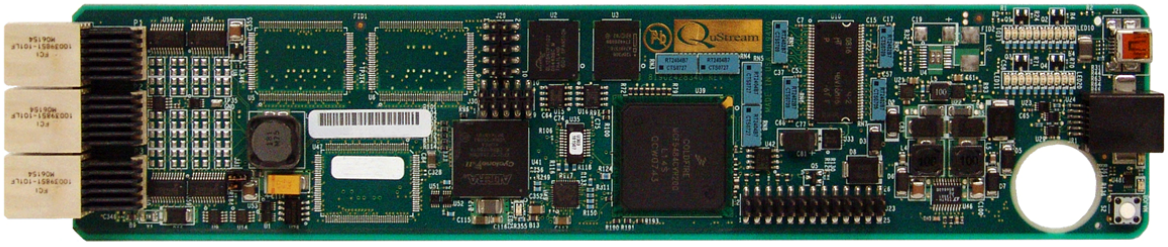
TECHNICAL MANUAL

INTEGRITY 600 SERIES
NET603 FRAME CONTROLLER



Publication: 81-9059-0646-0, Rev. A

October, 2008

www.PESA.com

Phone: 256.726.9200

Thank You !! for purchasing your new A/V Processing Equipment from PESA. We appreciate your confidence in our products. PESA produces quality, state-of-the-art equipment designed to deliver our users the highest degree of performance, dependability and versatility available anywhere. We want you to know that if you ever have a concern or problem with a PESA product, we have a team of engineers, technicians and customer service professionals available 24/7/365 to help resolve the issue.

Our commitment is to continue earning the trust and confidence of our customers throughout the industry by incorporating cutting-edge technology into the highest quality, most cost effective products on the market. And we would like to invite you to tell us how we're doing. If you have any comments or suggestions concerning your PESA equipment, please contact our Customer Service Department.

Again thank you for choosing a PESA product and we look forward to a long-term partnership with you and your facility.

SERVICE AND ORDERING ASSISTANCE
PESA
103 Quality Circle, Suite 210
Huntsville AL 35806 USA
www.PESA.com

MAIN OFFICE
Tel: 256.726.9200
Fax: 256.726.9271

SERVICE DEPARTMENT
Tel: 256.726.9222 (24/7)
Toll Free: 800.323.7372
Fax: 256.726.9268
Email: service@PESA.com

Printed in the United States of America.

As of publication, this product had not completed FCC compliance testing.

October, 2008

TABLE OF CONTENTS

LIST OF FIGURES

Chapter 1 About This Manual

1.1 Documentation and Safety Overview

This manual provides instructions for the installation and operation of the Integrity 600 Series NET603 Frame Controller module built by PESA.

It is the responsibility of all personnel involved in the installation, operation, and maintenance of the equipment to know all the applicable safety regulations for the areas they will be working in. ***Under no circumstances should any person perform any procedure or sequence in this manual if the procedural sequence will directly conflict with local Safe Practices. Local Safe Practices shall remain as the sole determining factor for performing any procedure or sequence outlined in this document.***

1.2 Warnings, Cautions, and Notes

Throughout this document, you should notice various Warnings, Cautions, and Notes. These addendum statements supply necessary information pertaining to the text or topic they address. It is imperative that audiences read and understand the statements to avoid possible loss of life, personal injury, and/or destruction/damage to the equipment. These additional statements may also provide added information that could enhance the operating characteristics of the equipment (i.e., Notes). Examples of the graphic symbol used to identify each type of statement and the nature of the statement content are shown in the following paragraphs:

1.2.1 Warning

	**Warning statements identify conditions or practices that can result in loss of life or permanent personal injury if the instructions contained in the statement are not complied with.**

1.2.2 Caution

	**Caution statements identify conditions or practices that can result in personal injury and/or damage to equipment if the instructions contained in the statement are not complied with.**

1.2.3 Note

	**Notes are for information purposes only. However, they may contain invaluable information important to the correct installation, operation, and/or maintenance of the equipment.**

Chapter 2 Introduction

2.1 DESCRIPTION

PESA's NET603 module provides all frame control and panel interface functions for the Integrity 600 Series FRM603 Chassis Frame and the installed processing modules. When present in the chassis frame, the NET603 module performs the following functions:

- Establishes an Ethernet connection (10/100 Base-T) with system remote control devices (RCP503, SOFT603, QuView) located external to the chassis frame
- Communicates control and status functions with processing modules located in the chassis
- Receives a sync signal (Frame Genlock) via a chassis mounted BNC connector from an external source and distributes it to all processing modules in the frame
- Provides visual status monitoring (LEDs) of processing module alarm functions and power supply status

Only one frame controller is required to allow communication between remote panels and the FRM603 chassis frame. However, the chassis frame provides card slots and support for two controllers – allowing for redundancy.

Figure 2-1 shows a typical NET603 Frame Controller Module.

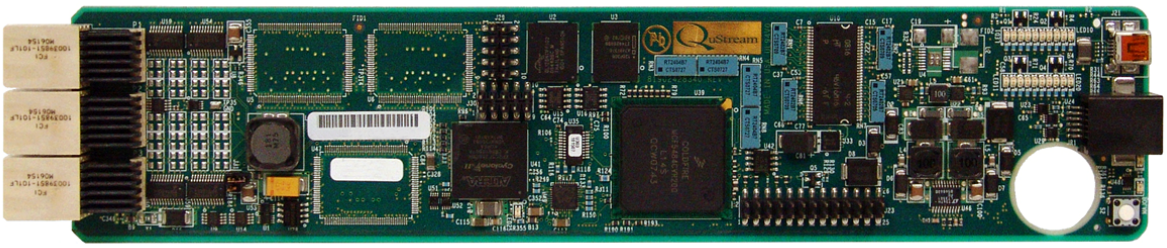


Figure 2-1 NET603 Frame Controller Module

2.2 EXTERNAL CONNECTIONS

All connections between the NET603 module and external devices or sources are made through connectors on the rear of the FRM603 chassis frame. These are discussed in more detail in Chapter 3 of this manual. There are also two connectors located on the card edge of the controller module: an RJ11 and a USB connector. These are access ports for factory use. An end-user will typically not use these connectors.

Specifications

Ethernet Connection	10/100 Base-T
Frame Sync Format	Black Burst (NTSC or PAL) or HD Tri-Level
Input Voltage	+ 24 V from mid-plane
Power	< 4.5 W
Environmental	0º C to 40º C

Chapter 3 Installation

3.1 INSTALLATION PROCEDURE

Each NET603 module occupies one controller slot in the FRM603 chassis frame, as shown in Figure 3-1. Only one module is required for frame operation. A second controller may be installed in the second slot for controller redundancy. It makes no difference in which slot the controller module is installed.

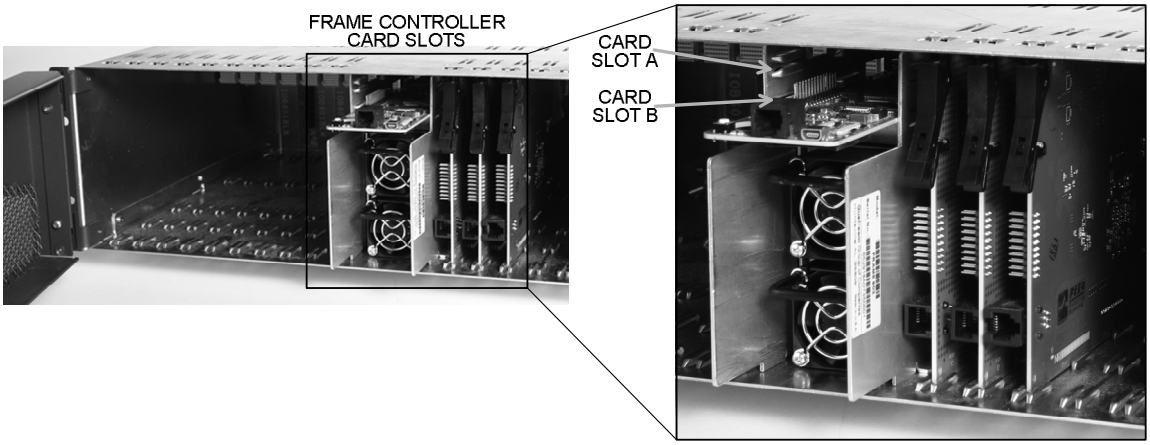


Figure 3-1 Frame Controller Card Slot Locations

CAUTION

Damage may occur to the rear connectors of the module if installation instructions are not properly followed.

It is not necessary to remove power to the chassis frame prior to removing or installing a frame controller module.

Install controller module as follows:

1. Open front access door on the FRM-603 chassis frame.
2. Locate the frame controller slots as shown in Figure 3-1.
3. Align the sides of the frame controller module with the chassis card guides
4. Press the board into place to ensure solid connection with the mating connectors on the chassis mid-plane.
5. Close the chassis frame front access door.

NOTE

Do not force the card into position. If the card does not seat with gentle pressure, back it out, realign with the card guides and reinsert the card.

3.2 Rear Panel Signal Connections

Ethernet and frame sync connections to each controller module are made through connectors located on the rear pane of the chassis frame, as Shown in Figure 3-2. There is a separate Ethernet connector and frame sync BNC connector for EACH controller slot. If only one controller module is used, ensure that all rear panel connections are made to the connectors for the slot containing the module. The External Alarm connector is configured in parallel with both controller slots.

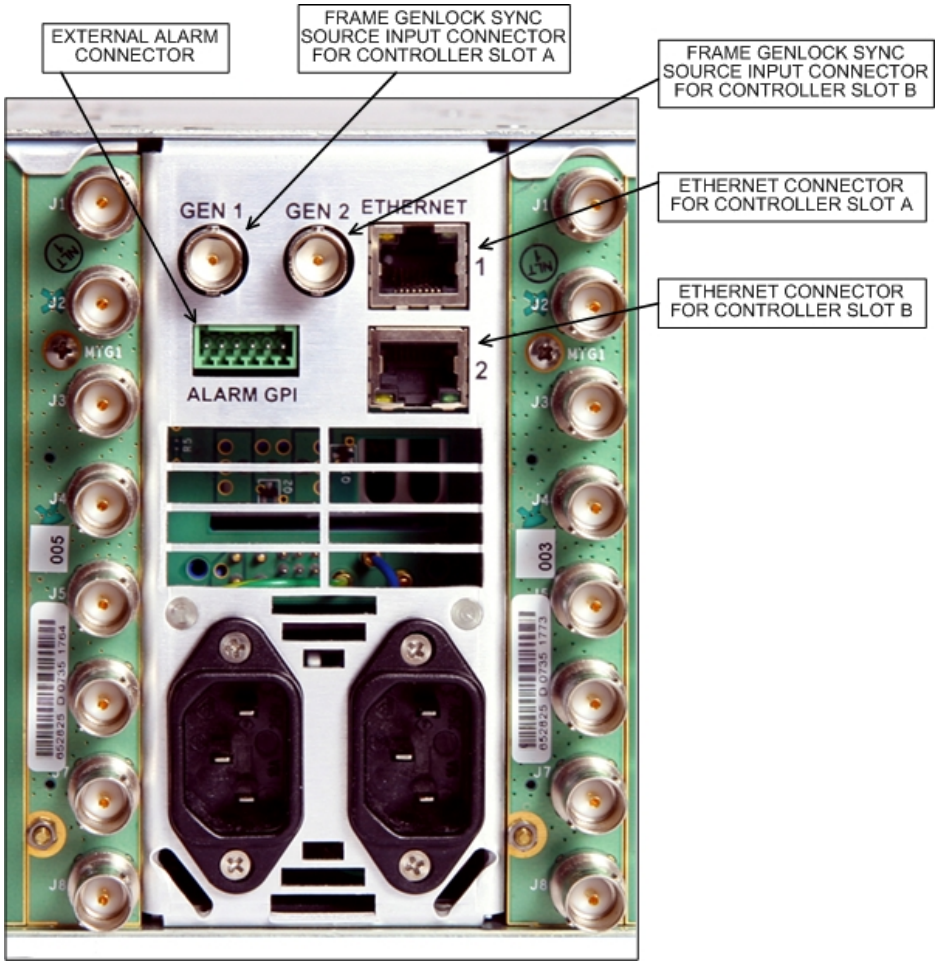


Figure 3-2 Frame Controller - Rear Panel Connections

NOTE

There are two genlock frame sync (GEN) and Ethernet connectors on the rear panel. These connectors are not loop-thru or parallel arrangements. Each connector is dedicated to one of the frame controller slots.

When making connections to the frame controller module installed in controller slot A, use connectors ETHERNET 1 and GEN 1. For the frame controller installed in controller slot B, use connectors ETHERNET 2 and GEN 2.

Connect a source of in-house synchronization to the rear panel BNC connector associated with the card slot containing the frame controller. If two controllers are used in the frame, a source of sync must be attached to each connector.

Connect an Ethernet cable attached to the facility network to the rear panel RJ45 connector associated with the card slot containing the frame controller. Connection may be made to the facility LAN through an Ethernet switch. When connecting the NET603 to a network, use a straight-through (no cross-over) Ethernet cable.

In some installations the frame controller may be connected via an Ethernet link directly to a remote control panel or to a PC with a control application installed. When using a direct connection use a cross-over Ethernet cable for interconnection.

If you have any questions regarding connection of the frame controller to the facility network, consult your network administrator.

3.3 External Alarm Connections

The external alarm connector (ALARM GPI) allows connection of external alarm devices for both major and minor alarms, to notify users of an alarm condition in the frame. Internal to the module, the external connections interface with an opto-isolator device for each alarm type. The external connector is wired in parallel with both frame controller slots. A fault alarm on either controller module will trigger an external alarm device connected to the external connector.

Maximum voltage from an external alarm circuit is 24V, with a maximum power dissipation of 25mA. Pin-out data for the alarm connector is shown by Figure 3-3. A schematic representation of the internal alarm circuitry is provided in Figure 3-4.

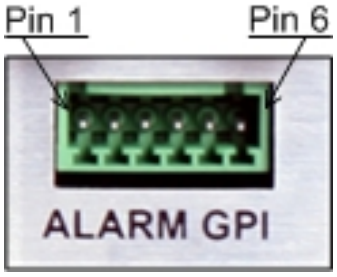


Figure 3-3 External Alarm Connector Pins

Alarm Connector Pin Assignments:

Pin 1 – Major Alarm +	Pin 4 – Minor Alarm +
Pin 2 – Major Alarm -	Pin 5 – Minor Alarm -
Pin 3 - Ground	Pin 6 - Ground

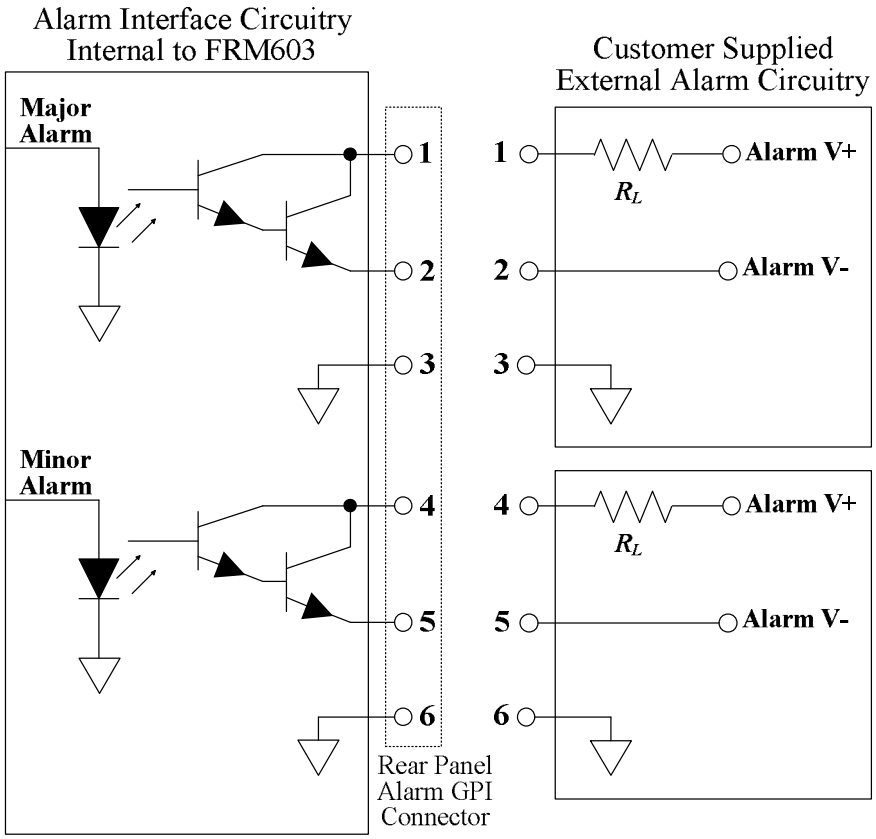


Figure 3-4 Alarm Interface Circuitry

3.4 INITIAL POWER-UP

It is not necessary to remove power when installing the NET603 module into an active chassis frame. If this is an initial installation, before applying power for the first time, please take time to go back and verify the following:

- Check for electrically sound connections, proper connector placement and possible wiring errors.
- Ensure that the chassis frame has a connection to a source of in-house sync.
- Check that the controller modules, all 600 Series processing modules, rear panels, and power supplies are securely installed.

There is no power switch on the frame, and it is powered-up simply by connecting the main power cord to a source of primary power. Systems with redundant power supply modules have two main power cords, each of which must be connected to a source of primary power.

When the NET603 module is initially powered up, look at the status LEDs located on the module circuit board and verify proper operation as discussed in Paragraph 3.5.

3.5 NET603 STATUS LEDS

There are several status LEDs located on the NET603 module, as shown in Figure 3-5.

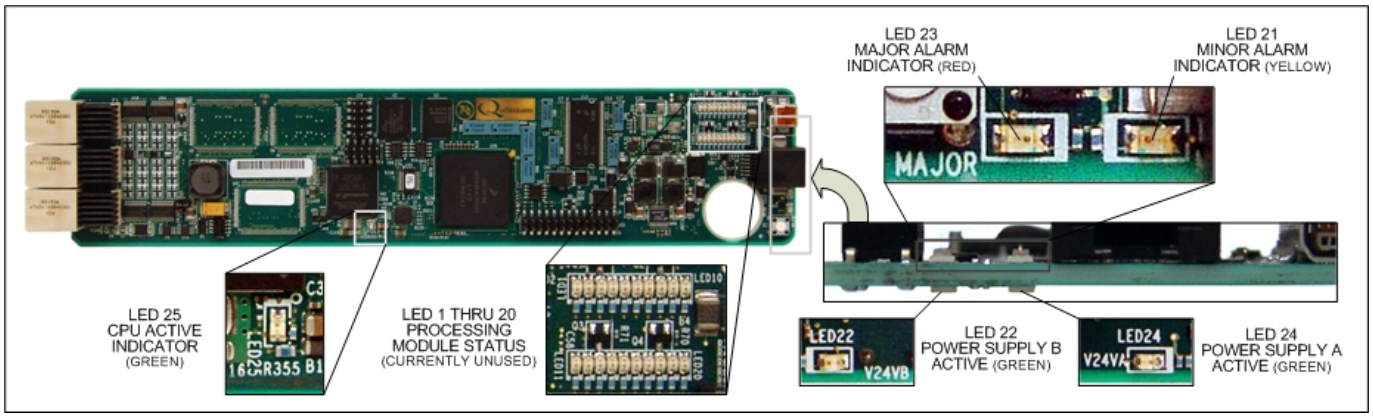


FIGURE 3-5 NET603 Status LEDs

Verify that the LED indicators are showing the proper operating status of the module. The function of each LED is discussed is discussed below.

- LED 24 – GREEN – When lit, indicates the power supply installed in module slot A is operational
- LED 22 – GREEN – When lit, indicates the power supply installed in module slot B is operational
- CPU ACTIVE – GREEN – When flashing, indicates the CPU is active
- MAJOR ALARM – RED – When lit, indicates a major alarm condition is detected with either a processing module, power supply or the frame controller
- MINOR ALARM – YELLOW – When lit, indicates a minor alarm condition is detected with either a processing module, power supply or the frame controller

NOTE

Each alarm LED is a cumulative indicator of any and all alarm conditions occurring with any component in the frame. LEDs remain lit until ALL alarm conditions of the indicated type have been cleared in the frame – regardless of the module triggering the alarm.

Chapter 4 Operation

4.1 Operation

When an Ethernet connection is established between the NET603 module and a remote control panel such as the RCP503, or software based control application such as SOFT603 PC or QuView, certain operating parameters of the frame controller module and the chassis frame may be selected or modified through the external control device. Refer to the Technical Manual for the remote control panel or control application for panel operational procedures. The following paragraphs introduce the configuration options and adjustments available through each configuration menu.

4.2 Main Menu Screen

Figure 4-1 shows the main menu display for the NET603 module. System Information displays and function selections on the menu screen are discussed below.

Figure 4-1 Main Menu Screen

The following system information is displayed on the main menu screen:

- Major Alarms (**MajAlms**) – Indicates the total number of active major alarm conditions for the FRM603 chassis frame. Alarms active for any processing module, power supply or the NET603 module are cumulatively added to the displayed total
- Minor Alarms (**MinAlms**) – Indicates the total number of active minor alarm conditions for the FRM603 chassis frame. Alarms active for any processing module, power supply or the NET603 module are cumulatively added to the displayed total
- IP Address of the NET603 frame controller is displayed in the center area of the screen

- **Cards Detected** is a numerical display of the number of active processing modules contained in the chassis frame
- **Clients Attached** is a numerical display of the number of control clients (RCP503 panels, SOFT603 or QuView applications) attached to the frame controller

FRAME CARD

Pressing the touch-switch next to the **Frame Card** menu entry accesses the Frame Card Display Screen, discussed in Paragraph 4.3.

PLUG-IN CARDS

Pressing the touch-switch next to the **Plugin Cards** menu entry accesses the PlugIn Cards Display Screen, discussed in Paragraph 4.4.

CONFIGURATION

Pressing the touch-switch next to the **Config** menu entry brings up card configuration main menu screen, discussed in Paragraph 4.5.

4.3 FRAME CARD DISPLAY SCREEN

The Frame Card Display Screen, Figure 4-2, displays the current status of configuration data and several functional parameters of the NET603 frame controller. This is a display screen only – no configuration functions are accessible from this screen.

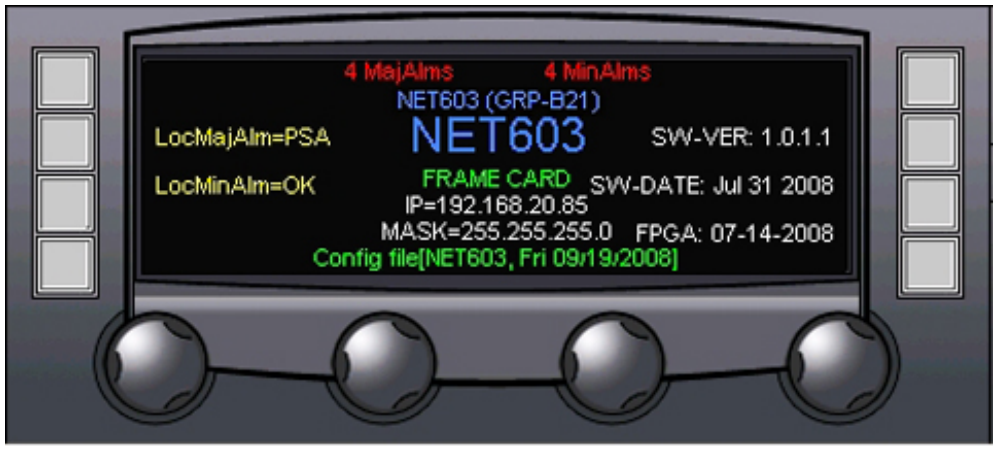


Figure 4-2 Frame Card Display Screen

Display entries along the left side indicate the status of alarms set for the frame controller module. When an active major alarm condition exists for the controller module, the alarm condition is shown by the Local Major Alarm (**LocMajAlm**) display. An active minor alarm condition is shown by the Local Minor Alarm (**LocMinAlm**) display. If no alarm condition is currently active for the module, the message **OK** is shown beside the screen entry.

The frame card information screen displays the following configuration data for the NET603 module:

- IP Address of the NET603 frame controller is displayed in the center area of the screen
- Frame Netmask is displayed beneath the IP address entry
- Software Version (**SW-VER**) – Displays the revision number of the currently loaded software
- Software Date (**SW-DATE**) – Displays the release date of the currently loaded software
- **FPGA** – Displays the release date of the programming code loaded into the FPGA device

4.4 PLUG-IN CARDS DISPLAY SCREEN

The Plug-In Cards Display Screen, Figure 4-3, displays the current status of configuration data and alarm conditions for processing modules installed in the FRM603 chassis frame. This is a display screen only – no configuration functions are accessible from this screen.

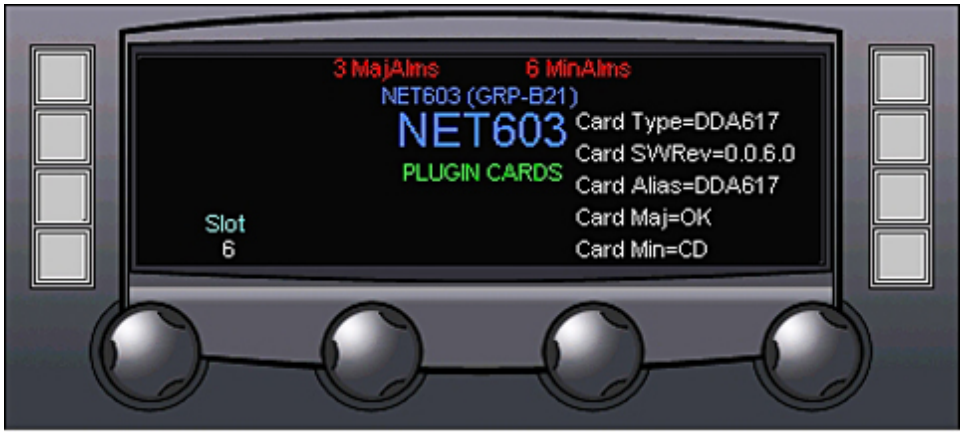


Figure 4-3 Plug-In Cards Display Screen

SLOT

Rotating the left-most control knob, scrolls through a list of chassis frame card slot numbers. Move the control to select a card slot and display data for the processing module in the slot.

The plug-in card information screen displays the following data for the module in the selected slot:

- Card Type - Displays the model number of the module contained in the selected slot
- Card Software Revision (**SWRev**) – Displays the revision number of the software currently loaded in the selected module
- Card Alias – Displays the name assigned to the selected module
- Card Major (**Maj**) – Displays currently active major alarm conditions for the selected module
- Card Minor (**Min**) – Displays currently active major alarm conditions for the selected module

4.5 CONFIGURATION MENU SCREEN

Enter the Configuration menu screen by pressing the touch-switch next to the **Config** entry on the main menu screen. Before you can gain access to the configuration screen, you will be prompted for the proper access code as shown in Figure 4-4.

Figure 4-4 Password Prompt Screen

Enter the access code [9][9][9] on the control panel keypad to access the Configuration Menu screen, as shown by Figure 4-5.

Figure 4-5 Configuration Menu Screen

Entries on the menu screen and functions available through each are discussed below.

SET FRAME IP ADDRESS

Pressing the touch-switch next to the **SetFrameIP** selection accesses the Frame IP Address Screen, discussed in Paragraph 4.6.

SET FRAME NET MASK

Pressing the touch-switch next to the **Set NetMask** selection accesses the Net Mask Screen, discussed in Paragraph 4.7.

ALARM CONFIGURATION

Pressing the touch-switch next to the **AlarmConfig** menu item allows access to the Alarm Configuration Menu Screen, discussed in Paragraph 4.8.

4.6 SET FRAME IP ADDRESS MENU SCREEN

Figure 4-6 illustrates the IP Address Menu Screen. The address selected by this screen is assigned to the NET603 module, which also determines the IP address used to communicate with the FRM603 chassis frame. Each octet of the IP address is shown above one of the control knobs. Rotating the control knob beneath each octet selects the desired value.

Pressing the touch-switch next to the **Apply!** menu entry immediately changes the IP address of the NET603 to the indicated value.

CAUTION

Changing the IP address of the NET603 module affects network communications with external control devices. If you change this setting it will immediately change the address of the controller, and may cause **SERIOUS** communication interruptions to the system. **DO NOT** change this address unless you are certain of the address required for proper operation. Consult with your facility network administrator if you need help with network configuration.

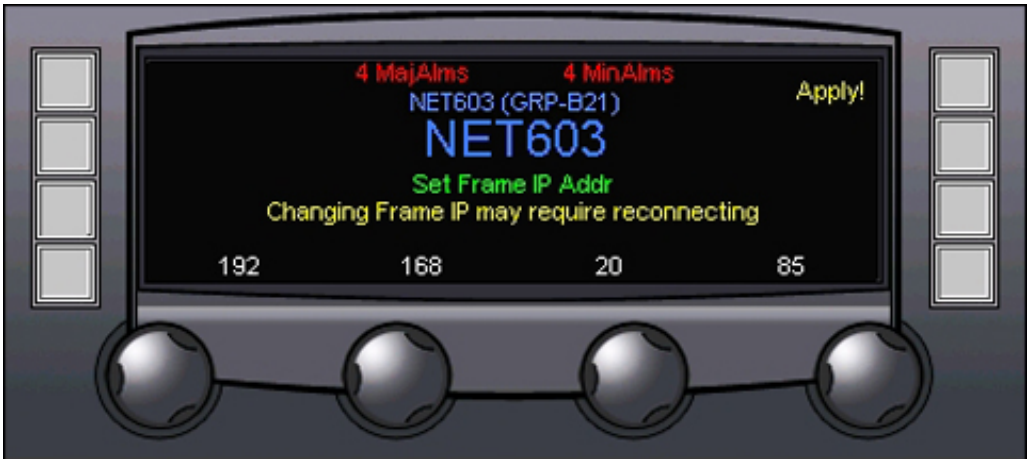


Figure 4-6 IP Address Menu Screen

4.7 CARD FRAME NET MASK MENU SCREEN

Enter the Net Mask menu screen by pressing the touch-switch next to the **Set NetMask** entry on main menu screen. Figure 4-7 shows the Net Mask menu screen.

Figure 4-7 Net Mask Menu Screen

The value selected by this screen is assigned to the NET603 module. Each octet of the Net Mask value is shown above one of the control knobs. Rotating the control knob beneath each octet selects the desired value.

Pressing the touch-switch next to the **Apply!** menu entry immediately changes the net mask value assigned to the NET603 module.

CAUTION

Changing the net mask value of the NET603 module affects network communications with external control devices. If you change this setting it will immediately change the net mask value, and may cause **SERIOUS** communication interruptions to the system. **DO NOT** change this value unless you are certain of the correct value required for proper operation. Consult with your facility network administrator if you need help with network configuration.

4.8 ALARM CONFIGURATION MENU SCREEN

Enter the Alarm Configuration menu screen by pressing the touch-switch next to the **Alarm Config** entry on the main menu screen. Figure 4-8 shows the alarm configuration menu screen. Note that setting made on this configuration screen affect only LOCAL alarms for the NET603 controller module.

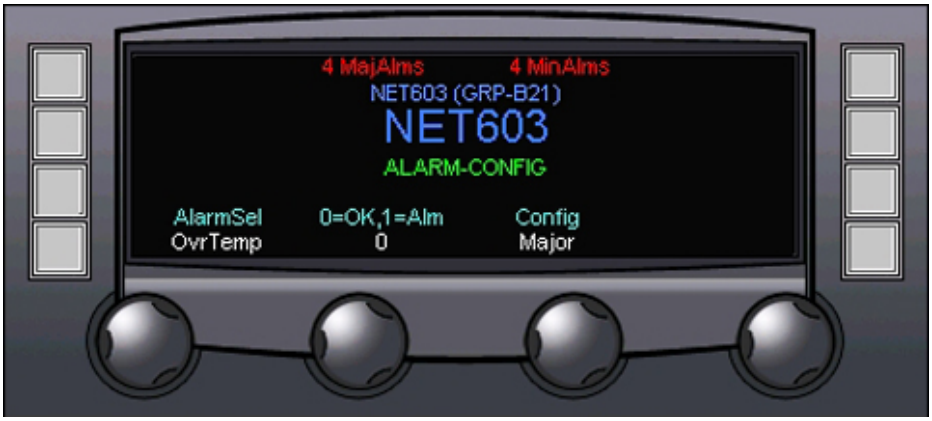


Figure 4-8 Alarm Configuration Menu Screen

SELECT ALARM

Select Alarm allows selection of the function and parameters to associate with an alarm condition. Alarm function may be selected by rotating the control knob beneath the **AlarmSel** display. The following alarm options are available:

- Over Temperature (**OvrTemp**) – Triggers an alarm alert condition if the operating temperature of the NET603 module reaches or exceeds the factory set threshold temperature
- Hardware Error (**HWErr**) – Triggers an alarm if a fault condition is detected with the controller hardware

- Power Supply A (**PSA**) – Triggers an alarm if a fault condition is detected on the power supply module installed in slot A
- Power Supply B (**PSB**) – Triggers an alarm if a fault condition is detected on the power supply module installed in slot B

ALARM STATUS

Alarm status is a display-only entry, and indicates the current status of the selected alarm condition. If a zero (0) is present in the value display, it indicates the selection is not currently in an alarm condition. The digit one (1) indicates the current selection is in an alarm active condition.

CONFIGURATION

The setting of the alarm configuration (**Config**) selector determines which, if any, alarm is associated with the board function selection. The following configuration options are available:

- **Off** – The displayed alarm selection is not associated with any of the available alarms
- **Indicator** – The displayed alarm selection will trigger an indicator when the alarm trip condition exists, but will not activate either of the frame alarms
- **Minor Alarm** - The displayed alarm selection will trigger a minor alarm indication when the alarm trip condition exists
- **Major Alarm** - The displayed alarm selection will trigger a major alarm indication when the alarm trip condition exists

4.9 RESET PUSHBUTTON

A hardware RESET push-button switch is located on the front edge of the controller module, as shown in Figure 4-9.

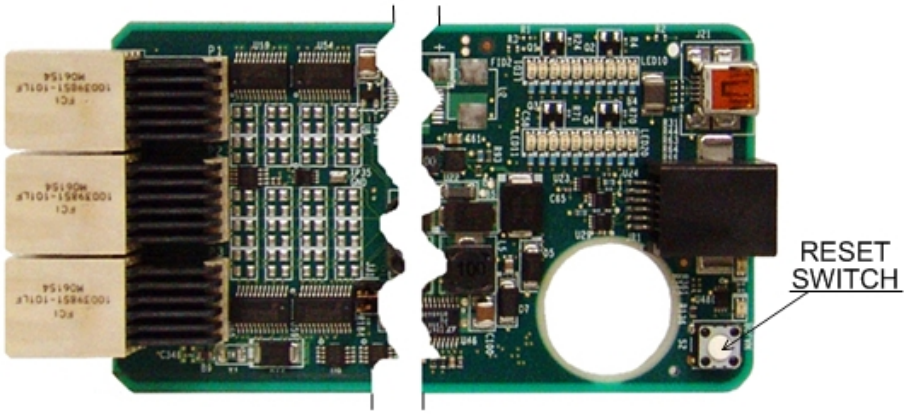


Figure 4-9 RESET Switch Location

Access the reset switch by opening the front door of the chassis frame. Press the push-button to initiate the hardware reset function.


PESA