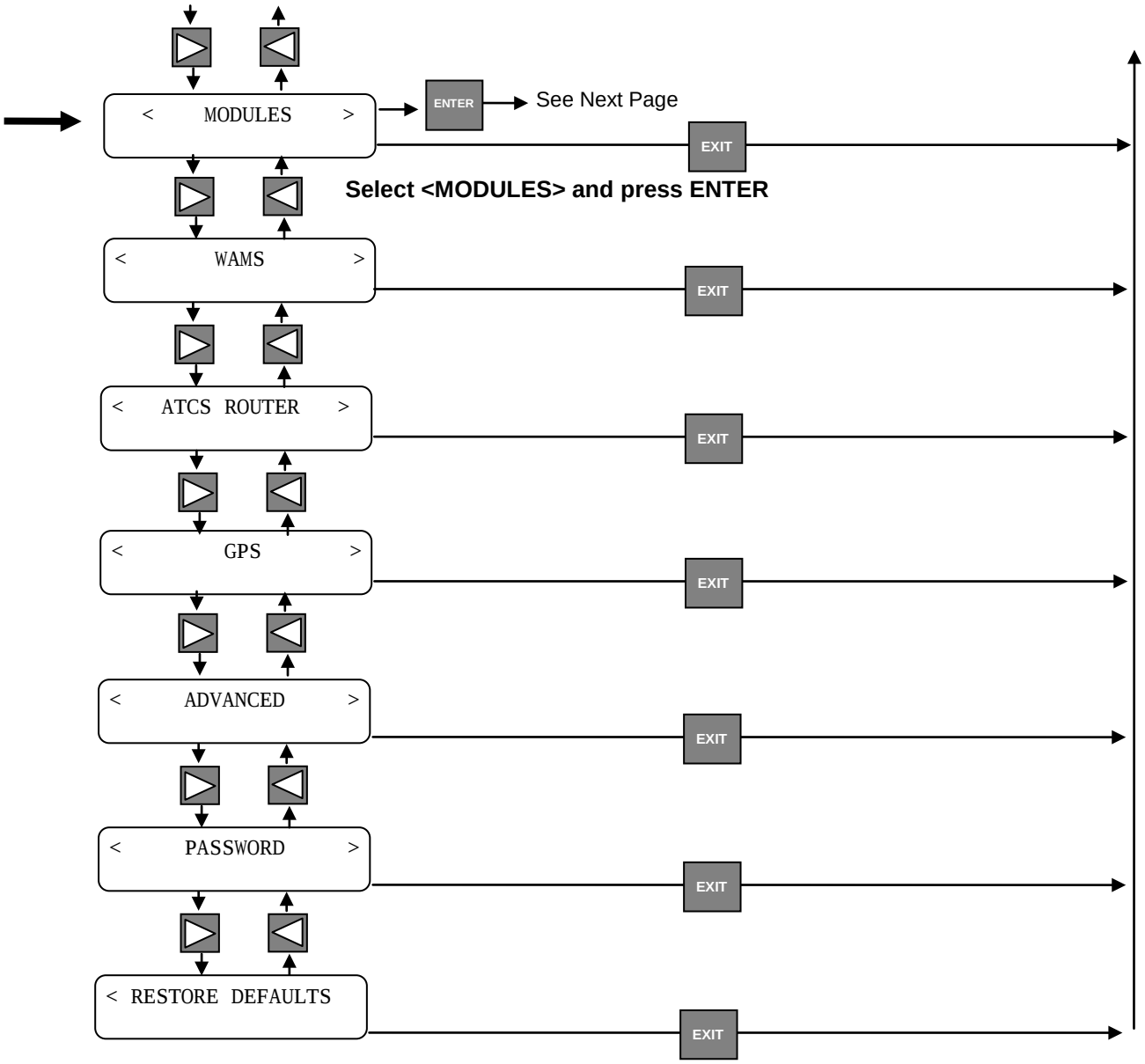


STEP A2 Select Modules (On Next Page).

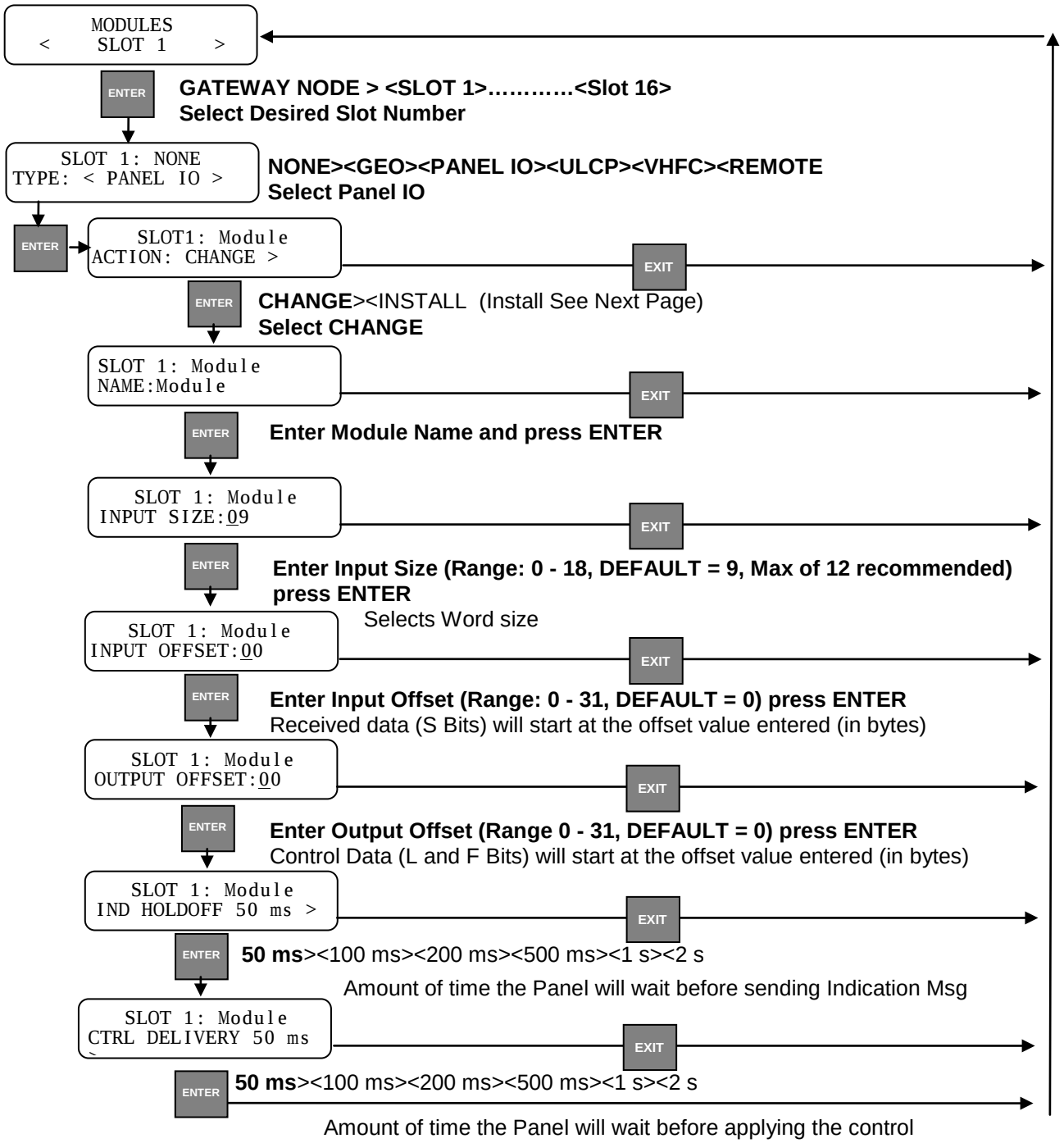


Continued on the next page

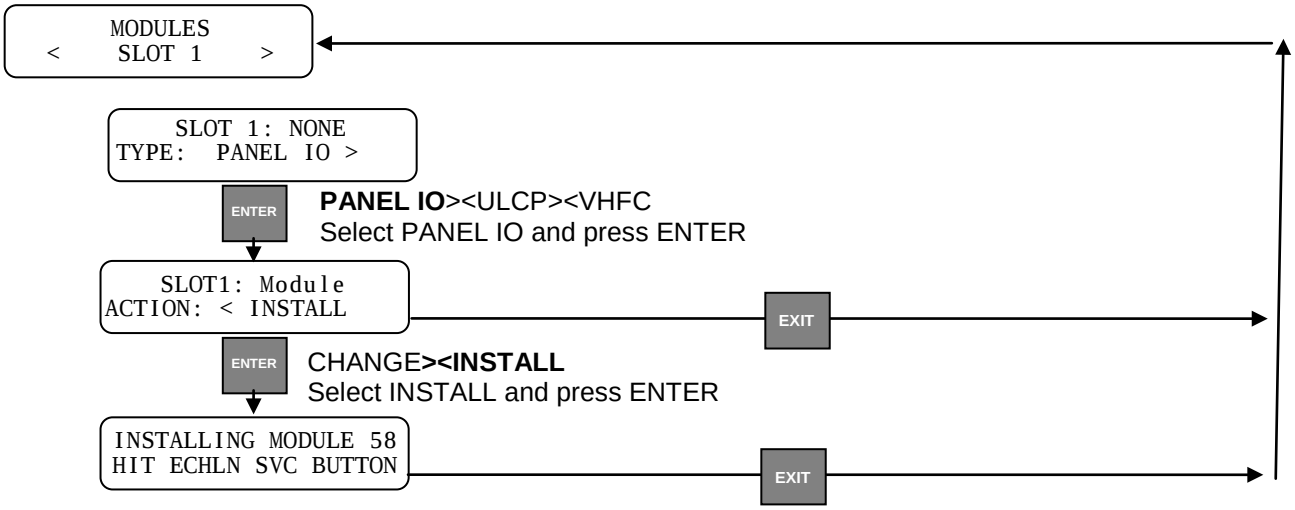
Continued from previous page



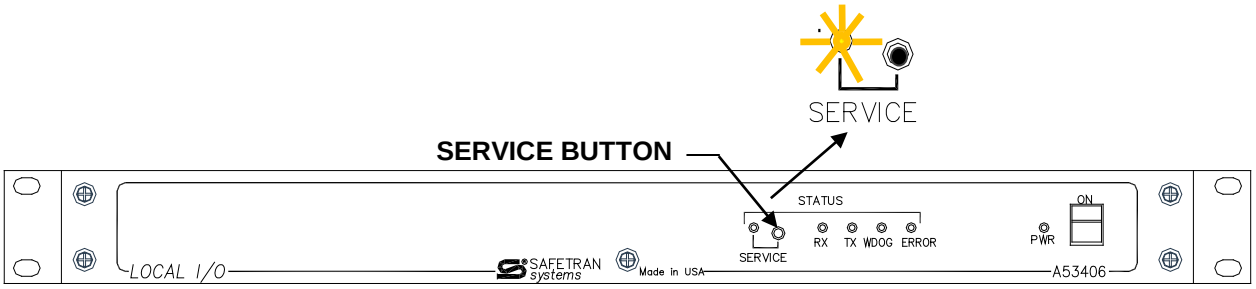
STEP A3 Using the Communications Manager keypad and display, navigate through the series of parameters to setup the Local I/O Panel Node.



STEP A4 Upon completion of setting the Local I/O Panel Node parameters, return to the beginning of the Slot setup and select Panel IO and press ENTER. Select INSTALL and press the ENTER key. The display will advise to press the SERVICE Button on the front panel of the Local I/O Panel. The SERVICE LAMP will flash then extinguish. The Local I/O panel installation is complete.



Press the **SERVICE** Button on the Local I/O Panel



STEP 6B The Local I/O Panel can be configured and installed using the WebUI of the Communications Manager.

STEP B1 Log in to WebUI and navigate to the NON VITAL CONFIG Menu.

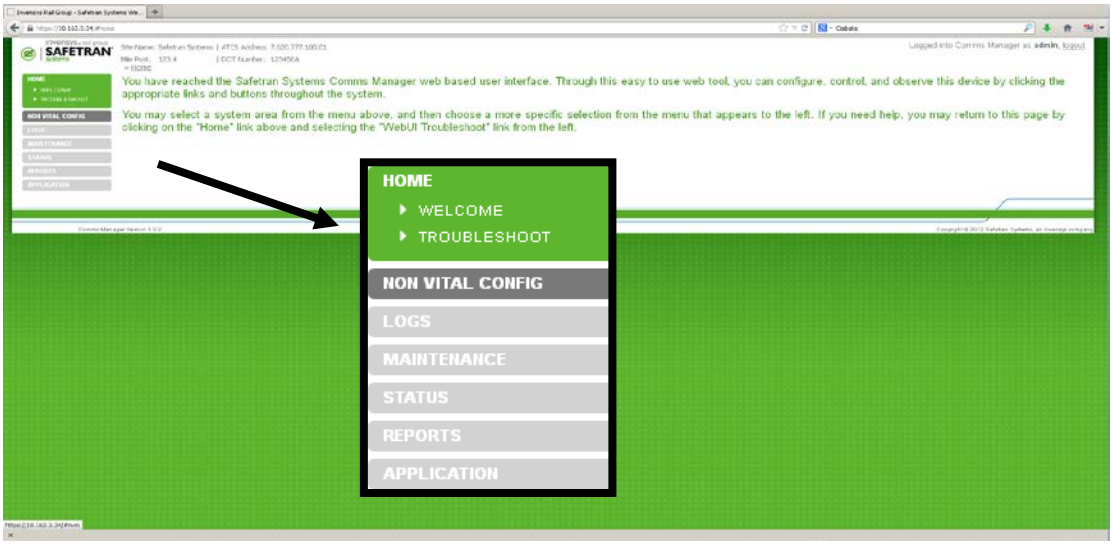


Figure 5-5 WebUI Main Menu

STEP B2 From the Non Vital Config menu select **MODULES**.

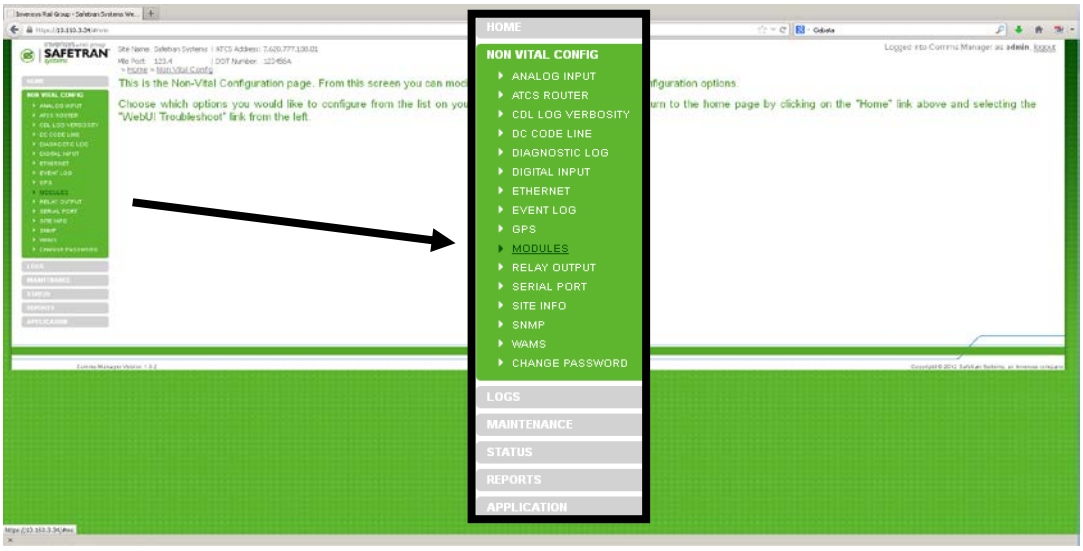


Figure 5-6 WebUI Non-Vital Config Menu

STEP B3 Select the Module Slot desired, either click on the text or click on the plus "+" to expand the parameters window.

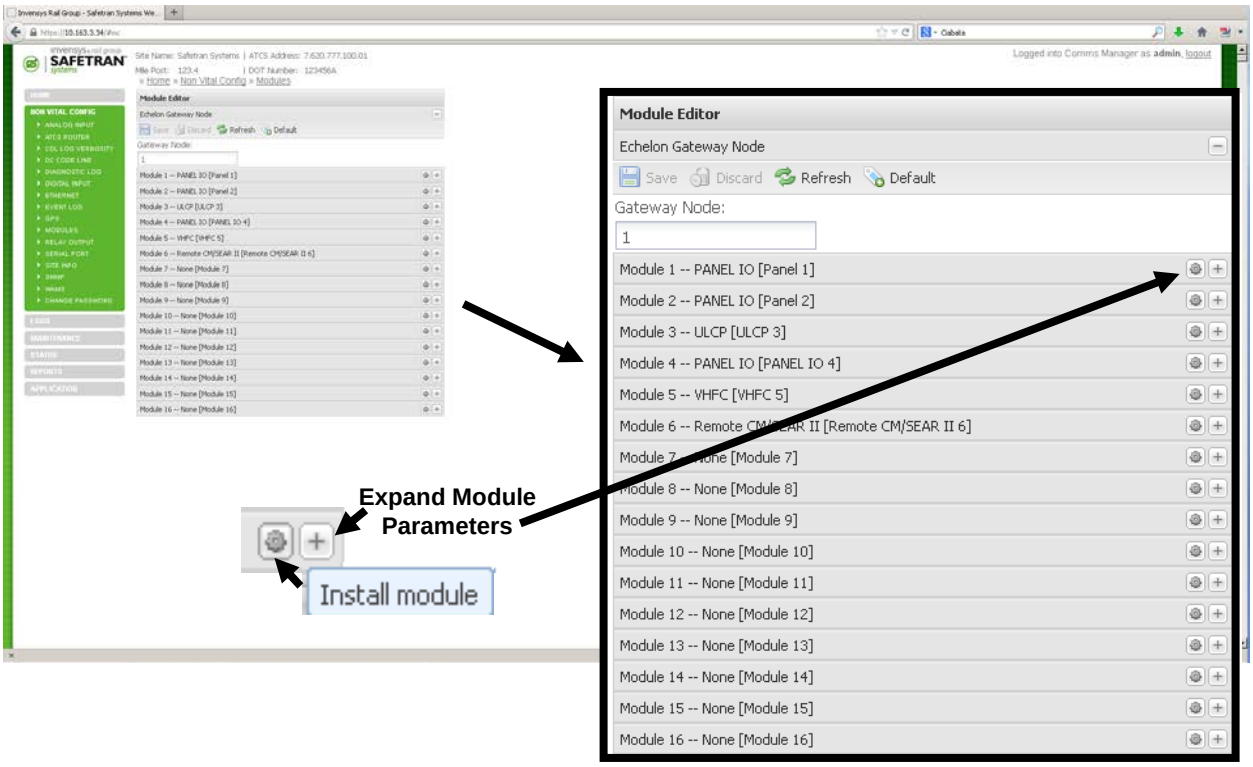


Figure 5-7 WebUI Modules Menu

STEP B4 The expanded screen displays the configurable parameters as follows:

1 **Module Type:** PANEL IO

2 **Module Name:** Enter name desired for panel (e.g. Panel 1)

3 **Input Size:** Enter the desired Word Size (Range: 1-18, Default =9)
This entry selects the number of 8 Bit Words required for the input of the Local I/O Panel. A maximum of 12 Input Bytes is recommended. The factory default is 9. The remaining Input Bytes (18 minus the number of Input Bytes) will be assigned as Output Bytes.

4 **Input Offset:** Enter desired value (Range: 0 - 31, Default = 0)
A transmitted indication message will be copied into the S bits of the Ladder Logic bitmap starting at this offset (in bytes).

5 **Output Offset:** Enter the desired value (Range: 0-31, Default = 0)
A received control message will copy the control data from the L and F bits of the ladder logic bitmap starting at this offset (in bytes).

6 **Indication Holdoff:** Select the desired value from the drop-down menu.
The parameter sets the amount of time the panel should wait for all changes to settle before sending the indication message.

7 **Control Delivery:** Select the desired value from the drop-down menu.
The parameter sets the amount of time the panel should wait for all controls to be received before applying the control.

8 **Install Module:** When all parameters have been configured click on the INSTALL MODULE button then press the SERVICE button on the front of the I/O Panel.

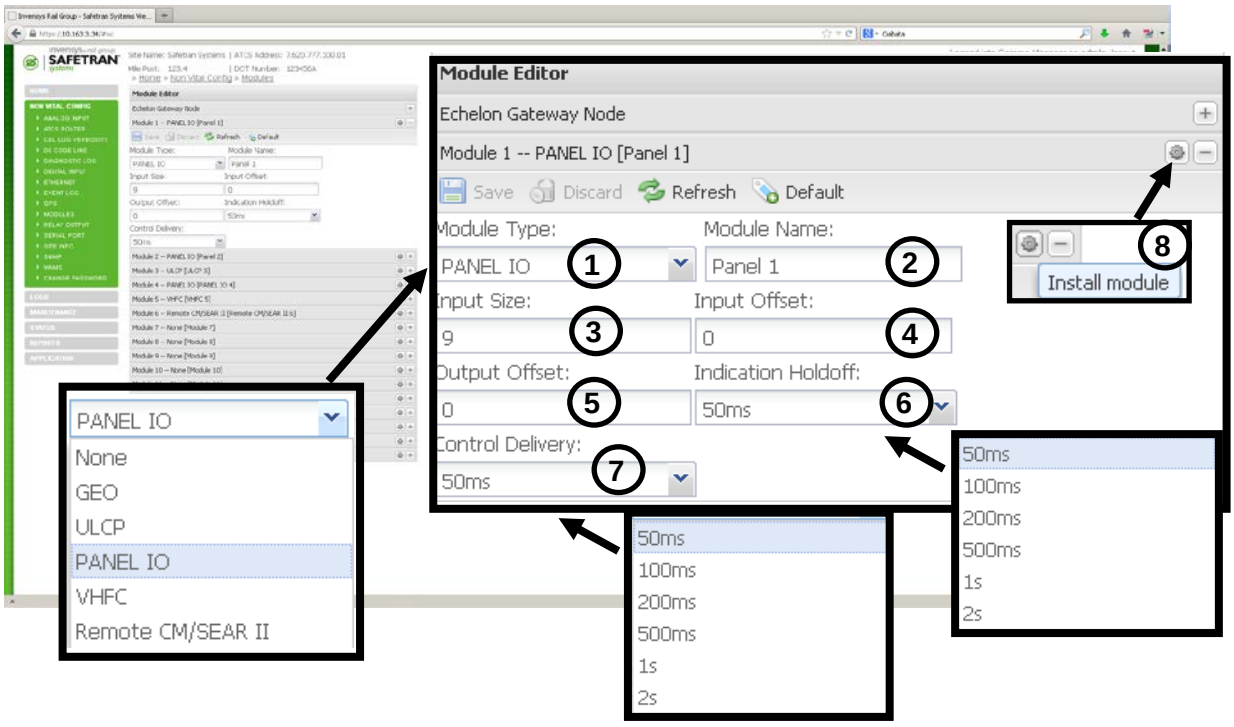


Figure 5-8 WebUI Module Editor

STEP 6C Using the SEAR II LUI arrow keys on the front panel keypad, perform the following procedure:

STEP C1 Press the MENU button on the SEAR II LUI keypad and the Main Menu will appear. Use the arrow keys to select CONFIGURATION.

MAIN MENU

CONFIGURATION

STEP C2 Use the arrow keys to select MODULES.

CONFIGURATION MENU

MODULES

STEP C3 Use the arrow keys to select REPLACE MODULE.

MODULE MENU

REPLACE MODULE

STEP C4 Use the arrow keys to select the name of the module to be replaced.

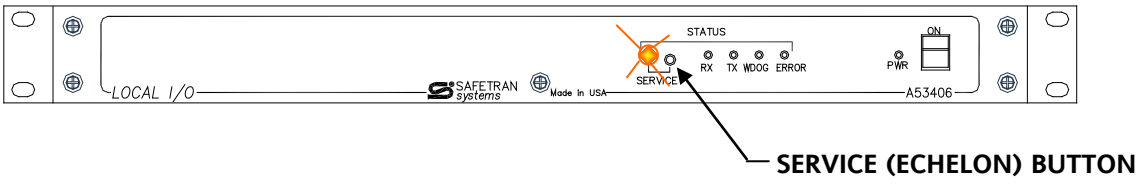
MODULE TO REPLACE

PANEL IO

STEP C5 Press the SERVICE Button on the replacement Local I/O Panel.

HIT ECHELON BUTTON

WAITING FOR SRVC MSG



STEP C6 The screen will advise the Local I/O Panel has been successfully installed.

HIT ECHELON BUTTON
INSTALLED

STEP C7 The screen will return to the Module Menu Screen. Press the EXIT key to navigate to the Main Menu

MODULE MENU
REPLACE MODULE

STEP 6D Using the SEAR II Terminal program perform the following procedure:

STEP D1 Navigate to the MODULE MENU and select REPLACE MODULE and press ENTER. On the right side of the screen “Module to replace” will appear. Select the module name being replaced and press ENTER as shown in Figure 5-9.

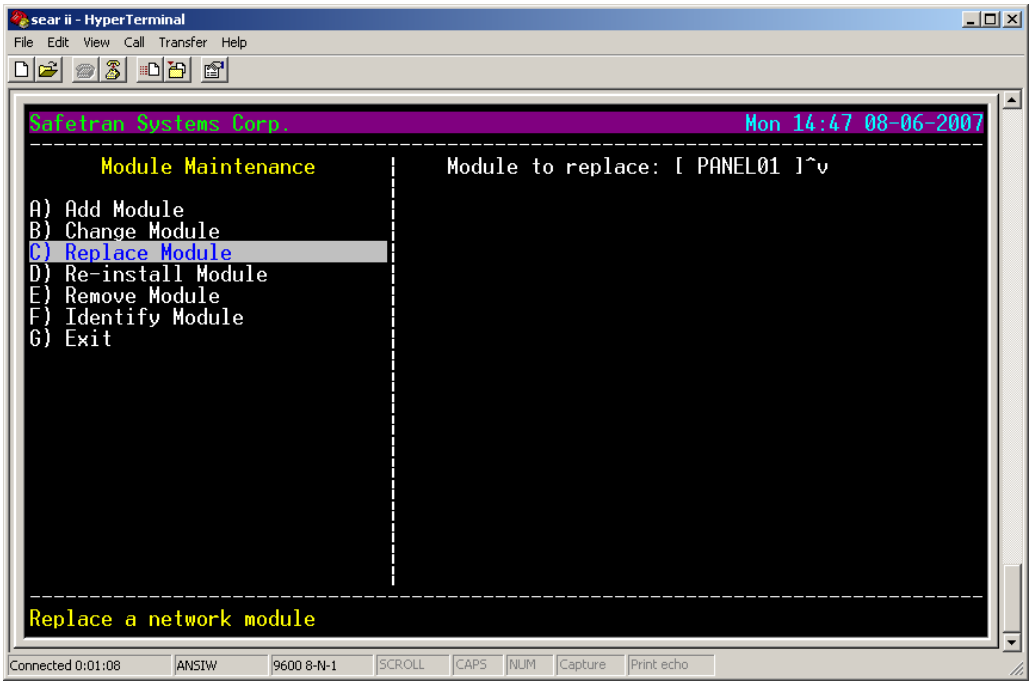


Figure 5-9 SEAR II Terminal - Replace Module

STEP D2 On the right of the screen the text “Waiting for service message…” will appear. Press the service button on the front panel of the replacement Local I/O Panel as shown in Figure 5-10.

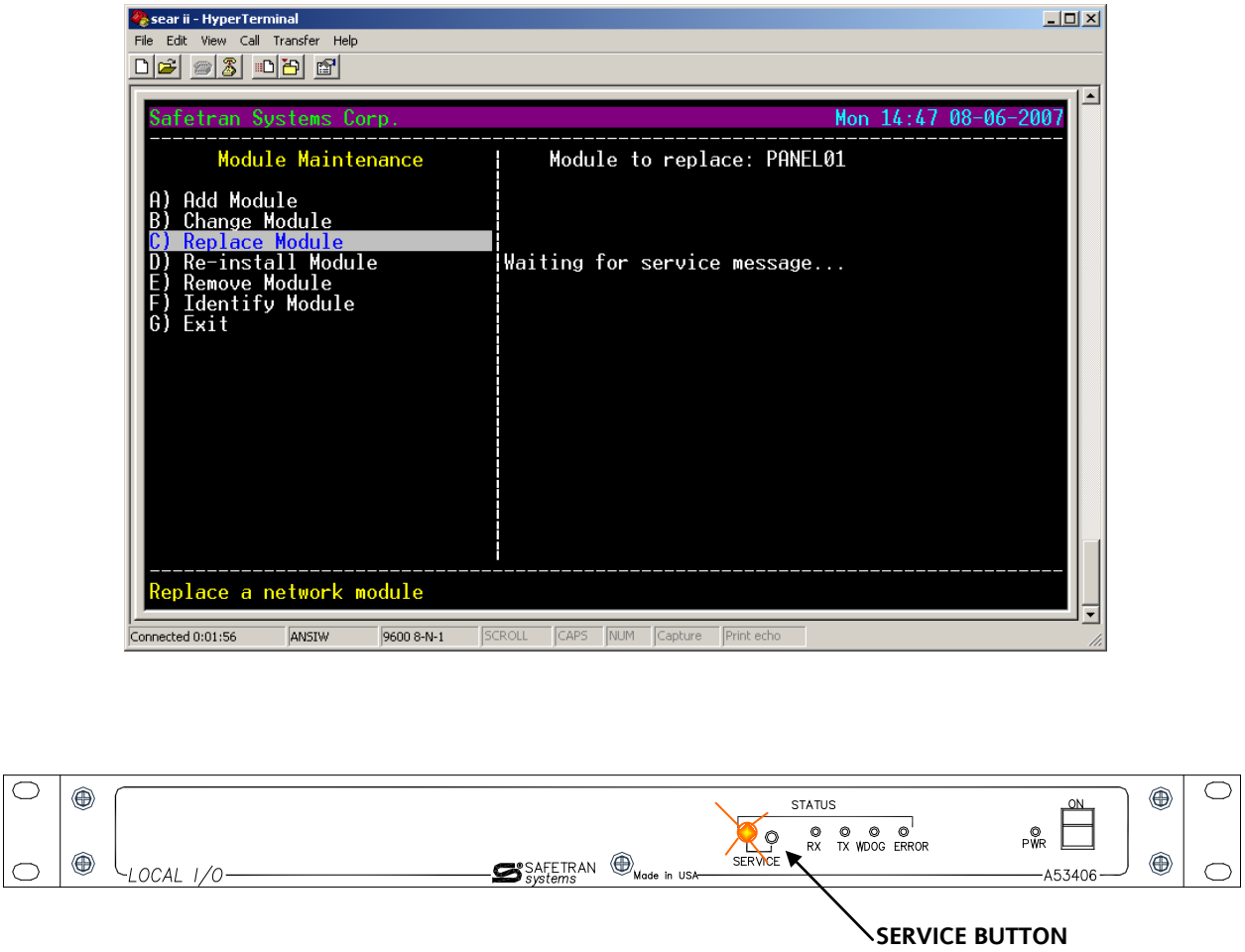


Figure 5-10 SEAR II Terminal - Request for Service Button

STEP D3 After pressing the Service Button on the replacement Local I/O Panel, the terminal service will track the installation process as shown in Figure 5-11 Exit out of the program. The replacement Local I/O Panel is now installed.

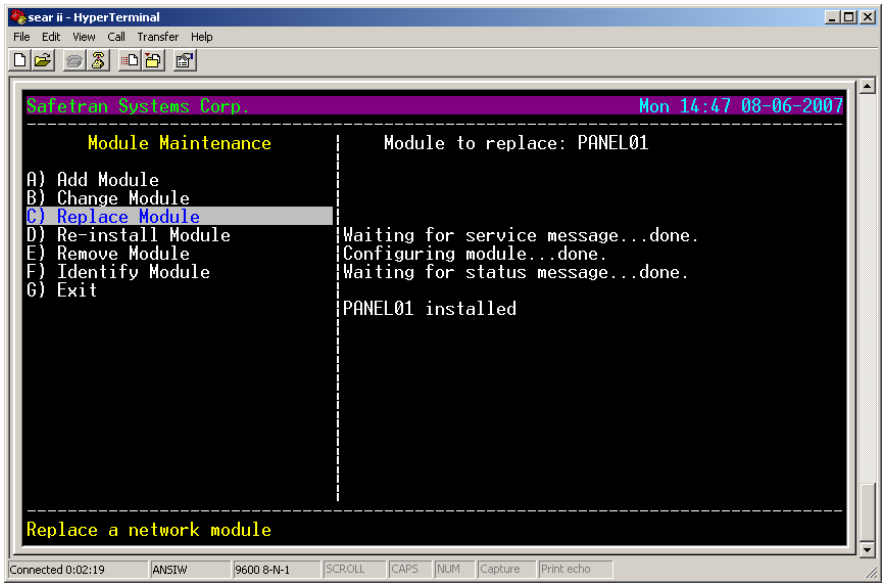


Figure 5-11 SEAR II Terminal - Replacement Local I/O Installed

STEP 6E To replace the Local I/O Panel using the WCP CPU II, follow the following procedure:

STEP E1 Boot up the XCMMAINT.EXE software and navigate to the Node where the Local I/O Panel is being serviced. (e.g. Node 3 as shown in Figure 5-12).

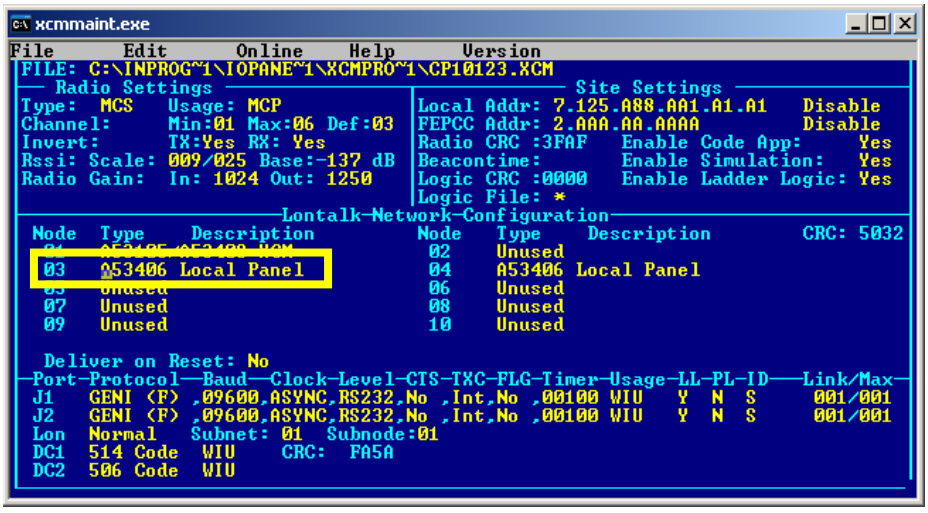


Figure 5-12 WCP CPU II - Select Node to Install

STEP E2 Press ALT+E to open the Configuration Screen as shown in Figure 5-13. Verify all settings are correct and press ALT+I.

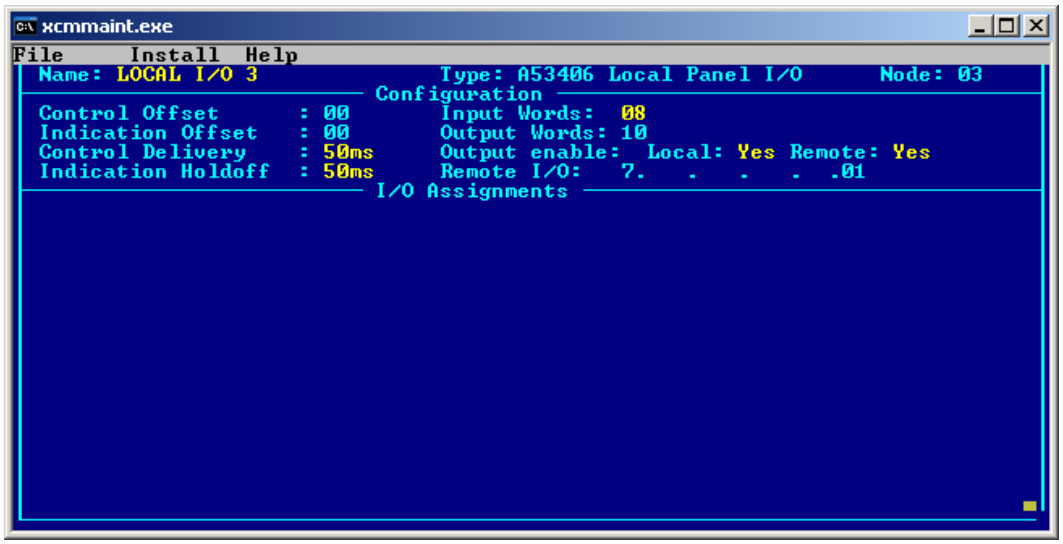


Figure 5-13 WCP CPU II - Configuration Screen

STEP E3 A drop-down menu appears when the ALT+I command is pressed. Select INSTALL and press ENTER as shown in Figure 5-14.

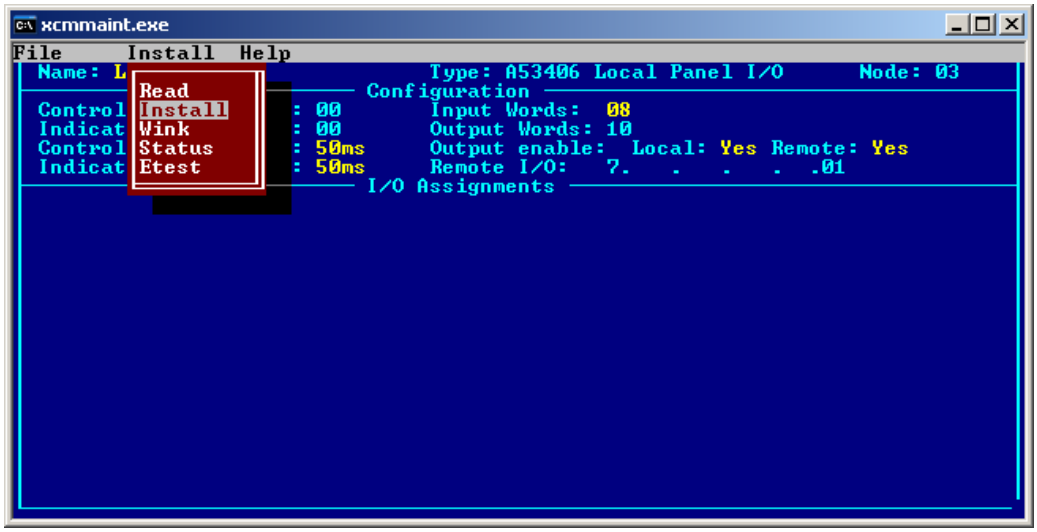


Figure 5-14 WCP CPU II - Install Command

STEP E4 A pop-up window appears requesting the Service Button as shown in Figure 5-15. Press the service button on the replacement Local I/O Panel. The Service LED will flash once as the transaction is performed. The pop up window will close.

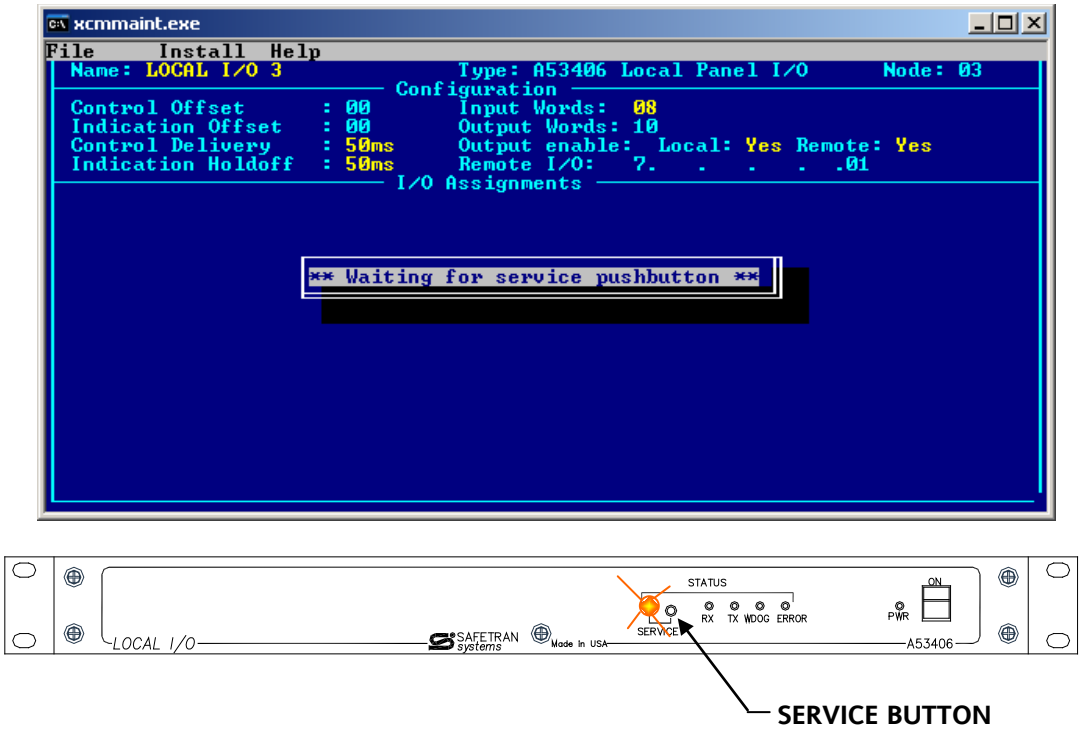


Figure 5-15 WCP CPU II - Echelon® Install of Replacement Local I/O Panel

STEP E5 Press ALT+F and the FILE drop-menu will appear. Select RETURN to navigate to the Main Menu as shown in Figure 5-16.

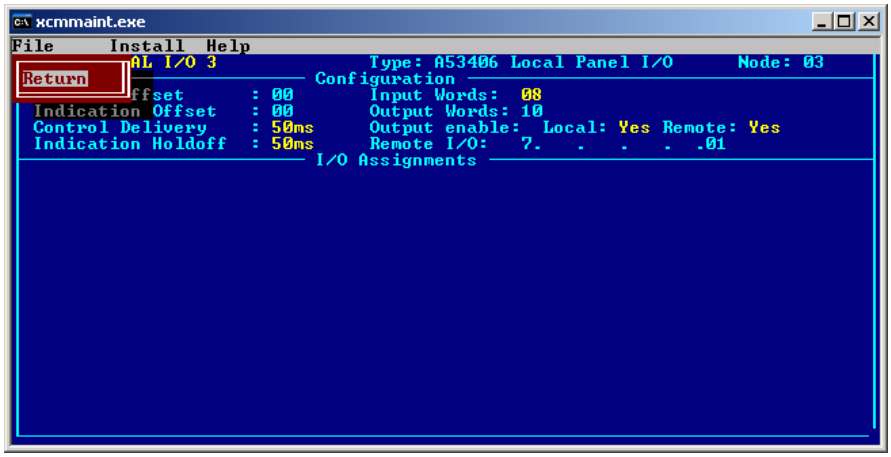


Figure 5-16 WCP CPU II - Exit Configuration

STEP E6 Press ALT+F and the FILE drop-menu will appear, select EXIT and close the program as shown in Figure 5-17.

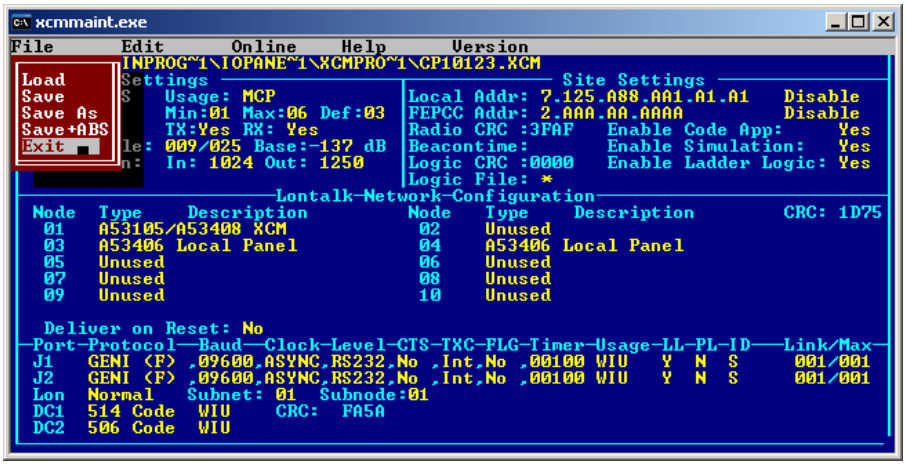


Figure 5-17 WCP CPU II - Exit XCMMAINT Program

STEP 7 The replacement Local I/O Panel is now installed on the network and will assume the tasks of the replaced unit.

5.4 TROUBLESHOOTING

The following table provides a guide to checking the Local I/O Panel to determine if a replacement unit is required.

Table 5-1 Troubleshooting Chart

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Power LED not illuminated	Open input fuse.	Check input fuse F1.
	No input source.	Check input voltage.
	Power switch off.	Verify power switch is on
	Power connector.	Verify power connector is wired properly, connections are secure, and connector is properly mated.
Watchdog (WDOG) LED not flashing	Panel not configured.	Perform configuration procedures.
	Control Delivery parameter is Latched. (WCP CPU II, A53105 Configuration Only)	Check configuration parameters.
		Verify Latched Control Delivery is required.
Input or Output connections not being read or sent.	Panel not configured properly.	Verify Input Words properly configured.
	Input or output wiring.	Verify connectors are wired and positioned properly.
		Verify DB-50 connectors are properly mated and secured.
		Verify all ground wires are connected properly.
	Defective Unit.	Replace Unit.

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APPENDIX A
SIGNAL DESIGNATION TABLES

APPENDIX A

The tables in this appendix are for reference use. Duplicate tables with additional blank columns are provided for use in the field.

Table A-1 "A" CHANNEL LINE DESIGNATIONS for Parallel I/O J1

REF POINT	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE
J1-1	IO_0A0	IN_0A(0:7) 0	OUT_0A0	I/O
J1-2	IO_0A1	IN_0A(0:7) 1	OUT_0A1	I/O
J1-3	IO_0A2	IN_0A(0:7) 2	OUT_0A2	I/O
J1-4	IO_0A3	IN_0A(0:7) 3	OUT_0A3	I/O
J1-5	IO_0A4	IN_0A(0:7) 4	OUT_0A4	I/O
J1-6	IO_0A5	IN_0A(0:7) 5	OUT_0A5	I/O
J1-7	IO_0A6	IN_0A(0:7) 6	OUT_0A6	I/O
J1-8	IO_0A7	IN_0A(0:7) 7	OUT_0A7	I/O
J1-9	IO_1A0	IN_1A(0:7) 0	OUT_1A0	I/O
J1-10	IO_1A1	IN_1A(0:7) 1	OUT_1A1	I/O
J1-11	IO_1A2	IN_1A(0:7) 2	OUT_1A2	I/O
J1-12	IO_1A3	IN_1A(0:7) 3	OUT_1A3	I/O
J1-13	IO_1A4	IN_1A(0:7) 4	OUT_1A4	I/O
J1-14	IO_1A5	IN_1A(0:7) 5	OUT_1A5	I/O
J1-15	IO_1A6	IN_1A(0:7) 6	OUT_1A6	I/O
J1-16	IO_1A7	IN_1A(0:7) 7	OUT_1A7	I/O
J1-17	IO_2A0	IN_2A(0:7) 0	OUT_2A0	I/O
J1-18	IO_2A1	IN_2A(0:7) 1	OUT_2A1	I/O
J1-19	IO_2A2	IN_2A(0:7) 2	OUT_2A2	I/O
J1-20	IO_2A3	IN_2A(0:7) 3	OUT_2A3	I/O
J1-21	IO_2A4	IN_2A(0:7) 4	OUT_2A4	I/O
J1-22	IO_2A5	IN_2A(0:7) 5	OUT_2A5	I/O
J1-23	IO_2A6	IN_2A(0:7) 6	OUT_2A6	I/O
J1-24	IO_2A7	IN_2A(0:7) 7	OUT_2A7	I/O

Table A-1 Continued

REF POINT	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE
J1-25	IO_3A0	IN_3A(0:7) 0	OUT_3A0	I/O
J1-26	IO_3A1	IN_3A(0:7) 1	OUT_3A1	I/O
J1-27	IO_3A2	IN_3A(0:7) 2	OUT_3A2	I/O
J1-28	IO_3A3	IN_3A(0:7) 3	OUT_3A3	I/O
J1-29	IO_3A4	IN_3A(0:7) 4	OUT_3A4	I/O
J1-30	IO_3A5	IN_3A(0:7) 5	OUT_3A5	I/O
J1-31	IO_3A6	IN_3A(0:7) 6	OUT_3A6	I/O
J1-32	IO_3A7	IN_3A(0:7) 7	OUT_3A7	I/O
J1-33	IO_4A0	IN_4A(0:7) 0	OUT_4A0	I/O
J1-34	IO_4A1	IN_4A(0:7) 1	OUT_4A1	I/O
J1-35	IO_4A2	IN_4A(0:7) 2	OUT_4A2	I/O
J1-36	IO_4A3	IN_4A(0:7) 3	OUT_4A3	I/O
J1-37	IO_4A4	IN_4A(0:7) 4	OUT_4A4	I/O
J1-38	IO_4A5	IN_4A(0:7) 5	OUT_4A5	I/O
J1-39	IO_4A6	IN_4A(0:7) 6	OUT_4A6	I/O
J1-40	IO_4A7	IN_4A(0:7) 7	OUT_4A7	I/O
J1-41	IO_5A0	IN_5A(0:7) 0	OUT_5A0	I/O
J1-42	IO_5A1	IN_5A(0:7) 1	OUT_5A1	I/O
J1-43	IO_5A2	IN_5A(0:7) 2	OUT_5A2	I/O
J1-44	IO_5A3	IN_5A(0:7) 3	OUT_5A3	I/O
J1-45	IO_5A4	IN_5A(0:7) 4	OUT_5A4	I/O
J1-46	IO_5A5	IN_5A(0:7) 5	OUT_5A5	I/O
J1-47	IO_5A6	IN_5A(0:7) 6	OUT_5A6	I/O
J1-48	IO_5A7	IN_5A(0:7) 7	OUT_5A7	I/O
J1-49	GND	N/A	N/A	GROUND
J1-50	GND	N/A	N/A	GROUND

Table A-2 "B" CHANNEL LINE DESIGNATIONS for Parallel I/O J2

REF POINT	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE
J2-1	IO_0B0	IN_0B(0:7) 0	OUT_0B0	I/O
J2-2	IO_0B1	IN_0B(0:7) 1	OUT_0B1	I/O
J2-3	IO_0B2	IN_0B(0:7) 2	OUT_0B2	I/O
J2-4	IO_0B3	IN_0B(0:7) 3	OUT_0B3	I/O
J2-5	IO_0B4	IN_0B(0:7) 4	OUT_0B4	I/O
J2-6	IO_0B5	IN_0B(0:7) 5	OUT_0B5	I/O
J2-7	IO_0B6	IN_0B(0:7) 6	OUT_0B6	I/O
J2-8	IO_0B7	IN_0B(0:7) 7	OUT_0B7	I/O
J2-9	IO_1B0	IN_1B(0:7) 0	OUT_1B0	I/O
J2-10	IO_1B1	IN_1B(0:7) 1	OUT_1B1	I/O
J2-11	IO_1B2	IN_1B(0:7) 2	OUT_1B2	I/O
J2-12	IO_1BB3	IN_1B(0:7) 3	OUT_1B3	I/O
J2-13	IO_1B4	IN_1B(0:7) 4	OUT_1B4	I/O
J2-14	IO_1B5	IN_1B(0:7) 5	OUT_1B5	I/O
J2-15	IO_1B6	IN_1B(0:7) 6	OUT_1B6	I/O
J2-16	IO_1B7	IN_1B(0:7) 7	OUT_1B7	I/O
J2-17	IO_2B0	IN_2B(0:7) 0	OUT_2B0	I/O
J2-18	IO_2B1	IN_2B(0:7) 1	OUT_2B1	I/O
J2-19	IO_2B2	IN_2B(0:7) 2	OUT_2B2	I/O
J2-20	IO_2B3	IN_2B(0:7) 3	OUT_2B3	I/O
J2-21	IO_2B4	IN_2B(0:7) 4	OUT_2B4	I/O
J2-22	IO_2B5	IN_2B(0:7) 5	OUT_2B5	I/O
J2-23	IO_2B6	IN_2B(0:7) 6	OUT_2B6	I/O
J2-24	IO_2B7	IN_2B(0:7) 7	OUT_2B7	I/O

Table A-2 Continued

REF POINT	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE
J2-25	IO_3B0	IN_3B(0:7) 0	OUT_3B0	I/O
J2-26	IO_3B1	IN_3B(0:7) 1	OUT_3B1	I/O
J2-27	IO_3B2	IN_3B(0:7) 2	OUT_3B2	I/O
J2-28	IO_3B3	IN_3B(0:7) 3	OUT_3B3	I/O
J2-29	IO_3B4	IN_3B(0:7) 4	OUT_3B4	I/O
J2-30	IO_3B5	IN_3B(0:7) 5	OUT_3B5	I/O
J2-31	IO_3B6	IN_3B(0:7) 6	OUT_3B6	I/O
J2-32	IO_3B7	IN_3B(0:7) 7	OUT_3B7	I/O
J2-33	IO_4B0	IN_4B(0:7) 0	OUT_4B0	I/O
J2-34	IO_4B1	IN_4B(0:7) 1	OUT_4B1	I/O
J2-35	IO_4B2	IN_4B(0:7) 2	OUT_4B2	I/O
J2-36	IO_4B3	IN_4B(0:7) 3	OUT_4B3	I/O
J2-37	IO_4B4	IN_4B(0:7) 4	OUT_4B4	I/O
J2-38	IO_4B5	IN_4B(0:7) 5	OUT_4B5	I/O
J2-39	IO_4B6	IN_4B(0:7) 6	OUT_4B6	I/O
J2-40	IO_4B7	IN_4B(0:7) 7	OUT_4B7	I/O
J2-41	IO_5B0	IN_5B(0:7) 0	OUT_5B0	I/O
J2-42	IO_5B1	IN_5B(0:7) 1	OUT_5B1	I/O
J2-43	IO_5B2	IN_5B(0:7) 2	OUT_5B2	I/O
J2-44	IO_5B3	IN_5B(0:7) 3	OUT_5B3	I/O
J2-45	IO_5B4	IN_5B(0:7) 4	OUT_5B4	I/O
J2-46	IO_5B5	IN_5B(0:7) 5	OUT_5B5	I/O
J2-47	IO_5B6	IN_5B(0:7) 6	OUT_5B6	I/O
J2-48	IO_5B7	IN_5B(0:7) 7	OUT_5B7	I/O
J2-49	GND	N/A	N/A	GROUND
J2-50	GND	N/A	N/A	GROUND

Table A-3 "C" CHANNEL LINE DESIGNATIONS for Parallel I/O J3

REF POINT	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE
J3-1	IO_0C0	IN_0C(0:7) 0	OUT_0C0	I/O
J3-2	IO_0C1	IN_0C(0:7) 1	OUT_0C1	I/O
J3-3	IO_0C2	IN_0C(0:7) 2	OUT_0C2	I/O
J3-4	IO_0C3	IN_0C(0:7) 3	OUT_0C3	I/O
J3-5	IO_0C4	IN_0C(0:7) 4	OUT_0C4	I/O
J3-6	IO_0C5	IN_0C(0:7) 5	OUT_0C5	I/O
J3-7	IO_0C6	IN_0C(0:7) 6	OUT_0C6	I/O
J3-8	IO_0C7	IN_0C(0:7) 7	OUT_0C7	I/O
J3-9	IO_1C0	IN_1C(0:7) 0	OUT_1C0	I/O
J3-10	IO_1C1	IN_1C(0:7) 1	OUT_1C1	I/O
J3-11	IO_1C2	IN_1C(0:7) 2	OUT_1C2	I/O
J3-12	IO_1C3	IN_1C(0:7) 3	OUT_1C3	I/O
J3-13	IO_1C4	IN_1C(0:7) 4	OUT_1C4	I/O
J3-14	IO_1C5	IN_1C(0:7) 5	OUT_1C5	I/O
J3-15	IO_1C6	IN_1C(0:7) 6	OUT_1C6	I/O
J3-16	IO_1C7	IN_1C(0:7) 7	OUT_1C7	I/O
J3-17	IO_2C0	IN_2C(0:7) 0	OUT_2C0	I/O
J3-18	IO_2C1	IN_2C(0:7) 1	OUT_2C1	I/O
J3-19	IO_2C2	IN_2C(0:7) 2	OUT_2C2	I/O
J3-20	IO_2C3	IN_2C(0:7) 3	OUT_2C3	I/O
J3-21	IO_2C4	IN_2C(0:7) 4	OUT_2C4	I/O
J3-22	IO_2C5	IN_2C(0:7) 5	OUT_2C5	I/O
J3-23	IO_2C6	IN_2C(0:7) 6	OUT_2C6	I/O
J3-24	IO_2C7	IN_2C(0:7) 7	OUT_2C7	I/O

Table A-3 Continued

REF POINT	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE
J3-25	IO_3C0	IN_3C(0:7) 0	OUT_3C0	I/O
J3-26	IO_3C1	IN_3C(0:7) 1	OUT_3C1	I/O
J3-27	IO_3C2	IN_3C(0:7) 2	OUT_3C2	I/O
J3-28	IO_3C3	IN_3C(0:7) 3	OUT_3C3	I/O
J3-29	IO_3C4	IN_3C(0:7) 4	OUT_3C4	I/O
J3-30	IO_3C5	IN_3C(0:7) 5	OUT_3C5	I/O
J3-31	IO_3C6	IN_3C(0:7) 6	OUT_3C6	I/O
J3-32	IO_3C7	IN_3C(0:7) 7	OUT_3C7	I/O
J3-33	IO_4C0	IN_4C(0:7) 0	OUT_4C0	I/O
J3-34	IO_4C1	IN_4C(0:7) 1	OUT_4C1	I/O
J3-35	IO_4C2	IN_4C(0:7) 2	OUT_4C2	I/O
J3-36	IO_4C3	IN_4C(0:7) 3	OUT_4C3	I/O
J3-37	IO_4C4	IN_4C(0:7) 4	OUT_4C4	I/O
J3-38	IO_4C5	IN_4C(0:7) 5	OUT_4C5	I/O
J3-39	IO_4C6	IN_4C(0:7) 6	OUT_4C6	I/O
J3-40	IO_4C7	IN_4C(0:7) 7	OUT_4C7	I/O
J3-41	IO_5C0	IN_5C(0:7) 0	OUT_5C0	I/O
J3-42	IO_5C1	IN_5C(0:7) 1	OUT_5C1	I/O
J3-43	IO_5C2	IN_5C(0:7) 2	OUT_5C2	I/O
J3-44	IO_5C3	IN_5C(0:7) 3	OUT_5C3	I/O
J3-45	IO_5C4	IN_5C(0:7) 4	OUT_5C4	I/O
J3-46	IO_5C5	IN_5C(0:7) 5	OUT_5C5	I/O
J3-47	IO_5C6	IN_5C(0:7) 6	OUT_5C6	I/O
J3-48	IO_5C7	IN_5C(0:7) 7	OUT_5C7	I/O
J3-49	GND	N/A	N/A	GROUND
J3-50	GND	N/A	N/A	GROUND

Table A-4 "A" CHANNEL LINE DESIGNATIONS for Parallel I/O J1

53406 Serial #: _____
Sub Assy. Serial #: _____

DEFAULT REF POINT	FIELD DESIGNATION	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE	SIGNAL DESIGNATION	COLOR
J1-1		IO_0A0	IN_0A(0:7) 0	OUT_0A0	I/O		
J1-2		IO_0A1	IN_0A(0:7) 1	OUT_0A1	I/O		
J1-3		IO_0A2	IN_0A(0:7) 2	OUT_0A2	I/O		
J1-4		IO_0A3	IN_0A(0:7) 3	OUT_0A3	I/O		
J1-5		IO_0A4	IN_0A(0:7) 4	OUT_0A4	I/O		
J1-6		IO_0A5	IN_0A(0:7) 5	OUT_0A5	I/O		
J1-7		IO_0A6	IN_0A(0:7) 6	OUT_0A6	I/O		
J1-8		IO_0A7	IN_0A(0:7) 7	OUT_0A7	I/O		
J1-9		IO_1A0	IN_1A(0:7) 0	OUT_1A0	I/O		
J1-10		IO_1A1	IN_1A(0:7) 1	OUT_1A1	I/O		
J1-11		IO_1A2	IN_1A(0:7) 2	OUT_1A2	I/O		
J1-12		IO_1A3	IN_1A(0:7) 3	OUT_1A3	I/O		
J1-13		IO_1A4	IN_1A(0:7) 4	OUT_1A4	I/O		
J1-14		IO_1A5	IN_1A(0:7) 5	OUT_1A5	I/O		
J1-15		IO_1A6	IN_1A(0:7) 6	OUT_1A6	I/O		
J1-16		IO_1A7	IN_1A(0:7) 7	OUT_1A7	I/O		
J1-17		IO_2A0	IN_2A(0:7) 0	OUT_2A0	I/O		
J1-18		IO_2A1	IN_2A(0:7) 1	OUT_2A1	I/O		
J1-19		IO_2A2	IN_2A(0:7) 2	OUT_2A2	I/O		
J1-20		IO_2A3	IN_2A(0:7) 3	OUT_2A3	I/O		
J1-21		IO_2A4	IN_2A(0:7) 4	OUT_2A4	I/O		
J1-22		IO_2A5	IN_2A(0:7) 5	OUT_2A5	I/O		
J1-23		IO_2A6	IN_2A(0:7) 6	OUT_2A6	I/O		
J1-24		IO_2A7	IN_2A(0:7) 7	OUT_2A7	I/O		

Table A-4 Continued

DEFAULT REF POINT	FIELD DESIGNATION	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE	SIGNAL DESIGNATION	COLOR
J1-25		IO_3A0	IN_3A(0:7) 0	OUT_3A0	I/O		
J1-26		IO_3A1	IN_3A(0:7) 1	OUT_3A1	I/O		
J1-27		IO_3A2	IN_3A(0:7) 2	OUT_3A2	I/O		
J1-28		IO_3A3	IN_3A(0:7) 3	OUT_3A3	I/O		
J1-29		IO_3A4	IN_3A(0:7) 4	OUT_3A4	I/O		
J1-30		IO_3A5	IN_3A(0:7) 5	OUT_3A5	I/O		
J1-31		IO_3A6	IN_3A(0:7) 6	OUT_3A6	I/O		
J1-32		IO_3A7	IN_3A(0:7) 7	OUT_3A7	I/O		
J1-33		IO_4A0	IN_4A(0:7) 0	OUT_4A0	I/O		
J1-34		IO_4A1	IN_4A(0:7) 1	OUT_4A1	I/O		
J1-35		IO_4A2	IN_4A(0:7) 2	OUT_4A2	I/O		
J1-36		IO_4A3	IN_4A(0:7) 3	OUT_4A3	I/O		
J1-37		IO_4A4	IN_4A(0:7) 4	OUT_4A4	I/O		
J1-38		IO_4A5	IN_4A(0:7) 5	OUT_4A5	I/O		
J1-39		IO_4A6	IN_4A(0:7) 6	OUT_4A6	I/O		
J1-40		IO_4A7	IN_4A(0:7) 7	OUT_4A7	I/O		
J1-41		IO_5A0	IN_5A(0:7) 0	OUT_5A0	I/O		
J1-42		IO_5A1	IN_5A(0:7) 1	OUT_5A1	I/O		
J1-43		IO_5A2	IN_5A(0:7) 2	OUT_5A2	I/O		
J1-44		IO_5A3	IN_5A(0:7) 3	OUT_5A3	I/O		
J1-45		IO_5A4	IN_5A(0:7) 4	OUT_5A4	I/O		
J1-46		IO_5A5	IN_5A(0:7) 5	OUT_5A5	I/O		
J1-47		IO_5A6	IN_5A(0:7) 6	OUT_5A6	I/O		
J1-48		IO_5A7	IN_5A(0:7) 7	OUT_5A7	I/O		
J1-49		GND	N/A	N/A	GROUND		
J1-50		GND	N/A	N/A	GROUND		

Table A-5 "B" CHANNEL LINE DESIGNATIONS for Parallel I/O J2

DEFAULT REF POINT	FIELD DESIGNATION	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE	SIGNAL DESIGNATION	COLOR
J2-1		IO_0B0	IN_0B(0:7) 0	OUT_0B0	I/O		
J2-2		IO_0B1	IN_0B(0:7) 1	OUT_0B1	I/O		
J2-3		IO_0B2	IN_0B(0:7) 2	OUT_0B2	I/O		
J2-4		IO_0B3	IN_0B(0:7) 3	OUT_0B3	I/O		
J2-5		IO_0B4	IN_0B(0:7) 4	OUT_0B4	I/O		
J2-6		IO_0B5	IN_0B(0:7) 5	OUT_0B5	I/O		
J2-7		IO_0B6	IN_0B(0:7) 6	OUT_0B6	I/O		
J2-8		IO_0B7	IN_0B(0:7) 7	OUT_0B7	I/O		
J2-9		IO_1B0	IN_1B(0:7) 0	OUT_1B0	I/O		
J2-10		IO_1B1	IN_1B(0:7) 1	OUT_1B1	I/O		
J2-11		IO_1B2	IN_1B(0:7) 2	OUT_1B2	I/O		
J2-12		IO_1BB3	IN_1B(0:7) 3	OUT_1B3	I/O		
J2-13		IO_1B4	IN_1B(0:7) 4	OUT_1B4	I/O		
J2-14		IO_1B5	IN_1B(0:7) 5	OUT_1B5	I/O		
J2-15		IO_1B6	IN_1B(0:7) 6	OUT_1B6	I/O		
J2-16		IO_1B7	IN_1B(0:7) 7	OUT_1B7	I/O		
J2-17		IO_2B0	IN_2B(0:7) 0	OUT_2B0	I/O		
J2-18		IO_2B1	IN_2B(0:7) 1	OUT_2B1	I/O		
J2-19		IO_2B2	IN_2B(0:7) 2	OUT_2B2	I/O		
J2-20		IO_2B3	IN_2B(0:7) 3	OUT_2B3	I/O		
J2-21		IO_2B4	IN_2B(0:7) 4	OUT_2B4	I/O		
J2-22		IO_2B5	IN_2B(0:7) 5	OUT_2B5	I/O		
J2-23		IO_2B6	IN_2B(0:7) 6	OUT_2B6	I/O		
J2-24		IO_2B7	IN_2B(0:7) 7	OUT_2B7	I/O		

Table A-5 Continued

DEFAULT REF POINT	FIELD DESIGNATION	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE	SIGNAL DESIGNATION	COLOR
J2-25		IO_3B0	IN_3B(0:7) 0	OUT_3B0	I/O		
J2-26		IO_3B1	IN_3B(0:7) 1	OUT_3B1	I/O		
J2-27		IO_3B2	IN_3B(0:7) 2	OUT_3B2	I/O		
J2-28		IO_3B3	IN_3B(0:7) 3	OUT_3B3	I/O		
J2-29		IO_3B4	IN_3B(0:7) 4	OUT_3B4	I/O		
J2-30		IO_3B5	IN_3B(0:7) 5	OUT_3B5	I/O		
J2-31		IO_3B6	IN_3B(0:7) 6	OUT_3B6	I/O		
J2-32		IO_3B7	IN_3B(0:7) 7	OUT_3B7	I/O		
J2-33		IO_4B0	IN_4B(0:7) 0	OUT_4B0	I/O		
J2-34		IO_4B1	IN_4B(0:7) 1	OUT_4B1	I/O		
J2-35		IO_4B2	IN_4B(0:7) 2	OUT_4B2	I/O		
J2-36		IO_4B3	IN_4B(0:7) 3	OUT_4B3	I/O		
J2-37		IO_4B4	IN_4B(0:7) 4	OUT_4B4	I/O		
J2-38		IO_4B5	IN_4B(0:7) 5	OUT_4B5	I/O		
J2-39		IO_4B6	IN_4B(0:7) 6	OUT_4B6	I/O		
J2-40		IO_4B7	IN_4B(0:7) 7	OUT_4B7	I/O		
J2-41		IO_5B0	IN_5B(0:7) 0	OUT_5B0	I/O		
J2-42		IO_5B1	IN_5B(0:7) 1	OUT_5B1	I/O		
J2-43		IO_5B2	IN_5B(0:7) 2	OUT_5B2	I/O		
J2-44		IO_5B3	IN_5B(0:7) 3	OUT_5B3	I/O		
J2-45		IO_5B4	IN_5B(0:7) 4	OUT_5B4	I/O		
J2-46		IO_5B5	IN_5B(0:7) 5	OUT_5B5	I/O		
J2-47		IO_5B6	IN_5B(0:7) 6	OUT_5B6	I/O		
J2-48		IO_5B7	IN_5B(0:7) 7	OUT_5B7	I/O		
J2-49		GND	N/A	N/A	GROUND		
J2-50		GND	N/A	N/A	GROUND		

Table A-6 "C" CHANNEL LINE DESIGNATIONS for Parallel I/O J3

DEFAULT REF POINT	FIELD DESIGNATION	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE	SIGNAL DESIGNATION	COLOR
J3-1		IO_0C0	IN_0C(0:7) 0	OUT_0C0	I/O		
J3-2		IO_0C1	IN_0C(0:7) 1	OUT_0C1	I/O		
J3-3		IO_0C2	IN_0C(0:7) 2	OUT_0C2	I/O		
J3-4		IO_0C3	IN_0C(0:7) 3	OUT_0C3	I/O		
J3-5		IO_0C4	IN_0C(0:7) 4	OUT_0C4	I/O		
J3-6		IO_0C5	IN_0C(0:7) 5	OUT_0C5	I/O		
J3-7		IO_0C6	IN_0C(0:7) 6	OUT_0C6	I/O		
J3-8		IO_0C7	IN_0C(0:7) 7	OUT_0C7	I/O		
J3-9		IO_1C0	IN_1C(0:7) 0	OUT_1C0	I/O		
J3-10		IO_1C1	IN_1C(0:7) 1	OUT_1C1	I/O		
J3-11		IO_1C2	IN_1C(0:7) 2	OUT_1C2	I/O		
J3-12		IO_1C3	IN_1C(0:7) 3	OUT_1C3	I/O		
J3-13		IO_1C4	IN_1C(0:7) 4	OUT_1C4	I/O		
J3-14		IO_1C5	IN_1C(0:7) 5	OUT_1C5	I/O		
J3-15		IO_1C6	IN_1C(0:7) 6	OUT_1C6	I/O		
J3-16		IO_1C7	IN_1C(0:7) 7	OUT_1C7	I/O		
J3-17		IO_2C0	IN_2C(0:7) 0	OUT_2C0	I/O		
J3-18		IO_2C1	IN_2C(0:7) 1	OUT_2C1	I/O		
J3-19		IO_2C2	IN_2C(0:7) 2	OUT_2C2	I/O		
J3-20		IO_2C3	IN_2C(0:7) 3	OUT_2C3	I/O		
J3-21		IO_2C4	IN_2C(0:7) 4	OUT_2C4	I/O		
J3-22		IO_2C5	IN_2C(0:7) 5	OUT_2C5	I/O		
J3-23		IO_2C6	IN_2C(0:7) 6	OUT_2C6	I/O		
J3-24		IO_2C7	IN_2C(0:7) 7	OUT_2C7	I/O		

Table A-6 Continued

DEFAULT REF POINT	FIELD DESIGNATION	NAME	RECEIVER CHANNEL	DRIVER CHANNEL	SIGNAL TYPE	SIGNAL DESIGNATION	COLOR
J3-25		IO_3C0	IN_3C(0:7) 0	OUT_3C0	I/O		
J3-26		IO_3C1	IN_3C(0:7) 1	OUT_3C1	I/O		
J3-27		IO_3C2	IN_3C(0:7) 2	OUT_3C2	I/O		
J3-28		IO_3C3	IN_3C(0:7) 3	OUT_3C3	I/O		
J3-29		IO_3C4	IN_3C(0:7) 4	OUT_3C4	I/O		
J3-30		IO_3C5	IN_3C(0:7) 5	OUT_3C5	I/O		
J3-31		IO_3C6	IN_3C(0:7) 6	OUT_3C6	I/O		
J3-32		IO_3C7	IN_3C(0:7) 7	OUT_3C7	I/O		
J3-33		IO_4C0	IN_4C(0:7) 0	OUT_4C0	I/O		
J3-34		IO_4C1	IN_4C(0:7) 1	OUT_4C1	I/O		
J3-35		IO_4C2	IN_4C(0:7) 2	OUT_4C2	I/O		
J3-36		IO_4C3	IN_4C(0:7) 3	OUT_4C3	I/O		
J3-37		IO_4C4	IN_4C(0:7) 4	OUT_4C4	I/O		
J3-38		IO_4C5	IN_4C(0:7) 5	OUT_4C5	I/O		
J3-39		IO_4C6	IN_4C(0:7) 6	OUT_4C6	I/O		
J3-40		IO_4C7	IN_4C(0:7) 7	OUT_4C7	I/O		
J3-41		IO_5C0	IN_5C(0:7) 0	OUT_5C0	I/O		
J3-42		IO_5C1	IN_5C(0:7) 1	OUT_5C1	I/O		
J3-43		IO_5C2	IN_5C(0:7) 2	OUT_5C2	I/O		
J3-44		IO_5C3	IN_5C(0:7) 3	OUT_5C3	I/O		
J3-45		IO_5C4	IN_5C(0:7) 4	OUT_5C4	I/O		
J3-46		IO_5C5	IN_5C(0:7) 5	OUT_5C5	I/O		
J3-47		IO_5C6	IN_5C(0:7) 6	OUT_5C6	I/O		
J3-48		IO_5C7	IN_5C(0:7) 7	OUT_5C7	I/O		
J3-49		GND	N/A	N/A	GROUND		
J3-50		GND	N/A	N/A	GROUND		