Imagine COMMUNICATIONS™

Installation and Operation Manual

NUCLEUS™
Network Control Panel

Edition M

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Delivering the Moment

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Publication Information

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NUCLEUS™

Network Control Panel

Installation and Operation Manual

Edition H
May 2011

Contents

Preface

Manual Information

Purpose

This manual details the features, installation procedures, operational procedures, and specifications for NUCLEUS and NUCLEUS-DM Network Control Panels.

Audience

This manual is written for engineers, technicians, and operators responsible for the installation, setup, and/or operation of NUCLEUS and NUCLEUS-DM.

Revision History

Table 1-1. Revision History

Edition	Date	Comments
Edition A	January 2006	Initial production release
Edition B	April 2006	Addition of NUCLEUS-DM and router operation features
Edition C	June 2006	Minor corrections to content
Edition D	October 2007	Content restructuring
Edition E	November 2009	Update to NUCLEUS firmware 2.0
Edition F	April 2010	Addition of system-generated configurations
Edition G	June 2010	Additional troubleshooting note regarding firmware upgrades
Edition H	May 2011	Update to NUCLEUS firmware 2.5

Writing Conventions

This manual adheres to the following writing conventions.

Table 1-2. Writing Conventions

Term or Convention	Description
Bold	Indicates dialog box, property sheet, field, button, check box, list box, combo box, menu, submenu, window, list, and selection names
Italics	Indicates email addresses, names of books and publications, and first instances of new terms and specialized words that need emphasis
CAPS	Indicates a specific key on the keyboard, such as ENTER, TAB, CTRL, ALT, DELETE
`Code`	Indicates variables or command-line entries, such as a DOS entry or something you type into a field.
>	Indicates the direction of navigation through a hierarchy of menus and windows.
hyperlink	Indicates a jump to another location within the electronic document or elsewhere
Internet address	Indicates a jump to a Web site or URL
Note	Indicates important information that helps to avoid and troubleshoot problems

Obtaining Documents

Product support documents can be viewed or downloaded from our website. Alternatively, contact your Customer Service representative to request a document.

Unpacking the Product

This product was carefully inspected, tested, and calibrated before shipment to ensure years of stable and trouble-free service:

1. Check the equipment for any visible damage that may have occurred during transit.
2. Confirm that you have received all items listed on the packing list.
3. Remove the anti-static shipping pouch, if present, and all other packaging material.
4. Retain the original packaging materials for possible reuse.
5. Contact your product sales representative if parts are missing or damaged.

Keep at least one set of original packaging in the event that a product needs to be returned for service. If the original package is not available, you can purchase replacement packaging from the product supplier. Otherwise, you can supply your own packaging as long as it meets the following criteria:

- The packaging must be able to withstand the product's weight.
- The product must be held rigid within the packaging.
- There must be at least two inches (five centimeters) of space between the product and the container.
- The corners of the product must be protected.

If the product is still within the warranty period, we will return it to you by prepaid shipment after servicing.

Safety Standards and Compliances

See the *NUCLEUS Product Safety Instructions and Regulatory Compliance Manual* to find the safety standards and compliances for this product. Information about the Restriction on Hazardous Substances (RoHS) Compliance and Waste from Electrical and Electrical Equipment (WEEE) Compliance is also outlined in the manual. A safety manual is shipped with every *NUCLEUS Control Panel Installation and Operation Manual* and can be downloaded from the our website. Alternatively, contact your Customer Service representative for a copy of this safety manual.

Safety Terms and Symbols

This manual uses the following safety terms and symbols. See your *NUCLEUS Product Safety Instructions and Regulatory Compliance Manual* for more information.

Table 1-3. Safety Terms and Symbols Used in Manual

	**WARNING**: Statements identifying conditions or practices that can result in personal injury or loss of life: High voltage is present. Uninsulated dangerous voltage within the product's enclosure may be sufficient to constitute a risk of electric shock to persons.
	**CAUTION**: Statements identifying conditions or practices that can result in damage to the equipment or other property: Important operating and maintenance (servicing) instructions in the literature accompanying the product.

Important Safety Instructions

See the *NUCLEUS Product Safety Instructions and Regulatory Compliance Manual* for important safety instructions about this product. Read these instructions. Keep these instructions. Heed all warnings. Follow all instructions.

Servicing

Only qualified personnel should perform service procedures. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Chapter 1

Introduction and Installation

Overview

Using industry-standard IP networks, NUCLEUS™ and NUCLEUS™-DM provide control and monitoring of various network devices including the following:

- X75™ multi-path converter/synchronizer
- NEO™ and 6800✚ modular platforms
- Platinum™, Integrator®, Integrator® Gold, and Panacea™ routers
- Videotek® (certain) test and measurement products
- IconLogo devices
- PredatorII and QVM6800+ multiviewers
- CENTRIO multiviewers
- SNMP devices

NUCLEUS (see Figure 1-1 on page 3) is a rack-mount control panel and NUCLEUS-DM (see Figure 1-2 on page 3) is a desk-mount control panel.

Configuration of NUCLEUS control panels is done using CCS Navigator software. The type of devices that you can control with NUCLEUS and NUCLEUS-DM depends on the software license control options that are activated on the panel. Your NUCLEUS control panel is shipped with at least one software license activated. Table 1-1 on page 2 lists each software license control option that can be purchased for NUCLEUS.

Panel Options

NUCLEUS control panels are always sold with at least one license key enabled. Each panel is available as a rack-mountable control panel, and as a desk-mountable control panel, with a -DM added onto the orderable item. E.g., NUCLEUS-PROC is a rack-mountable control panel with a license key enabled for processing device control, and its equivalent desk-mountable control panel is NUCLEUS-PROC-DM.

The following NUCLEUS control panels can be purchased:

Table 1-1. NUCLEUS Control Panel Software License Control Options

NUCLEUS Part Number **(Each is available as a rack-mountable control panel, or with a -DM extension as a desk-mountable control panel)**	**Activated Software License Key Option**
NUCLEUS-PROC	Processing device control
NUCLEUS-RTR	Router control
NUCLEUS-LOGO	IconLogo control
NUCLEUS-MV	CENTRIO and MultiViewer control
NUCLEUS-SNMP	SNMP control

The following Software License Key options are available:

- Processing Device Control (NUC-OPT-PROC)
- Router Control (NUC-OPT-RTR)
- NUCLEUS-TRAX (NUC-OPT-TRAX)
- IconLogo Control (NUC-OPT-LOGO)
- SNMP Control (NUC-OPT-SNMP)
- Multiviewer Control (NUC-OPT-MV)

For information about activating software license control options, see “Activating NUCLEUS Control Options with a License Key” on page 22.

Front Views

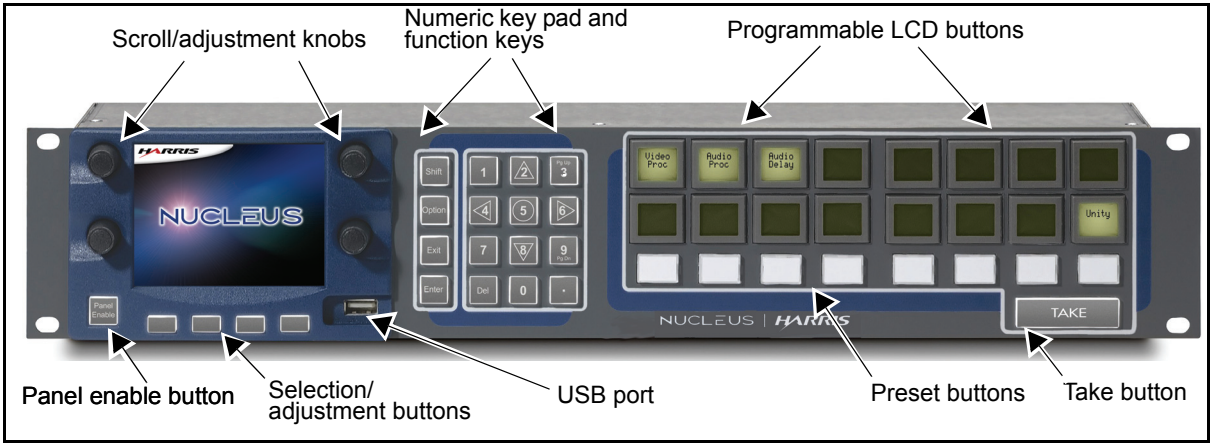

Figure 1-1. Front View of NUCLEUS Rack-Mount Control Panel

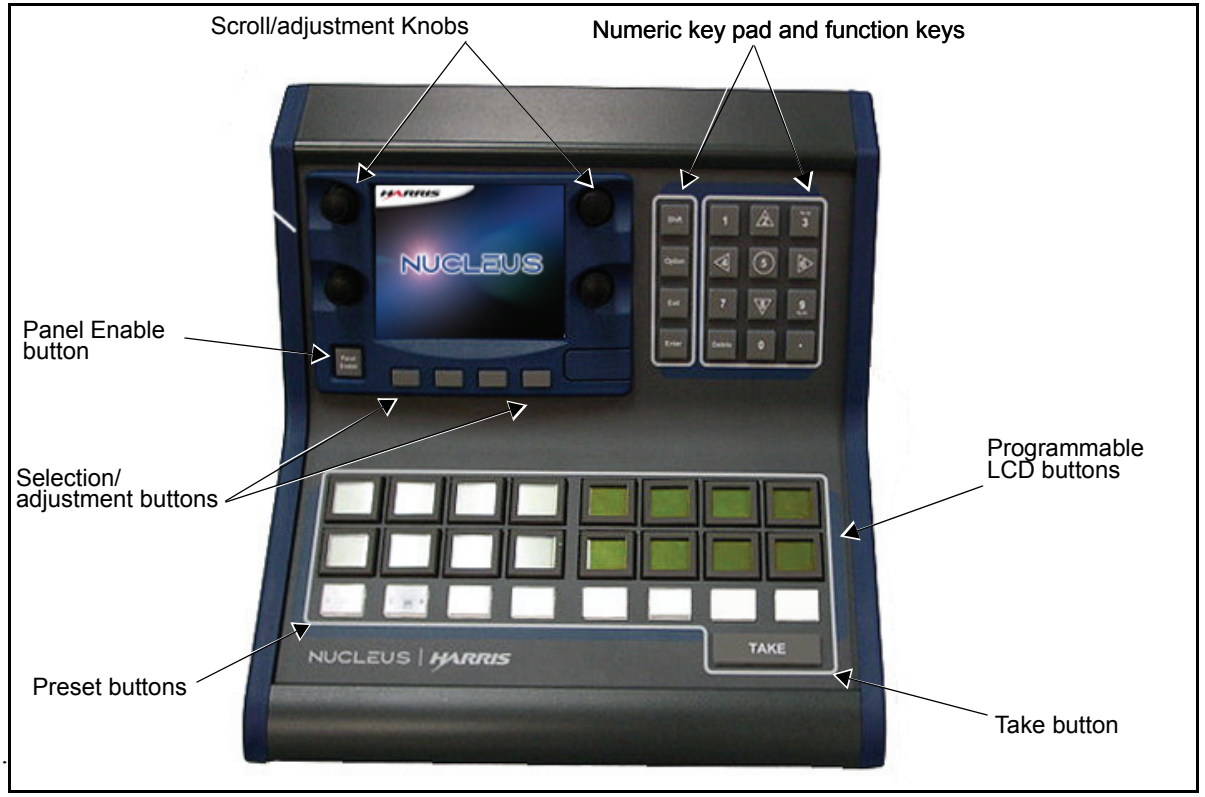

Figure 1-2. Front View of NUCLEUS-DM Desk-Mount Control Panel

Back Views

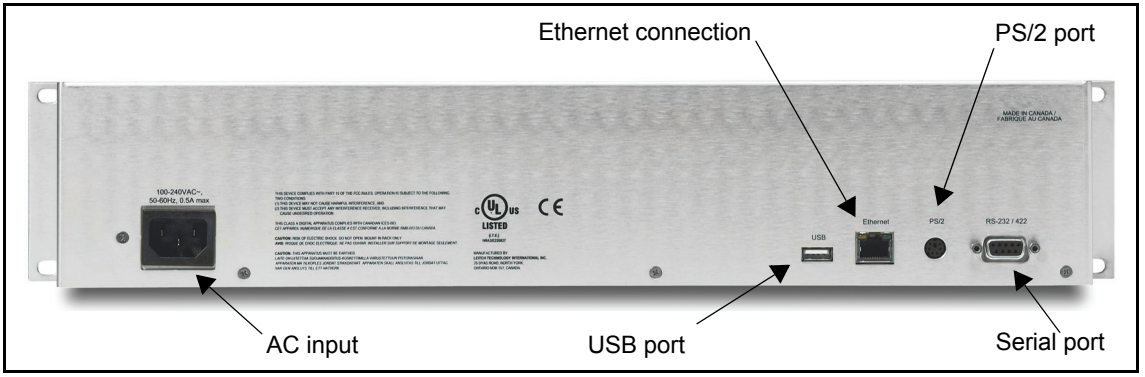

Figure 1-3. Back View of NUCLEUS Rack-Mount Control Panel

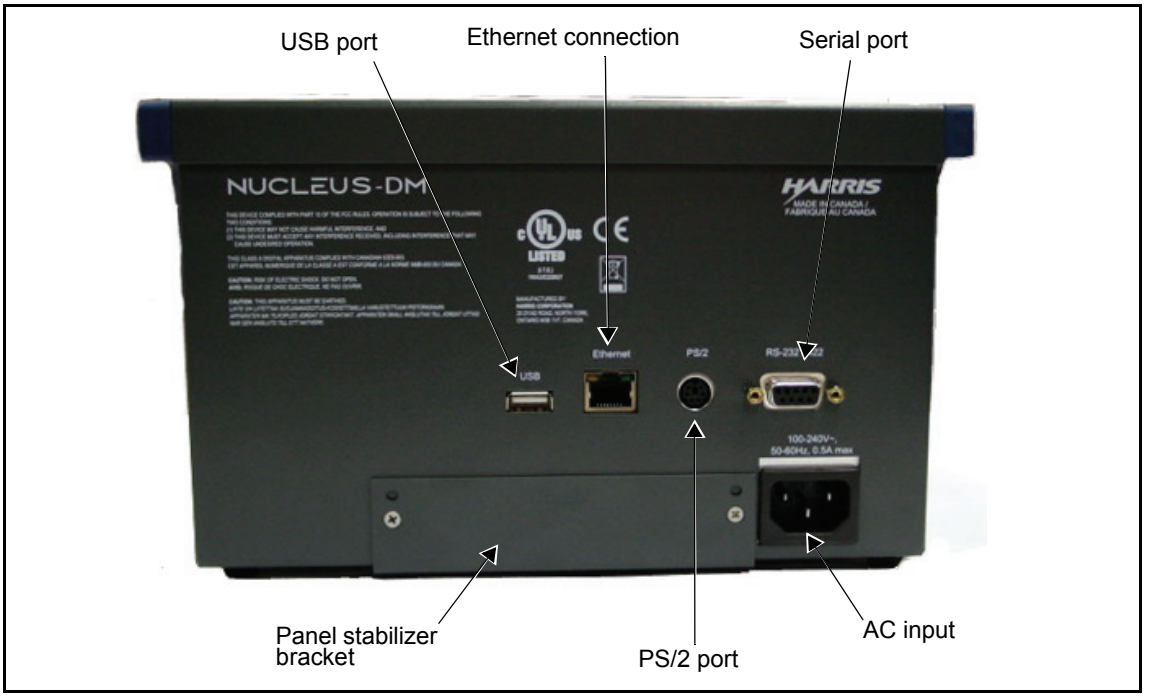

Figure 1-4. Back View of NUCLEUS-DM Desk-Mount Control Panel

Installation

NUCLEUS rack-mount control panel can be mounted in a standard width 19-in. (48.3 cm) equipment rack. See the *NUCLEUS Product Safety Instructions and Regulatory Compliance* manual for important information about installing rack-mountable equipment.

NUCLEUS-DM desk-mount control panel can be mounted into a desk or tabletop. For more information, see "Mounting NUCLEUS-DM into a Desk or Tabletop" on page 6.

Mounting NUCLEUS-DM into a Desk or Tabletop

Follow these steps to mount NUCLEUS-DM into a desk or tabletop:

1. Using the dimensions shown in Figure 1-5 on page 6 and Figure 1-9 on page 8, make a cutout in the desk or tabletop.

   If the surface of the desk or table you want to set NUCLEUS-DM into is more than 0.5 in. (1.3 cm) thick, you must notch the desk's or table's under surface to provide space for the AC power cord. As an alternative to notching the under surface, you can cut out a space for the power cord. The dimensions for notching the desk or table under surface are included in Figure 1-9 on page 8.

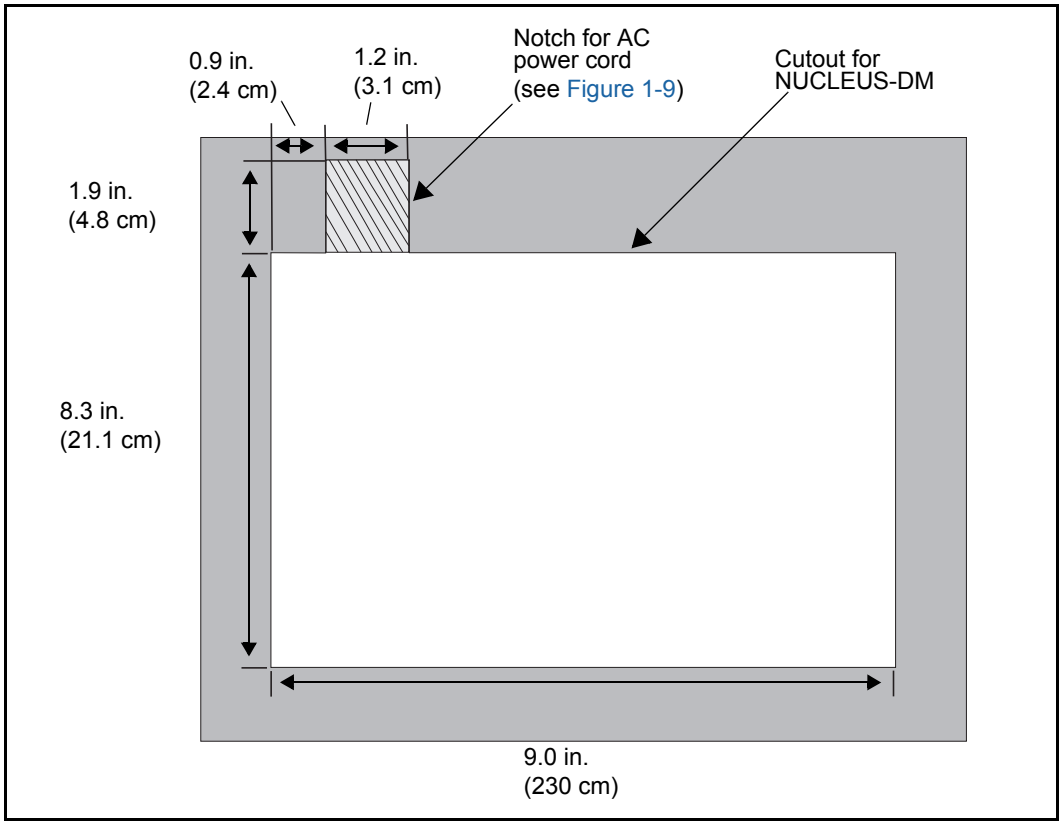

Figure 1-5. Dimensions for NUCLEUS-DM Cutout

2. Remove the stabilizing bracket screws from the back of NUCLEUS-DM.

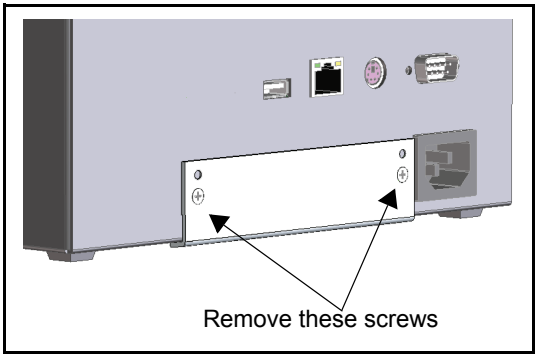

Figure 1-6. Removing the Stabilizer Bracket

3. Rotate the bracket 180 degrees from bottom to top as shown in the figure below.

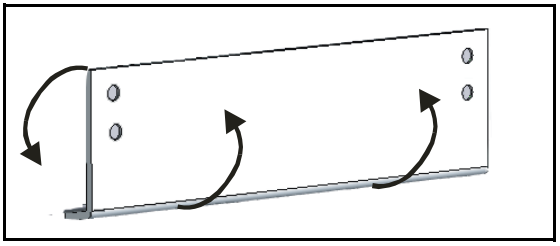

Figure 1-7. Rotating the Stabilizer Bracket

4. Align the holes on the stabilizer bracket (use the holes that have the countersink) with the screw holes on the back of NUCLEUS-DM.

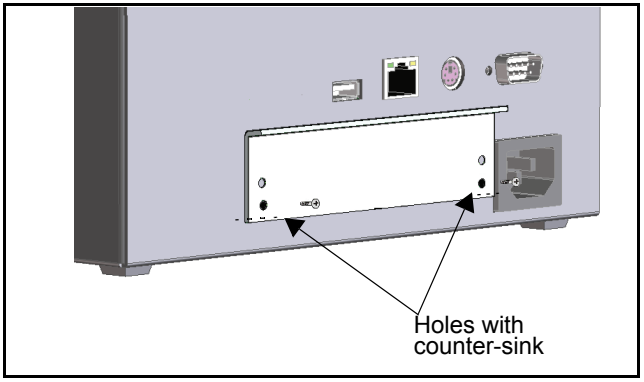

Figure 1-8. Attaching the Stabilizer Bracket to NUCLEUS-DM

5. Secure the bracket by inserting and tightening the two screws.
6. Carefully place NUCLEUS-DM into the cutout.

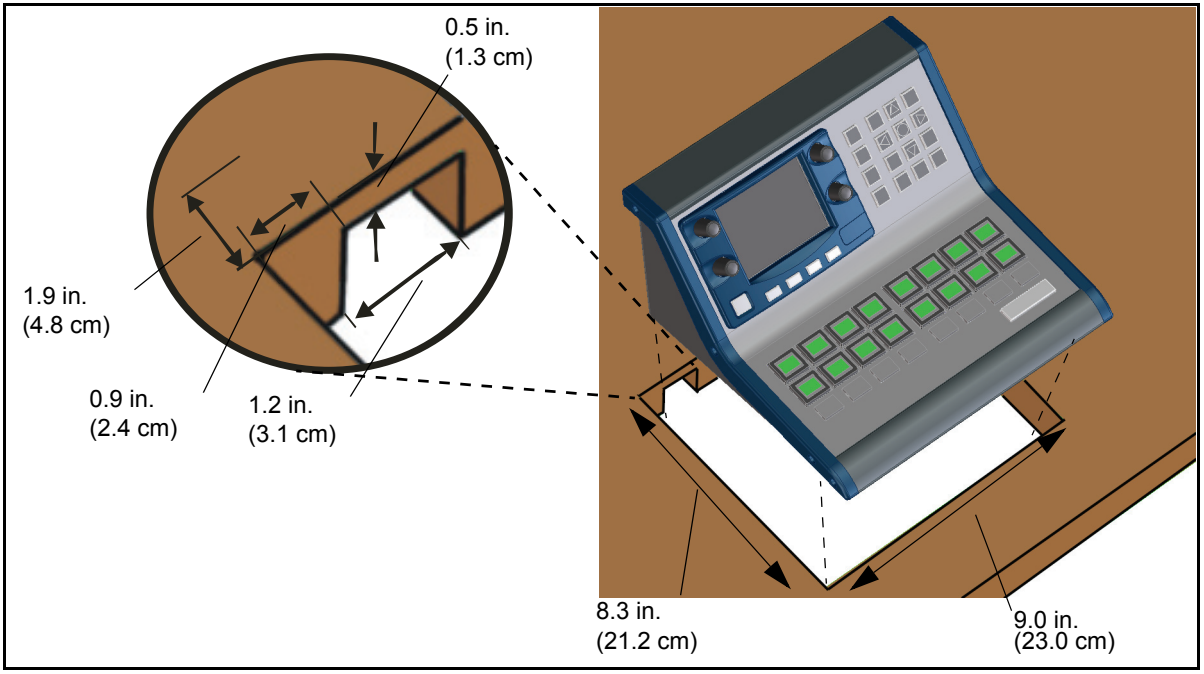

Figure 1-9. Mounting NUCLEUS-DM into the Cutout

Chapter 2

Operation

NUCLEUS Operational Overview

This chapter includes information about the generic features of NUCLEUS control panels. It does not include information that is specific to the control options activated on your NUCLEUS control panel. See the appropriate NUCLEUS control option configuration and operation manual for detailed information about using control options on NUCLEUS.

Note

Except where noted, the term NUCLEUS is used in the manual to refer to both NUCLEUS and NUCLEUS-DM.

Operation With Auto-Generated Configurations

Devices that can be controlled using an auto-generated configuration include IconLogo, PredatorII, and QVM6800✚ devices.

When controlling devices with an auto-generated configuration, once a license key is added to the control panel, the configuration is present. In order to control a device, you add the device IP address, name, etc. to the panel configuration, then select the device. The control panel's buttons update to reflect control options for that device. Figure 2-1 illustrates an overview of configuring and operating NUCLEUS with an auto-generated configuration.

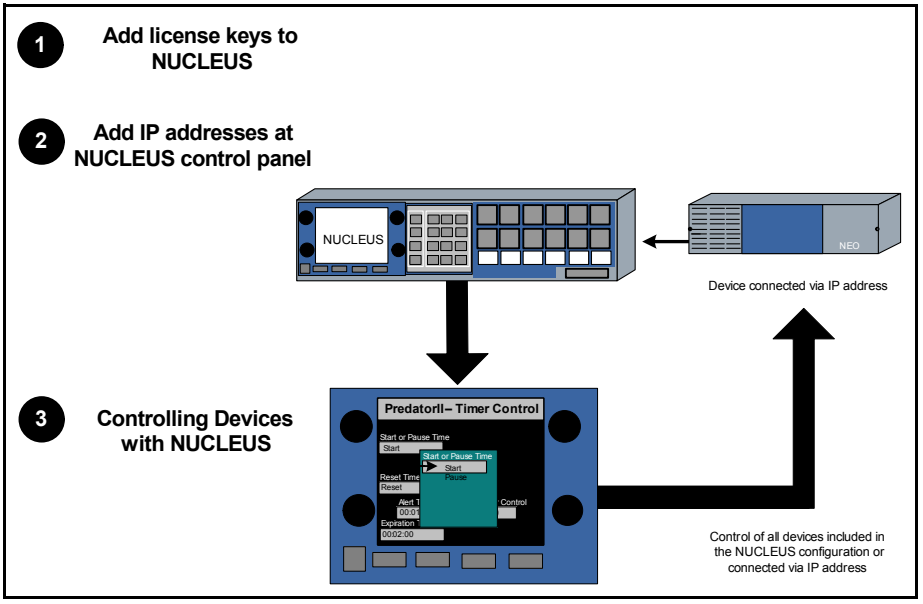

Figure 2-1. NUCLEUS Operation with an Auto-Generated Configuration

1. **Adding license keys to NUCLEUS Configurations**—Before creating a NUCLEUS configuration, you must add a license key to control your devices. You can do this using CCS Navigator, although it can also be done in the control panel's Options menu. See "Activating NUCLEUS Control Options with a License Key" on page 22.

2. **Adding IP addresses for controllable devices**—After a license key is added to your control panel, the associated configuration is automatically created on your control panel. Load the configuration, and add the IP address for at least one controllable device. For more information about adding IP addresses for auto-configurable devices, see your NUCLEUS control option configuration and operation manual.

3. **Controlling Devices with NUCLEUS**—After you have added devices to controlNUCLEUS, the control panel displays the list of devices that can be accessed within the configuration. You can then use the panel controls to control these devices as appropriate (See "Using Panel Controls" on page 12 for more information)

Operation With User-Defined Configurations

To control a CCS-P or SNMP device, a router, or a Harris Multiviewer (CENTRIO) system, you need to create a configuration using CCS Navigator.

Each NUCLEUS control option follows a similar configuration and operational workflow. This workflow consists of creating a NUCLEUS configuration, transferring the configuration to the panel, and then recalling the configuration to control pre-defined devices. Figure 2-2 illustrates an overview of creating a configuration and operating NUCLEUS.

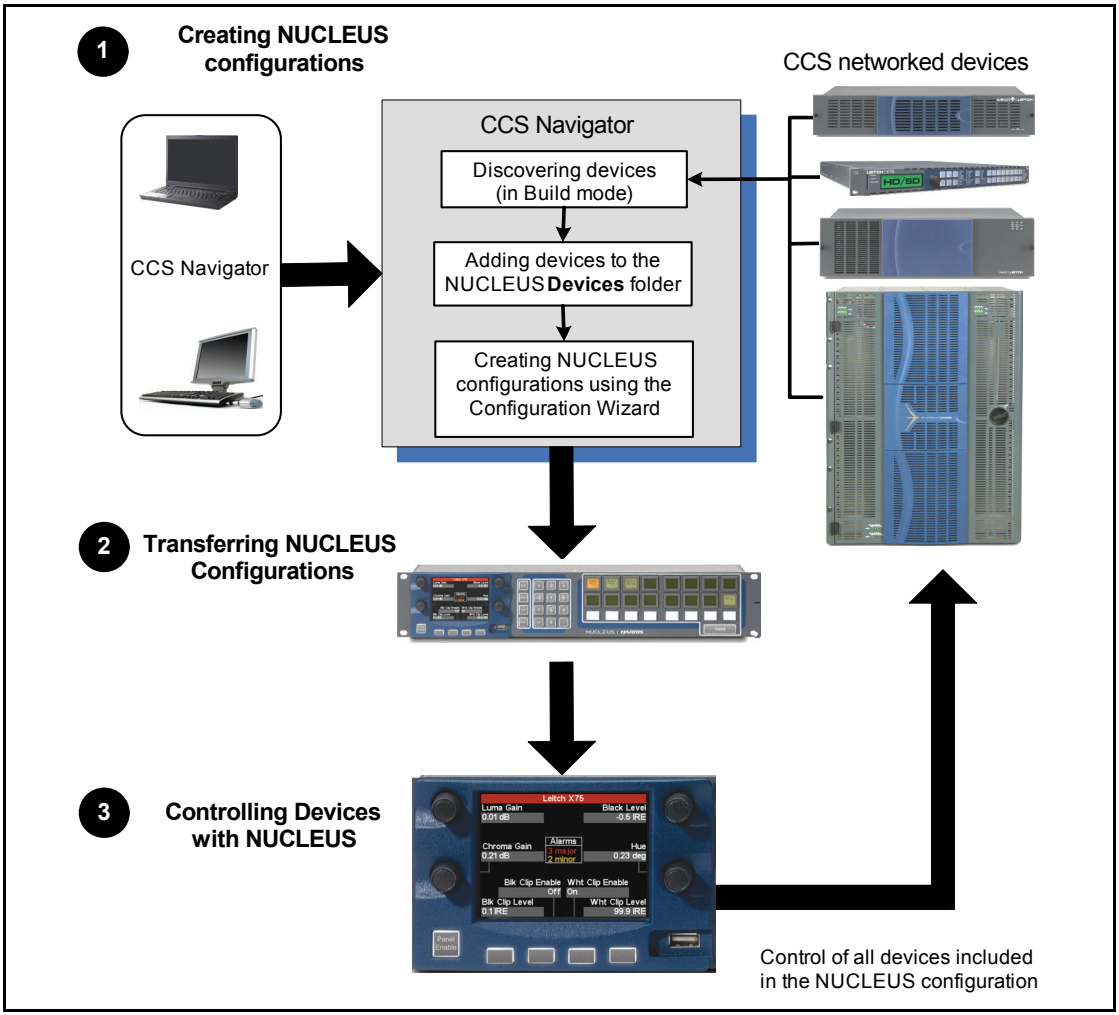

Figure 2-2. NUCLEUS Operation With a User-Generated Configuration

1. **Creating NUCLEUS Configurations—**Before creating a NUCLEUS configuration, you must use your CCS software application (CoPilot, or Pilot or Navigator in Build mode) to discover the devices you want the panel to control. In the Network view of your CCS software application, add the discovered devices to the NUCLEUS **Devices** and/or **Routers** folder. Any device that is in the NUCLEUS **Devices** folder can be included in a NUCLEUS configuration. NUCLEUS configurations are created using a configuration wizard. The number of steps required to create a NUCLEUS configuration depends on the control option you are using. For more information about creating NUCLEUS configurations, see the appropriate NUCLEUS control option configuration and operation manual.
2. **Transferring NUCLEUS Configurations—**After a configuration is created and saved to your PC's local or network drive, transfer the configuration file to the control panel. Configurations are transferred to NUCLEUS using the Configuration Wizard or by using a USB storage device. Up to five configurations can be transferred to NUCLEUS at one time. For more information about transferring configurations using the Configuration Wizard, see your NUCLEUS control option configuration and operation manual. For information about transferring configurations using a USB storage device, see "Using a USB Key with NUCLEUS" on page 28.
3. **Controlling Devices with NUCLEUS—**After your configurations are loaded into NUCLEUS, you will be prompted to select a configuration from the list displayed across the LCD buttons and in the panel display. After you have selected the NUCLEUS configuration that you want to use, the control panel displays the list of devices that can be accessed within the configuration. You can then use the panel controls to control these devices as appropriate (See "Using Panel Controls" on page 12 for more information).

Using Panel Controls

All devices controlled by NUCLEUS are operated and monitored using the front panel controls. The panel controls are divided in to three main areas: the display area, the static controls, and the dynamic controls. Before using the panel controls, you must either access a NUCLEUS configuration, or connect (using an IP address) with device you want to control.

Additional control panel settings, such as alarm configuration settings and panel setup options, are accessed through the Options menu. For more information about the Options menu items, see "Using the Option Menu" on page 19.

The panel control areas are described in the sections below.

NUCLEUS Display Area

The NUCLEUS display area consists of the QVGA display, scroll/adjustment knobs, selection/adjustment buttons, and the panel enable button. The layout and function of the NUCLEUS display area are specific to the control option that you are using on the panel. This section only provides general information about the panel's display area. See the appropriate NUCLEUS control option configuration and operation manual for detailed information about using these controls.

Figure 2-3 shows the NUCLEUS display area.

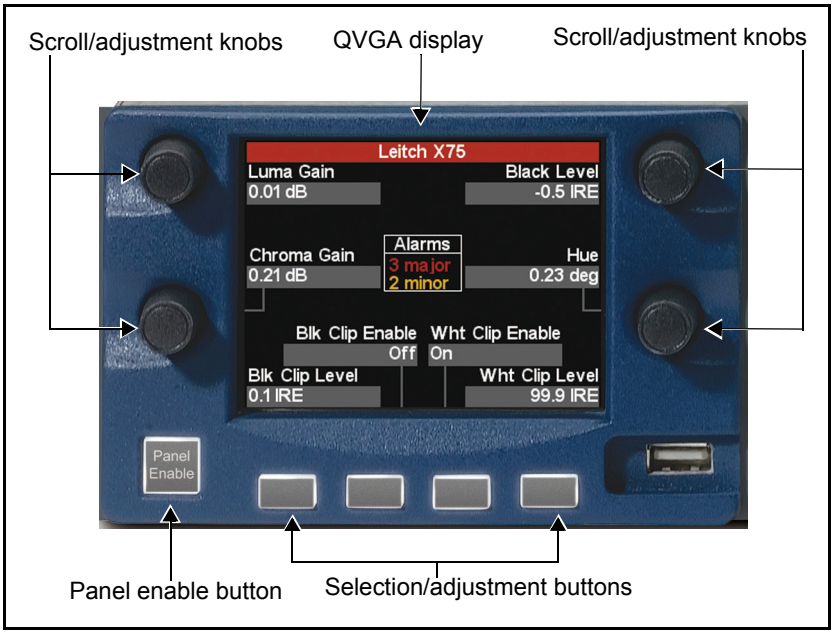

Figure 2-3. NUCLEUS Display Area

QVGA Display

The QVGA display shows information about the devices controlled by NUCLEUS. The layout of the display is specific to the software license control option that you are using on the panel. For example, Figure 2-3 shows the NUCLEUS display for the Processing Device Control option. The panel display also shows the NUCLEUS Options menu items (see "Using the Option Menu" on page 19 for more information).

Scroll/Adjustment Knobs

You can use the scroll/adjustment knobs to navigate menus and items on the display, scroll through and select options, and adjust various device settings. In most cases, pressing the adjustment knob replicates the action of pressing the **Enter** button.

Selection/Adjustment Buttons

You can use the selection/adjustment buttons to select items such as operational modes and adjust various device settings. In most cases, the items that you can select or adjust are labelled in the QVGA display directly above the buttons.

Panel Enable Button

To lock or unlock the control panel, press the **Panel Enable** button. When the **Panel Enable** button is flashing, the control panel is locked to prevent inadvertent use.

To log out, press the **Shift** button, and then press the **Panel Enable** button. For more information about the **Panel Enable** button, see "Enabling/Disabling the Control Panel" on page 27.

Static Controls

NUCLEUS static controls are not programmable, meaning that they have the same function for all software license control options. Figure 2-4 shows the static controls.

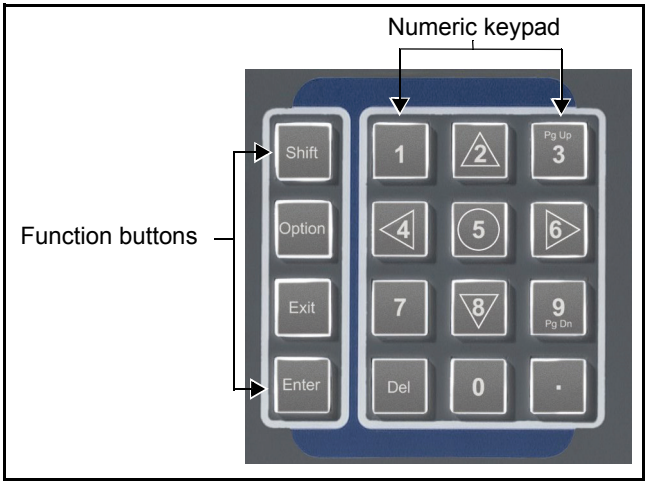

Figure 2-4. NUCLEUS Static Controls

Function Buttons

Many of the buttons on the control panel have multiple functions assigned to them. Different tasks can be selected using the multi-function buttons.

- **Shift** button—Provides multi-function access to numeric keypad buttons. The Shift button flashes when the shift function is active. (see "Using Multi-Function Buttons")
- **Option** button—Provides access to the Options menu (see "Using the Option Menu" on page 19)
- **Enter** button— Inputs an entered value or selection into the control panel such as a parameter value, an index value, or a menu option
- **Exit** button— Navigates backwards in the menu or assignment level hierarchy

Numeric Keypad

The numeric keypad values are used to input numeric values or assign numeric values to parameters. You can navigate through LCD button pages, parameter lists, and menus using the navigation, **PG UP**, and **PG DN** keys on the keypad. Use the **Exit** button to navigate back through the list. These buttons are non-programmable.

Using Multi-Function Buttons

Many of the buttons on the control panel's numeric keypad have multiple functions assigned to them. To select different tasks from a multi-function button, press **Shift** and then the desired multi-function button. The **Shift** button flashes when the shift function is active. The assigned function is written in white on the button face near the top of the button.

Dynamic Controls

The layout and function of the dynamic controls are specific to the control option that you are using on the panel. This section only provides general information about the panel's dynamic controls. See the appropriate NUCLEUS control option configuration and operation manual for detailed information about using these controls. Figure 2-5 shows the dynamic controls.

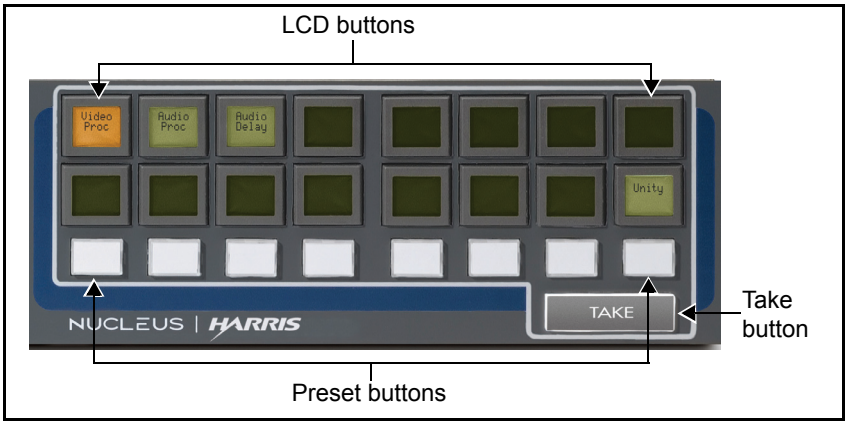

Figure 2-5. Dynamic Controls

LCD Buttons

You can use the LCD buttons to perform operation and control functions such as providing access categories, indexes, devices, device parameter sub-menus, destinations, or sources. Depending on the control option that you are using, the LCD buttons are either user-programmable or have preset functions. The appearance and color of the LCD buttons is also dependent on the control option you are using. Multiple pages of 16 LCD buttons can be assigned and used.

You can use the page up button 

and the page down button 

on the numeric keypad to navigate through multiple LCD button pages.

Preset Buttons

The user-assignable preset buttons can be either used to set user-defined device preset values or to enable specific functionality predetermined by the control option you are using. The preset buttons are not configurable using CCS software applications.

Preset buttons are not used in some configurations.

Take Button

The function of the **Take** button depends on the control option that you are using on the panel. For example, when the Router Control option is used, the **Take** button can be used to navigate the routing sources and destinations of a crosspoint take.

The Take button is not used in some configurations.

Adjusting Parameters

The display on the remote control panel shows two types of parameters:

- *Read-only* parameters, which provide status information, but cannot be changed
- *Adjustable* parameters, which can be modified

Since you cannot change read-only parameters using the control panel, these parameters are highlighted in dark grey.

Parameters can be assigned to the adjustment knobs and buttons surrounding the NUCLEUS display, or they can be assigned to LCD buttons. There are four types of adjustable parameters.

Numeric Parameters

Numeric parameters are values represented by a sliding bar on the display screen. Numeric parameter changes are always immediate. As you adjust a numeric parameter, the value is immediately set on the product. Pressing the adjustment knob while setting numeric parameters toggles between the fine and coarse adjustment modes.

Figure 2-6 provides an example of a numeric parameter.

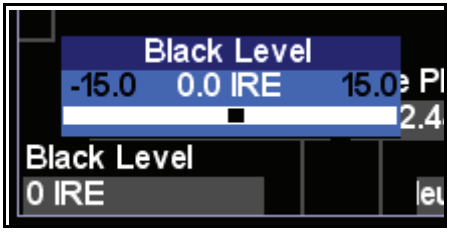

Figure 2-6. Example of a Numeric Parameter

If the parameter is assigned to an LCD button, to adjust that parameter, first press the LCD button. Then you can use any of the adjustment knobs surrounding the NUCLEUS display to change the value of the parameter.

Enumeration and String-List Parameters

Enumeration and string-list parameters are a list of possible values for a specific parameter. Enumeration and string-list parameter changes are always delayed. When you set an enumeration or string-list parameter, the changes will not take effect until press the **Enter** button.

Figure 2-7 provides an example of an enumeration parameter.

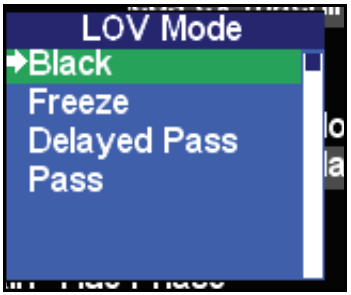

Figure 2-7. Example of an Enumeration Parameter

Figure 2-8 provides an example of a string-list parameter.

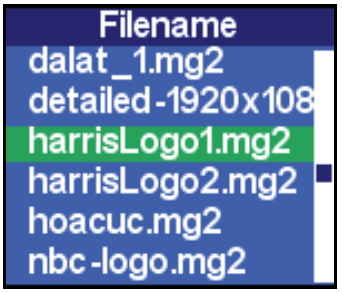

Figure 2-8. Example of a String List Parameter

If the parameter is assigned to an LCD button, to adjust that parameter, first press the LCD button. The parameter options will appear both on the LCD buttons, and on the NUCLEUS display. The current parameter value is Orange on the LCD, and marked with an arrow on the NUCLEUS display. If there are more than 16 values for the parameter, use the Pg Up and Pg Dn buttons to browse all the value options.

String Parameters

String parameters are items that can be renamed using text characters. String parameter changes do not take effect until the entire string has been modified.

Figure 2-9 provides an example of a string parameter.

Figure 2-9. Example of a String Parameter

To modify string parameters, follow these steps:

1. Using the appropriate adjustment knob or button, select the string parameter you want to modify.
2. To modify the string, do one of the following:
   - If you are modifying a string parameter for an adjustment knob, press the **Shift** button, and then press the adjustment knob that controls the parameter you want to change.

   OR

   - If you are modifying a string parameter for an adjustment button, press the adjustment button that controls the parameter you want to change.
3. A cursor appears underneath the first character.

   Use the 

and 

buttons to move to the character position, and then use an adjustment knob to select a new character.
4. To save your changes, press the **Enter** button.
5. To exit the string parameter editing mode, press the **Exit** button.

Using the Option Menu

You can access the Options menu by pressing the **Option** button. Each menu item opens up into submenus that you can navigate through and select as required.

Note

Some items listed in the Options menu are not supported by all NUCLEUS software license key options.

Table 2-1 briefly describes each menu item.

Table 2-1. Options Menu Items

Menu Name	Menu Description
Active Alarms	Displays information about the currently active alarms for the selected device (see "Viewing Active Alarms" on page 23)
Configure Alarms	Configures the available alarms for the selected device (see "Configuring Alarms" on page 25)
Thumbnail	Enables NUCLEUS' thumbnail display feature. This feature is only available on control panels with an activated processing device control option (NUCLEUS-PROC) licence. See your NUCLEUS *Processing Device Control Option Configuration and Operation Manual* for information.
Setup	Configures the control panel setup parameters (see "Appendix A: Control Panel Setup Parameters" on page 39)
Clock Management	Configures the control panel's internal clock and NTP support (see "Setting Up the Clock" on page 27) These options are also available for viewing, but not configuration, in CCS Navigator. See "Setup Parameters in CCS Navigator" on page 46.
Preset/Unity	Configures user-specific preset buttons, the **Device Unity** button, and the **Menu Unity** button. For more information, see your *NUCLEUS Processing Device Control Option Configuration Operation Manual*.
SNMP Management	See your *NUCLEUS SNMP Control Option Configuration Operation Manual* These options are also available for viewing, but not configuration, in CCS Navigator. See "Setup Parameters in CCS Navigator" on page 46.
Physical Devices	Displays a list of stand-alone and virtual devices that are controlled by the panel. You can select each stand-alone device or virtual device from the list to obtain information about the device, such as the IP address, frame slots number and operational state. This option is not used for router system devices, and only displays the main device (not PiPs) with a PredatorII or QVM6800✚ device and Multiviewers configuration.

Table 2-1. Options Menu Items *(Continued)*

Menu Name	Menu Description
Version Info	Displays the following information: • Panel name • Hardware version number • Software version • Memory size (including percentage used) • Flash memory size (including percentage used) • Serial number • List of enabled NUCLEUS options for which a software license key been entered
License Key	Activates NUCLEUS features (see "Activating NUCLEUS Control Options with a License Key" on page 22)
File Manager	Displays options for copying and deleting NUCLEUS configuration, MIB, firmware, and settings files (see "Copying and Pasting a File or Folder")
Router Network	Displays the router the NUCLEUS control panel is connected to.
Logout	Logs the control panel out of the current configuration. You can also log out using CCS Navigator. See "Setup Parameters in CCS Navigator" on page 46.

Entering Network Address Information

Each device that you intend to control or monitor with a NUCLEUS control panel must have a valid IP address, gateway, and subnet mask. Addresses are divided into numeric chunks, with each chunk separated by a dot (period).

To be controlled or monitored by NUCLEUS, a device's IP address and gateway must meet the following criteria:

- The first number can range from 1 to 224.
- The second number can range from 0 to 255.
- The third number can range from 0 to 255.
- The fourth number can range from 1 to 254.

The highest possible IP address for a device controlled by NUCLEUS would be 223.255.255.254.

The subnet mask must meet the following criteria:

- The first number can range from 1 to 255.
- The second number can range from 0 to 255.
- The third number can range from 0 to 255.
- The fourth number can range from 0 to 254.

Network configuration provided by a network administrator will normally follow these rules.

Activating NUCLEUS Control Options with a License Key

To activate software license control options, you must enter a softkey code into the **License Key** menu. The code, consisting of 16 characters, will be provided when you purchase a software license control option. NUCLEUS panels are always shipped with one license key activated. The valid key character sets are numbers 2—9 and letters A~Z.

To order additional software license keys, you need the NUCLEUS panel's serial number. To view the serial number of your NUCLEUS panel, from the **Options** menu, select **Version Info**. Or, in CCS Navigator, in Control mode, under Control Options. See "Setup Parameters in CCS Navigator" on page 46 for more information.

Note

You can activate software license control options with NUCLEUS by entering the software license key in the **Device** tab of your CCS software application. For more information, see your CCS software application user guide.

To enter the key using the control panel, follow these steps:

1. Press the **Option** button.

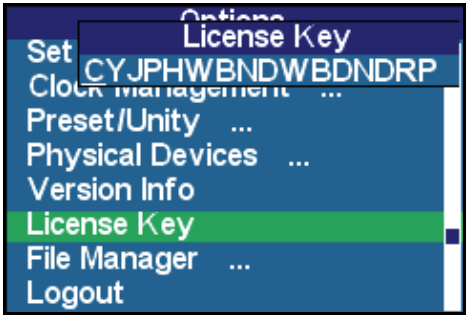

Figure 2-10. Entering the License Key

2. Select **License Key** from the list.
3. Use the adjustment knob or the left and right keypad arrows (and delete key) to select license key characters.
4. Press the **Enter** button to enter the characters.
5. Press the **Exit** button when completed.

Note

Reboot the control panel to ensure that new features are fully enabled. See "Rebooting NUCLEUS" on page 31.

Alarms

Each CCS-P device in your network has a list of default minor and major alarms. Using the NUCLEUS control panel's **Active Alarms** and **Configure Alarms** menus, you can view information about active alarms; you can enable, disable, and configure any alarms that are received at the control panel. These menus are accessed from the Options menu.

Note

Device alarm notifications are not visible while you are using NUCLEUS to operate a routing panel.

Viewing Active Alarms

When device alarms are active, an alarm notification appears in the control panel display. The device name bar turns yellow for minor alarms, and red for major alarms. Using the **Active Alarms** menu, you can view information about these alarms.

To view detailed alarm information follow these steps:

1. Press the **Option** button.

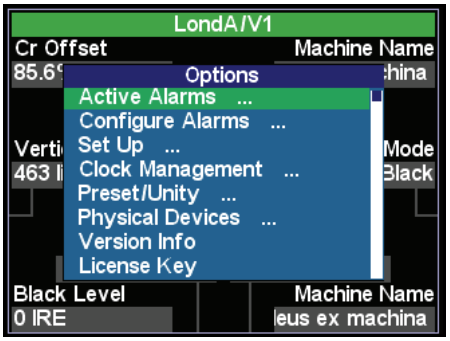

Figure 2-11. Active Alarms

2. Select **Active Alarms** from list, and then press **Enter**.

   A list of the currently active alarms for the selected device appears.

3. To view information about an alarm, select it from the list of active alarms, and then press **Enter**.

Figure 2-12. Active Alarm Information

4. Press the **Exit** button to go back the alarms list or to navigate back to the Options menu.

Configuring Alarms

Using the **Configure Alarms** menu, you can enable, disable, and configure alarm settings. To access the **Configure Alarms** menu, press the **Option** button, and then select **Configure Alarms** from the list.

Note

6800+ devices must be Q-SEE™ compliant to support control panel functions for configuring alarms. If your module is not Q-SEE compliant, then the only alarm configuration option that will be available at the control panel is **Enable**.

Table 2-2 describes each menu item. Alarm configuration settings are stored on the module.

Table 2-2. Configure Alarms Menu

Menu Name	Menu Description
Enable	Enables and disables the selected alarm on the selected device.
Mute	Mutes all alarm notifications for the selected device alarm. For example, when Mute is enabled, active alarm notifications for the selected alarm do not appear in the control panel display. Any alarm monitoring mechanism within the network is also muted.
Trigger (s)	Sets the amount of time in seconds (in 0.1 second increments) that an alarm condition exists before it is considered an "active alarm." This setting is specific to the control panel only. It does not affect module card-edge alarms.
Clear (s)	Sets the amount of time in seconds (in 0.1 second increments) that an alarm condition is resolved before it is considered inactive (no longer an active alarm). This setting is specific to the control panel only. It does not affect module card-edge alarms.
Priority	Assigns an alarm priority value to the selected device alarm. Priority values range from 1 (for the lowest priority alarms) to 10 (for the highest priority alarms).
Ack	When an alarm is active, allows other users on the network to see that you have acknowledged the alarm.

Follow these steps to configure alarms for a selected device:

1. In the NUCLEUS display, navigate to the device for which you want to configure alarms.

2. Select the device, and then press the **Option** button.

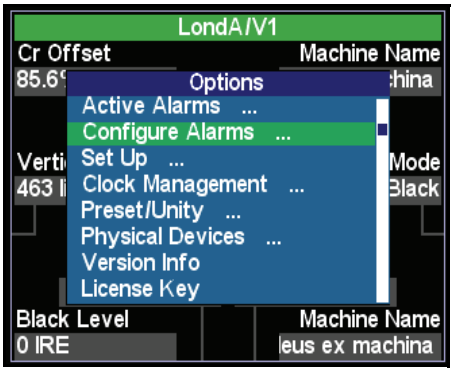

Figure 2-13. Configure Alarms

3. Select **Configure Alarms** from the **Options** menu, and then press **Enter**.
4. Press **Enter** again to confirm the IP address of the device.

   A list of the possible alarms on the selected device appears.
5. From the list of alarms, select the alarm that you want to configure, and then press **Enter**.

   The alarm settings information appears.

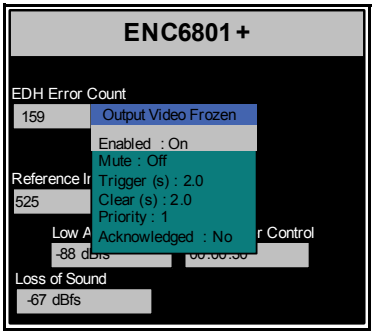

Figure 2-14. Alarm Settings Information

6. To change an alarm setting, select it from the list, press **Enter**, and then use an adjustment knob to make the appropriate changes.
7. Press the **Exit** button to go back the alarm settings list or to navigate back to the Options menu.

Setting Up the Clock

NUCLEUS has an internal clock that displays the current time and date.

Note

NUCLEUS does not have a backup battery to keep your local time and date settings when the control panel is powered down. To keep the local time and date when NUCLEUS is powered down, you must configure the panel to receive time from an NTP server.

The internal clock can be configured using the **Clock Management** menu. To configure the internal clock, press the **Option** button, and then from the Options menu, select **Clock Management**. Table 2-3 briefly describes each menu item.

Table 2-3. Clock Management Menu

Menu Name	Menu Description
Show Time	Displays the current time and date in the control panel screen.
NTP	Enables/disables the clock to receive time from an NTP server (see "Appendix B: Displaying NTP Time" on page 49)
NTP Server	Provides information about the available NTP servers (see "Appendix B: Displaying NTP Time" on page 49)
Time Zone	Configures the clock's time zone offset
DST	Enables/disables the auto-DST (daylight savings time) feature. When this feature is enabled, the clock automatically adjusts to DST at the appropriate time.
Time Present	Selects whether time is displayed in 12-hour or 24-hour format
Set Local Time	Sets the local time
Set Local Date	Sets the current local date

Enabling/Disabling the Control Panel

NUCLEUS has an **Enable Panel** button that prevents you from accidentally modifying any parameters. If the Panel Enable button is flashing, no control panel knob or button is functional until the **Enable Panel** button is pressed again. You can disable the panel by pressing the button while the panel is enabled.

The current user can log out by simultaneously pressing the **Shift** button and the **Enable Panel** button.

The **Enable Panel** button is located on the bottom left corner of the front of the control panel.

Updating Software on the Control Panel

Periodically, you may need to transfer updated software versions into NUCLEUS. This procedure is accomplished in the following ways:

- Use CCS software applications. For instructions on this procedure, read the CCS software application manual or online help topic "Updating the Software on a CCS Device."
- Use the **File Manager** to copy updated software from one panel to another via a USB memory key. For information about using the File Manager, see "Copying and Pasting a File or Folder" on page 30.

Caution

When updating software on the control panel, ensure that you do not interrupt the process once it has started. If the updating process is interrupted by power failure, loss of Ethernet connectivity, or some other cause, the software may be corrupted. If this occurs, call your Customer Service representative for product support.

Using a USB Key with NUCLEUS

You can use a USB memory key to transfer configurations, firmware, MIBs and settings to and from NUCLEUS. A key with at least 128MB of available storage is recommended. The USB key must be formatted for the FAT or FAT16 file system before you can use it with NUCLEUS. USB keys formatted as FAT32 are not supported on NUCLEUS.

Note

Not all USB drives are the same. Some USB drives may not be recognized by NUCLEUS due to hardware incompatibility.

You can use either of NUCLEUS's USB ports. See "Front Views" on page 3 and "Back Views" on page 4 for the location of NUCLEUS's USB ports. (There is a USB port on the back of NUCLEUS-DM).

Opening the NUCLEUS File Manager

Using the **File Manager** on the NUCLEUS control panel, you can copy configurations, software, MIBs and panel settings between NUCLEUS and a Universal Serial Bus (USB) memory key. You can also use the **File Manager** to delete files from a USB memory key and from NUCLEUS itself. To access the **File Manager**, press the **Option** button, and then select **File Manager** from the list.

Note

To copy or delete NUCLEUS configurations, users must have been granted access to do so. For information about copy and delete access, see “Setting Control Panel Options” in your NUCLEUS control option manual.

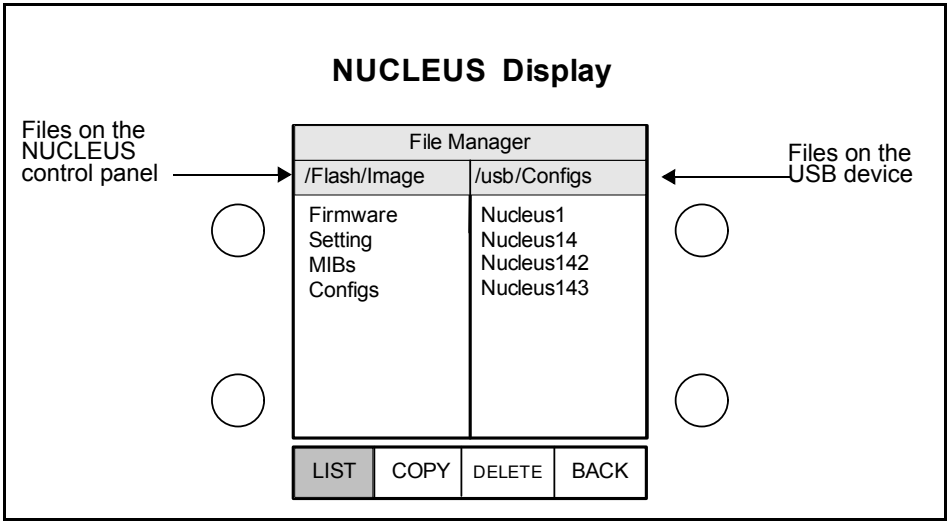

Figure 2-15. NUCLEUS File Manager

Navigating the File Manager

The knobs to the left of the QVGA display control the Flash memory list, which contains all files stored on the NUCLEUS control panel. The knobs to the right of the QVGA display allow you to browse the files stored on the USB key. When the Flash menu or the USB menu is active for control, its title bar is blue. The title bar for the inactive menu is gray.

To scroll up and down a list, twist one of the respective knobs to the left and the right. To select an item in a list, press the knob, or press one of the selection/ adjustment buttons below the QVGA screen.

You can also control the menus using the arrow keys on the numeric keypad. Use the 4 (left arrow) to switch from the USB menu to the NUCLEUS Flash menu, and the 6 (right arrow) to switch from the NUCLEUS Flash menu to the USB menu. Use the 2 (up arrow) to navigate up the current menu, and the 8 (down arrow) to navigate down the current menu.

As you navigate, the labels for the selection/adjustment buttons below the display area update to indicate options for the selected item. For example, the Firmware folder on the Flash does not have any sub-items, so the LIST button is not indicated when the Firmware option is selected.

The following files can be transferred between NUCLEUS and a USB key:

Table 2-4.

Folder	Contains
Firmware	Copy the firmware to the NUCLEUS Flash memory to update a device's firmware without using CCS Navigator control software. Copy the firmware from the NUCLEUS Flash memory for backup or archival purposes.
Settings	Settings files include router databases and templates, and are identified by panel name on the USB key.
MIBs	Contains SNMP MIB files. On a USB key, MIBs are stored on a per-device basis, with each NUCLEUS panel having a separate folder. MIBs can be copied from one NUCLEUS control panel to another using a USB key.
Configs	Contains configuration files. On a USB key, config files are stored on a per-device basis, with each NUCLEUS panel having a separate folder. Configuration files can be copied from one NUCLEUS control panel to another using a USB key.

If the *Nucleus/panel name* structure does not exist on the USB drive, NUCLEUS creates it when the files are transferred to the drive.

Copying and Pasting a File or Folder

1. Navigate to the file or folder you want to copy.

   You can copy an entire folder or a single file.

2. Press **Copy**.

   If a USB key is not available or is formatted incorrectly, then you will not be able to continue. Insert a properly formatted USB key and start again.

3. Press **Enter** to continue, or **Cancel** to abort.

   The files are transferred from the one device to the other device.

Deleting a File or Folder

1. Using the navigation tools, select the file or folder you want to delete.

   The USB key has folders that contain files for various NUCLEUS devices. These folders can be deleted. Folders on the NUCLEUS Flash memory cannot be deleted.

2. Press **Delete**.
3. Press **Enter** to confirm, or **Exit** to cancel.

Note

Never delete base 7 MIBs. This includes the following files:

- SNMPv2-CONF
- SNMPv2-MIB
- SNMPv2-TM
- SNMPv2-TC
- SNMPv2-SMI
- LEITCH-ROOT-MIB
- CCSALARM-MIB

Rebooting NUCLEUS

If any of the configurations you transfer to NUCLEUS include routing panels, you must reboot the control panel before using the configuration. To reboot NUCLEUS, follow these steps:

1. On the control panel, press the **Option** button.
2. From the **Options** menu, select **Setup**.
3. From the **Setup** menu, select **Reboot**.

Troubleshooting

In unusual situations, one of the following problems may occur.

Persistent “Offline Devices” Message

Occasionally, the message **Offline Devices** may appear on a control panel. A temporary flood of traffic may delay device communications. Also, if you have just rebooted a frame or reinstalled a module, the re-synchronization of the module’s status could cause a short delay. In most instances, this message disappears without intervention once there is a reduction in excessive network traffic. However, if the problem persists, you may need to discover and eliminate the reason for the message.

Follow one or more of these procedures to eliminate the message:

- Navigate through the control panel menu to the frame level, and then return to the module’s parameter list.
- Log out by pressing and holding the **Shift** button while pressing the **Panel Enable** button. Log back on to the panel.
- If the affected module and its resource module are NEO products, reinstall both modules.
- Locate the source of any frequently reported alarms (if you are using the CCS software applications), and then either resolve the problem or disable the alarms.

  Excessive alarm traffic could cause communication interference between control panels and devices.
- If you are not using CCS software applications, attempt to resolve any system alarms by checking card-edge indicators, frame indicators, and the control panel alarm log if you are *not* using CCS software applications.
- Reboot the control panel to clear a possible internal error. To do this, simultaneously press the **Shift**, **Enter**, and **Del** (delete) buttons and hold them for three seconds.
- Ensure that the subnet mask address for the device(s) or for the panel is correct. For more information, see “Subnet Mask” on page 44.

CCS Software or Control Panel Lock Up

During installation of NEO modules in a frame, if your CCS software application or the control panel locks up, wait one full minute between module installations to allow communications to fully establish. If this fails to resolve the problem, reboot the control panel.

NUCLEUS Device Firmware Upgrade Fails

Navigator 4.6.1 and NUCLEUS 2.1 software and firmware support hardware with 16 MB or more of flash memory. If you attempt a firmware upgrade to NUCLEUS and the upgrade fails, this could be due to a lack of flash memory space on NUCLEUS.

To determine the size of the flash memory, on the **Options** menu on the NUCLEUS control panel, choose **Version info**. If the flash size is 8MB then the following can be done to do a successful firmware upgrade:

- Reduce the number of configurations on Nucleus. (Take a backup to a USB Flash of the configurations and MIB files and remove the configurations and MIB files from Nucleus and then try the firmware upgrade).
- Replace your NUCLEUS control panel with a NUCLEUS control panel with a larger Flash memory (recommended).

Chapter 3

Specifications

Overview

The following specifications are listed for the NUCLEUS and NUCLEUS-DM network control panel:

This specifications may change without notice.

Note

Except where noted, the term NUCLEUS is used in the manual to refer to both NUCLEUS and NULEUS-DM.

Dimensions

Table 3-1. NUCLEUS Dimension Specifications

Item	Dimension
Height	3.47 in. (8.8 cm)
Mounting width	17.5 in. (44.4 cm)
Width (including front panel)	19 in. (48.3 cm)
Mounting depth (including connectors)	Approximately 3.56 in. (9.0 cm)
Depth (front-to-back, including front panel and back connections)	Approximately 3.63 in. (9.2 cm)

Table 3-2. NUCLEUS-DM Dimension Specifications

Item	Dimension
Height	5.87 in. (14.9 cm)
Width	9.84 in. (25.0 cm)
Mounting depth (including connectors)	Approximately 9.37 in. (23.8 cm)
Depth (front-to-back, including front panel and back connections)	Approximately 9.45 in. (24.0 cm)

Connections

Table 3-3. Connection Specifications

Item	Specification
Ethernet	RJ-45

Table 3-3. Connection Specifications *(Continued)*

Item	Specification
Serial	RS-232/422 serial port
USB	USB type A receptacle
PS/2	Mini Din 6-pin female

Power Consumption

Table 3-4. Power Consumption Specifications

Item	Specification
Power consumption	Input power: 10.0 W max. at 100 to 240 VAC, 50/60 Hz
Input fuse	• 1.6A - 250 VAC • Fuse type and marking: T1.6 AH 250 V

Replacing Fuses

To access the power supply fuse, follow these steps:

1. Remove the AC power cord from the back of the control panel.
2. Locate the fuse access cover above the AC power cord inlet, and then squeeze both ends of the cover to remove it.
3. Remove the fuse, and then replace it with another 1.6 A 250 V 20 mm cartridge fuse.

Warning

For continued protection against risk of fire, replace only with the same type 1.6 A 250 V 20 mm fuse.

Warning

To avoid the risk of fire, you must always replace the fuse with the same type of fuse and specified rating. Failure to comply may result in result in personal injury and/or equipment damage.

4. Re-install the fuse cover.
5. Re-connect the AC power supply.

Appendix A

Control Panel Setup Parameters

Overview

Using **Setup** parameters, you can customize the control panel's operation to function in a manner that is tailored for your facility.

The **Setup** parameters are accessed via the **Option** button, or from CCS Navigator.

Note

Except where noted, the term NUCLEUS is used in the manual to refer to both NUCLEUS and NULEUS-DM.

This appendix contains the following topics:

Navigating Setup Parameters in the Option Menu

The following list is a tree view of the setup parameters for the NUCLEUS and NUCLEUS-DM control panels. To access the setup parameters, press the **Option** button, and then from the Options menu, select **Set Up**.

Descriptions of these parameters begin on page 42.

Scroll Mode
- **Wrap Around**
- **Don't Wrap Around**

Screen Intensity
- **Numeric parameter (1 to 10)**

LED Intensity
- **Numeric parameter (1 to 10)**

LCD Intensity
- **Numeric parameter (1 to 10)**

LCD Contrast
- **Numeric parameter (1 to 10)**

Pg Up/Dn Blink
- **Off**
- **On**

Screen Saver Timeout
- **Off**
- **5 mins**
- **10 mins**
- **20 mins**
- **30 mins**

Screen Saver Select
- **Default**
- **Blank**

Shaft Direction
- **Clockwise = List Up**
- **Clockwise = List Down**

Param Display Name
- **From Configuration**
- **From Server**

Trax
- **Off**
- **On**

Trax Confirm
- **Off**
- **On**

Panel Name

Network
- **IP**
- **Subnet Mask**
- **Gateway**

Communication Type
- **Default**
- **Broadcast**
- **Point-to-Point**

Control Panel Tracking
- **On**
- **Off**

Auto Boot to Configuration
- **Save**
- **Delete**

Auto Logout
- **Off**
- **On**

Auto Logout Timer
- **1 Minute - 60 Minute (in one-minute increments)**

Reboot

Setup Parameter Descriptions

Scroll Mode

In *Wrap* mode, when you scroll through a parameter list, the control panel considers the list as a circular set of data. When the last parameter in the list is reached, the first parameter in the list immediately follows it. In *Don't Wrap* mode, the control panel stops when the last parameter in the list is displayed. To return to the first parameter, you must scroll through the entire list in the opposite direction.

Screen Intensity

To accommodate different equipment room lighting conditions, you can set the panel display intensity. Use the numeric parameter sliding bar to make the intensity adjustments.

LED Intensity

Using a numeric parameter sliding bar, you can adjust the intensity of the LEDs on the preset buttons.

LCD Intensity

Using a numeric parameter sliding bar, you can adjust the intensity of the user-programmable LCD buttons.

LCD Contrast

Using a numeric parameter sliding bar, you can adjust the contrast of the user-programmable LCD buttons.

Pg Up/Dn Blink

With this parameter enabled, the Pg Up or Pg Dn button will blink if there are more options to view than appear on the LCDs.

Screen Saver Timeout

To extend the life of the display device, the screen saver automatically shuts off the display after a preset period of inactivity. Using the screen saver timeout parameter, you can set the duration of inactivity after which the control panel display turns off. The available options are **Off, 5**, **10**, **20**, or **30** minutes. If the **Off** feature has been enabled, the screen saver will not operate.

To exit the screen saver mode, press any button. No parameters will be changed when you exit the screen saver mode.

Screen Saver Select

Using this parameter, you can select either a blank screen or a default screen to display when the control panel's screen saver is activated.

Shaft Direction

Using this parameter, you can determine whether the clockwise rotation of the adjustment knobs moves up or down through a parameter list, and increases or decreases numeric values when adjusting numeric values.

Param Display Name

Choose to get names from the configuration file, or from the server.

TRAX

With this parameter enabled, you can use the NUCLEUS-TRAX on the control panel. For more information about NUCLEUS-TRAX, see your *NUCLEUS for Processing Device Control User Manual*.

TRAX Confirm

With this parameter enabled, you receive a message after you press **TAKE**, asking whether or not you want Trax to jump to the device menu associated to the selected source. For more information about the TRAX Confirm feature, see your *NUCLEUS for Processing Device Control User Manual*.

Panel Name

This parameter establishes a user-specific name for the control panel. This name identifies the control panel throughout the network. For example, when the control panel tracking parameter is enabled (see "Control Panel Tracking" on page 44) the control panel is tracked by other panels using this name.

Network

This parameter sets the control panel's network IP address. The system administrator can set a new IP address to the control panel. Because this panel operates in an Ethernet environment, a unique IP address must be set. The default IP address is **192.168.100.251**. To prevent IP address conflicts, this default IP address must be changed. You can assign an IP address to the panel using the control panel or a CCS software application.

Communication Type

Broadcast (default) communicates with devices that are on the same subnet as NUCLEUS.

Point-to-Point communicates with devices that are on a different subnet, and therefore cannot be discovered using the Broadcast option.

Subnet Mask

A subnet is a part of a network. It may include, for example, the devices in one geographic location, studio, or local area network. Using this parameter, the system administrator can assign a new subnet mask to the control panel. The default subnet mask is **255.255.255.0**.

Gateway Address

This parameter sets the value for the gateway IP address. The default gateway IP address is **192.168.100.251**.

Control Panel Tracking

With the control panel tracking parameter enabled, you can track other NUCLEUS control panels on the same network. A notification is generated when two control panels are connected to the same device. This alerts the user to the fact that two control panels are attempting to simultaneously control the same device.

Control panel tracking is not applicable to system-generated configurations, such as those for Multiviewer (PredatorII and QVM6800+) and IconLogo devices.

Auto Boot to Configuration

Using this parameter, you can set the panel's auto boot configuration. The panel's auto boot configuration is automatically loaded when NUCLEUS is powered up or rebooted. Selecting **Save** automatically overwrites the previous auto boot configuration assignment with the configuration that is currently active on the panel. Selecting **Delete** removes the previous auto boot configuration assignment and leaves the panel with no assigned auto boot configuration.

Auto Logout

With this parameter enabled, the panel will automatically log off the current user after a period of inactivity designated in the **Auto Logout Timer** parameter. With this parameter disabled, the currently logged in user remains logged in indefinitely.

Auto Logout Timer

Determines how long a period of inactivity must take place before the currently logged in user is logged out. The Auto Logout parameter must be enabled for this parameter to have any function. The timer can be set in 1-minute increments from 1 minute to 60 minutes.

Reboot

When you select this parameter, you will reboot the control panel. No other devices on the network are effected by this reboot, and no settings are lost.

Setup Parameters in CCS Navigator

To access the setup parameters in CCS Navigator, double-click on the NUCLEUS control panel in the **Navigation** Pane. Navigator must be in Control mode. Default settings are in bold. Parameters that are read-only are grey.

Table A-1.

Path	Parameter Name	Description	Options
Setup			
	Auto Logout	Enables or disables automatically logging off the current user after a period of inactivity as designated in the **Auto Logout Timer** parameter	• **Off** • On
	Auto Logout timer	Determines how long a period of inactivity must take place before the currently logged in user is logged out. The Auto Logout parameter must be enabled for this parameter to have any function	1 minute - 60 minutes
	Param Display Name	Displays where the panel gets parameter names from	• From Configuration • From Server
	Trax	Displays whether a router switch takes you to parameters for an asociated source.	• Enabled • Disabled
	Trax Confirm	Displays whether you need to say Yes or No for a TRAX jump after a take	• Enabled • Disabled
	Communication Type	Displays either Broadcast (for communicating with devices that are on the same subnet as NUCLEUS) or Point-to-Point (for communicating with devices that are on a different subnet)	• **Broadcast** • Point-to-Point
Clockc Management			
	NTP	Displays whether or not the NTP server is active	• Enabled • Disabled

Table A-1.

Path	Parameter Name	Description	Options
	Time Zone	Displays the current time zone as related to GMT	-5
	DST	Displays whether the clock automatically adjusts to daylight savings time at the appropriate time	• Off • On
	Time Presentation	Chooses the format for time display on the panel	• 12 hours • 24 hours
	Set Local time	Displays the local time as configured on the panel	Hours:Minutes:Seconds
	Set Local Date	Displays the configured local date	Year - Month - Day
	NTP Server (1 - 5)	Displays the IP address of the specified NTP server	(0.0.0.0)
SNMP Management			
	Polling Mode	Displays whether NUCLEUS automatically polls SNMP devices (when disabled, in order to receive SNMP traps, you must Refresh)	• **Enable** • Disable
	Polling Timeout	Displays how frequently NUCLEUS polls SNMP devices	• 5 seconds • 10 seconds • **15 seconds** • 30 seconds • 1 minute • 5 minutes
	Trap Max Number	Determines the number of traps that NUCLEUS will store; when the number of traps exceeds the maximum, older traps are deleted	• 16 • 32 • 64 • **128** • 256
Control Options			
	Processing	Indicates whether the panel has the license key to enable Processing device control	• Enabled • Disabled

Table A-1.

Path	Parameter Name	Description	Options
	Router	Indicates whether the panel has the license key to enable Router control	• Enabled • Disabled
	Trax	Indicates whether the panel has the license key to enable CCS Trax (also requires processing and router keys)	• Enabled • Disabled
	SNMP	Indicates whether the panel has the license key to enable SNMP control	• Enabled • Disabled
	IconLogo	Indicates whether the panel has the license key to enable IconLogo control	• Enabled • Disabled
	Multiviewer	Indicates whether the panel has the license key to enable CENTRIO and MultiViewer control	• Enabled • Disabled
	IconKey	Indicates whether the panel has the license key to enable IconKey control	• Enabled • Disabled
Other			
	Logout	Logs the currently logged in user off the panel immediately. This returns the panel to its login screen.	• **No** • Yes

Appendix B

Displaying NTP Time

Overview

The display on NUCLEUS and NUCLEUS-DM control panels can be used as a digital clock to display the current time. The clock can display time internally generated by the control panel, or it can display time from a Network Time Protocol (NTP) signal from within the Ethernet network. This appendix includes information about configuring NUCLEUS to display time from an NTP signal.

Note

Except where noted, the term NUCLEUS is used in the manual to refer to both NUCLEUS and NULEUS-DM.

System Requirements

NUCLEUS can display NTP time from a networked NEO frame containing a clock system driver (CSD) if all of the following system requirements are met:

- A CSD module is installed within the network.
- The CSD module is configured as an NTP server.

  (See Chapter 5 “Network Time Protocol Support” in the *NEO CSD-3901* or *CSD-3902 Clock System Driver Installation and Operation Manual* for instructions for configuring the CSD module as an NTP server.)
- The NEO frame contains a 3901RES-E resource module.
- The control panel uses version 1.29 or newer firmware.

Configuring NUCLEUS to Display NTP Time

In order for NUCLEUS to display time from an NTP source (CSD), this feature must be enabled using the **Clock Management** menu. For the control panel to communicate with the CSD module, you must provide the IP address of that frame's resource module.

Follow these steps to provide the IP address of the NEO frame's resource module:

1. Press the **Option** button on the control panel.
2. From the **Options** menu, select **Clock Management**, and then press **Enter**.
3. Select **NTP**, and then press **Enter** to enable the NTP Server option.
4. Press **Exit** to return to the **Clock Management** menu, and then select **NTP Servers** from the list.

   A list of IP addresses appear on the control panel display.

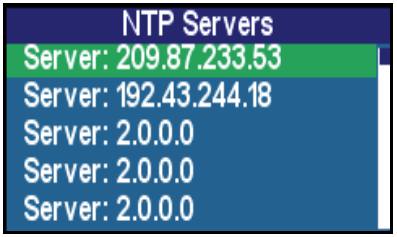

Figure B-1. NTP Servers

5. Select an IP address from the list, and then press **Enter**.
6. To display the time, use the **Exit** button to navigate back the **Clock Management** menu, and then select **Show Time**.

   The control panel display shows the current time.

Appendix C

GNU Public License Information

Overview

The appendix provides information about modifications to the GNU open source code.

Modifications to the GPL Source Code

The following table provides information about modifications to GPL source code that have been used in the creation of this product.

Table C-1. GPL Software Modification Log

Software Modified	Details
Apex Boot Loader 1.3.2	**Date Modified:** October 27, 2005
	Files Modified: serial.c, initialize.c, init.c
Linux Kernel 2.6.12.5 with lh-patch	**Date Modified:** March 20, 2006
	Files Modified: main.c

Upon receipt of a written request from the Customer, Harris will provide one (1) copy of the source code for the Linux Kernel 2.6.12.5 and/or Apex Boot Loader 1.3.2 applications. The Customer will address such request to NUCLEUS Customer Service at BCDService@harris.com.

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Appendix D

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NET SNMP License

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