Ovation I/O Builder

Table of Contents, Cont'd

Glossary

Index

Summary of Changes

This revision of "Ovation I/O Builder User's Guide" (U3-1044) has been reformatted and updated to include information related to **Ovation 1.5 systems**. These changes include the following:

- Information about using a PCRR card when interfacing WDPF Q-Line Remote I/O to an Ovation Controller.

- Configuration corrections for Analog and Digital Output dialog box fields.

- Additions to the RTD dialog box fields.

- 14 Bit Analog Input module (**1C31224**) has been added.

- Individually fused Personality module (**5X00034**) has been added for the Compact Digital Input module (with differential inputs) and for the Compact Sequence of Events module (with differential inputs).

- Information has been provided for the addition of six high speed 14 bit Analog Input modules.

- Added support for inclusion of HART Multivariable data directly into Ovation (Analog) Process points.

- Added support to utilize the "Controller Defines Process Variable" and "Controller Defines Setpoint" capabilities of the Loop Interface modules.

- Added graphics for Marshalling cabinet.

- Added graphics for Qline I/O cabinet configuration.

- Added a Quick Reference Guide.

All sections include miscellaneous corrections and clarifications.

Section 1. Introduction

1-1. Overview

The Ovation Input/Output (I/O) Builder is a Power Tool used to define the I/O modules for the Ovation system. The I/O Builder uses interfaces and menus to provide a visual representation of the I/O hardware for an Ovation system (as shown in the figure below).

Before the I/O Builder can be used to define the I/O hardware, a plan should be designed that lists the I/O needed for your Ovation system. After the plan has been designed, this information is entered into the I/O Builder to define the I/O for your Ovation system.
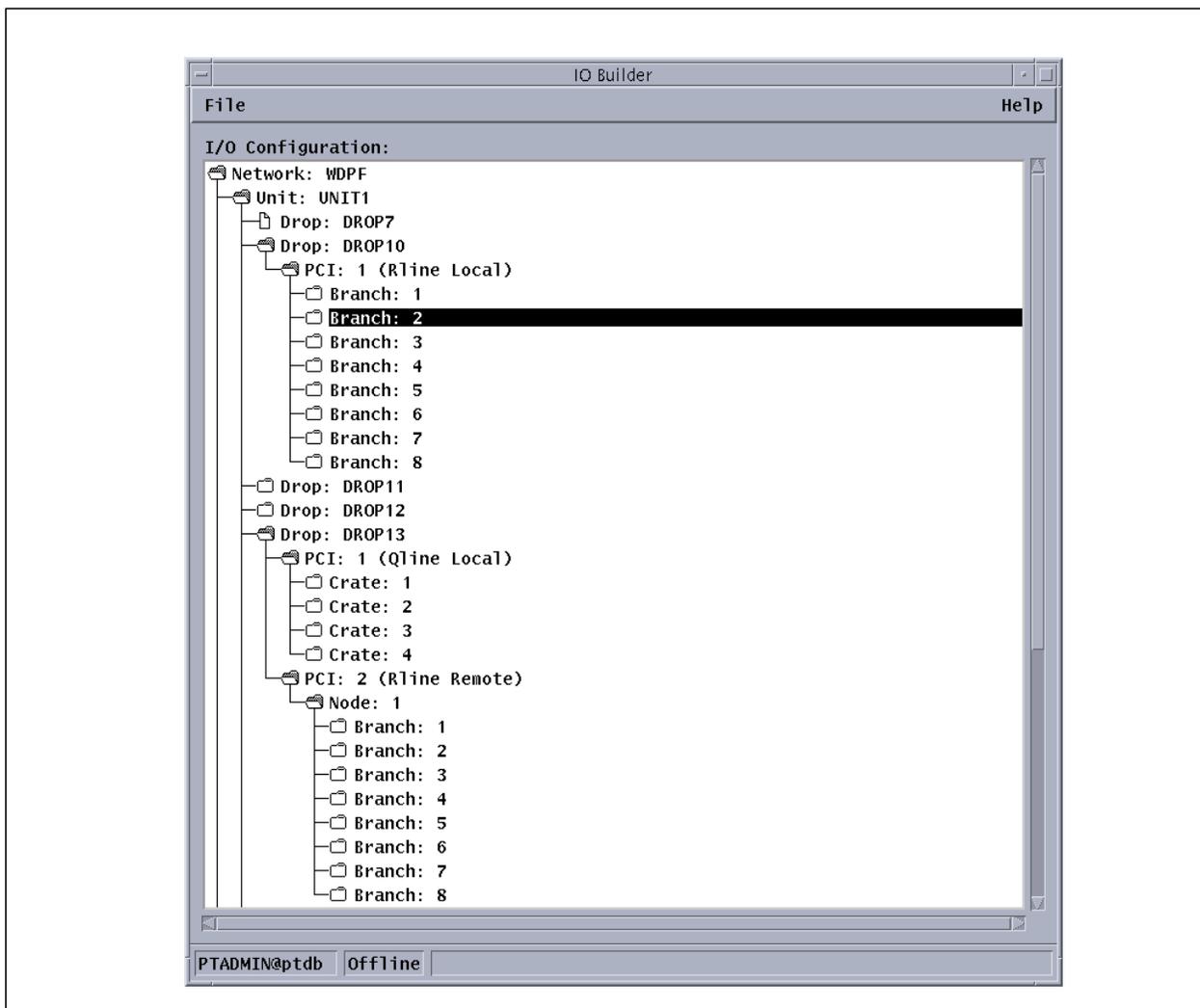
1-2. Contents of this Document

This document is organized into the following sections:

- **Section 1. Introduction** provides an overview of this document and lists other documents that might be helpful to the user.

- **Section 2. Quick Procedure Guide** provides a condensed version of all the procedures from each section of this manual.

- **Section 3. Using the I/O Builder** describes I/O Builder terms and provides instructions for using the I/O Builder.

- **Section 4. Defining and Configuring the Modules** provides instructions for defining and configuring the modules used in the Ovation system.

1-3. Additional Reference Documents

Additional reference documents that will be helpful to the I/O Builder user are listed below in Table 1-1.

Table 1-1. Reference Documents

Document Number	Title	Description
M0-0053	Q-Line Installation Manual	Describes the WDPF Q-Line I/O modules.
R3-1100	Ovation Algorithms Reference Manual	Lists and describes algorithms used in Ovation systems.
R3-1105	Using the Ovation Init and Admin Tools	Describes the functions and use of the Ovation Init and Admin Tools.
R3-1140	Ovation Record Types Reference Manual	Provides information about Ovation record types and record fields.
R3-1150	Ovation I/O Reference Manual	Describes the Ovation I/O modules.
U3-1041	Ovation Point Builder User's Guide	Describes the use of the Ovation Point Builder.

Section 2. Quick Procedure Guide

2-1. Section Overview

This section is a reference guide which provides a condensed version of the procedures in this manual. This section is intended for users who are experienced with the I/O Builder applications and procedures. Refer to the manual for detailed instructions for each of the following sections.

2-2. Accessing the I/O Builder

(described in detail in <u>Section 3-6)</u>

1. Select the Front Panel **menu icon** from the control bar at the bottom of the Engineering Station screen. The Main menu will appear.

2. Select the **User Login/Menu**. The **Ovation Login** window will appear.

3. Enter the appropriate **Username** and **Password.**

4. Select the **Login** button (or press the **Return** key to Login). The top-level Engineering Station menu will be displayed.

5. Select the **Tools** item from the menu.

6. Select **Power Tools.**

7. Select the **I/O Builder.**

8. The I/O Builder window appears with the available network(s) displayed.

2-3. Defining the I/O Builder Elements

(described in detail in <u>Section 3-7</u>)

1. Access the I/O Builder window.

2. The network Units and Drops that have been defined by the Ovation Init Tool will be displayed.

   Double click on the **text** of any element to expand or collapse the elements below it. or, **click** on the folder icon of any element to expand or collapse the elements below it.

3. Use the I/O builder to define the following elements:

    — PCI cards

    — Remote Nodes

    — Q-line Crates

    — Branches

    — Slots

    — Modules

4. Right-click on any **element** that is to be defined or configured. A menu appears that offers the following options:

    — **Add** will add a new element.

    — **Delete** will delete a defined element. Defined **modules** must be removed, not deleted.

    — **Define** will identify the type of module that will be used in a slot.

    — **Config** will configure the module fields for a selected module.

    — **Service** will put a module and its associated points out of service.

    — **Print** will send the configuration screen to the printer.

    — **Print Options** will define the printer that is to be used.

5. Right-click on a Drop and select the **Add PCI** option. Select the desired **type of PCI** from the menu that appears.

6. Insert a name for the PCI card in the "Node Record Point Name" entry field. Configure the card by selecting the **appropriate settings** and select the **Apply** button. The configuration settings are only applicable for Ovation and Q-line devices.

7. Right-click to **add** remote nodes, branches or crates as applicable for Ovation or Q-line devices/PCI's.

8. Right-click on a **node** to add crates, or branches as applicable.

9. Once all the elements on an Ovation or Q-line device/PCI are defined down to the slot level (that is, crates and branches have been added), define the type of module for each slot and then configure that module.

2-4. Defining and Configuring Q-Line Modules

(described in detail in Section 4-2)

1. Select a **crate** under the PCQL PCI (Q-Line Local) and display the slots.

2. Right click on a **slot** to display the slot menu.

3. Select the **Define option**. A menu containing all the possible Q-Cards appears.

4. Select the desired **Q-Card** and press the **Apply** button. The Card Address box appears.

5. Enter the **address** of the Q-Card and press the **Apply** button.

The Q-Card has now been defined, configured, and entered in the database.

2-5. Defining and Configuring Ovation Modules

(described in detail in Section 4-3)

1. Select a **branch** under the PCRL (Rline Local) or PCRR (Rline Remote) PCI and display the slots.

2. Right click on a **slot** to display the slot menu.

3. Select the **Define option.** A menu containing all the possible Ovation module choices appears.

4. Select the desired **Ovation module** and press the **Apply** button.

5. Enter or select the desired information about the module. Select the **Apply** button.

The Ovation module has now been defined, configured, and entered in the database.

2-6. Removing a Defined Module

(described in detail in <u>Section 4-4</u>)

1. Select the **module** that is to be removed.

2. Right click to display the module menu.

3. Select **Define** from the module menu.

4. Select the **blank** at the top of the Define list.

5. Select the **Apply** button. This removes the module safely as well as its associated module (RM) point.

6. You can now define another module for the slot.

2-7. Taking a Module Out of Service

(described in detail in <u>Section 4-5</u>)

1. Select the **module** that is to be placed "out of service."

2. Right click to display the module menu.

3. Select **Service** from the module menu.

4. The "Taking Points Out of Service" window will appear.

5. Select the desired function:

    - **Set all Points out of Service** will put the module and all its I/O points out of service and the points will be "off scan."

    - **Restore Points to Original Status** will put the module and all its points back in service and the points back to their original scan state.

6. Select the **OK** button to apply changes and dismiss window or **Cancel** to dismiss window without applying changes.

7. When putting a module out of service, a Module Out of Service Warning window will appear. Click **OK**. This will remove the point from scan and set the quality of the points to Fair.

Section 3. Using the I/O Builder

3-1. Section Overview

This section describes the use of the I/O Builder and defines the menus and dialog boxes used by the I/O Builder.

3-2. Planning the I/O for Your System

Before the I/O Builder can be used to define the I/O hardware, a plan should be designed that lists the I/O needed for your Ovation system. The elements that will be included are defined in Table 3-1. They are listed in the order that they appear (top to bottom) in the I/O Configuration screen of the I/O Builder (see Figure 3-1).

After the plan has been designed, this information is entered into the I/O Builder to define the I/O for your Ovation system. The user starts at the Network element and defines his I/O system down to the I/O modules (see Figure 3-1). After a module is defined, it can then be configured through a configuration dialog box that is unique for each module type.

During configuration, the following elements are assigned point names by the system to identify the elements to the Ovation database:

- Each **PCI card** in the Controller is assigned a Node (RN) Record Type point name. The RN record type is used because it contains bits that are used to monitor the Controller power supply.

- Each **remote node** is assigned a Node (RN) Record Type point name. The RN record type is used because it contains bits that are used to monitor the node power supply.

- Each **I/O module** is given a Module (RM) Record Type point name. Points can then be assigned to each module by using the Hardware Tab in the Point Builder Power Tool (described in U3-1041).

Table 3-1. I/O Builder Elements

Element	Description
Network	Top element used by I/O Builder. The system network(s) must be already defined by the Ovation Init Tool (as described in R3-1105).
Unit	Subset of network. The unit(s) must be already defined by the Ovation Init Tool (as described in R3-1105).
Drop	Number of the Controller drop that is to be configured. (Two drop numbers will be listed for redundant Controllers). The drop(s) must be already defined by the Ovation Init Tool (as described in R3-1105).
PCI	I/O Interface Card (IOIC) or I/O Driver used to transfer data between a Controller and I/O modules or a third party communications interface. These I/O devices are located in a Controller drop with a maximum of five total I/O Drivers per drop, only **two** of which can be used for physical I/O (for example, Q-Line or Ovation I/O). For local Q-Line I/O, the applicable hardware is a **PCQL** PCI card which can support up to four crates of Q-Line I/O cards. For remote Q-Line I/O, the applicable hardware is a **PCRR** PCI card which can support up to eight remote Q-Line nodes. For local Ovation I/O, the applicable hardware is a **PCRL** PCI card which can support up to eight branches of Ovation I/O cards. For remote Ovation I/O, the applicable hardware is a **PCRR** PCI card which can support up to eight remote Ovation nodes. For **third party I/O devices,** select the applicable I/O Device Type from the I/O Device Type dialog box. There are no elements under the device and it cannot be configured or serviced via the I/O Device folder.
Crate	Location in I/O cabinet where Q-Line I/O modules are placed. A maximum of **four** crates can be defined for each PCQL card or Remote Q-line node. Click on the Crate element to display all the **slots** (12) available for that crate.

Table 3-1. I/O Builder Elements (Cont'd)

| Element	Description
Branch	Logical location from controller (local) or remote node controller (remote) where Ovation I/O modules are placed. **Eight** branches are displayed for each PCRL card. A maximum of **64** branches can be defined for each PCRR card. Each remote node can contain eight branches. Click on the Branch element to display all the **slots** (8) available for that branch.
Node	A segregated portion of a Controller's I/O hardware which is supported by the PCRR PCI card. A maximum of **eight** nodes can be defined for each PCRR card. Each **Ovation I/O** node can contain up to eight branches of Ovation I/O hardware. Each **Q-Line I/O** node can contain up to four crates of Q-Line I/O hardware.
Slot	Position in branch (Ovation I/O) or crate (Q-Line) where module is located. A maximum of **48** slots can be defined for each local **Q-Line I/O** device (four crates of 12 Q-Line I/O cards). A maximum of **64** slots can be defined for each local **Ovation I/O** device (eight branches of eight Ovation I/O cards). A maximum of **384** slots can be defined for each remote **Q-Line I/O** Device (eight nodes of four crates of 12 Q-Line I/O cards). A maximum of **512** slots can be defined for each remote **Ovation I/O** device (eight nodes of eight branches of eight Ovation I/O cards).
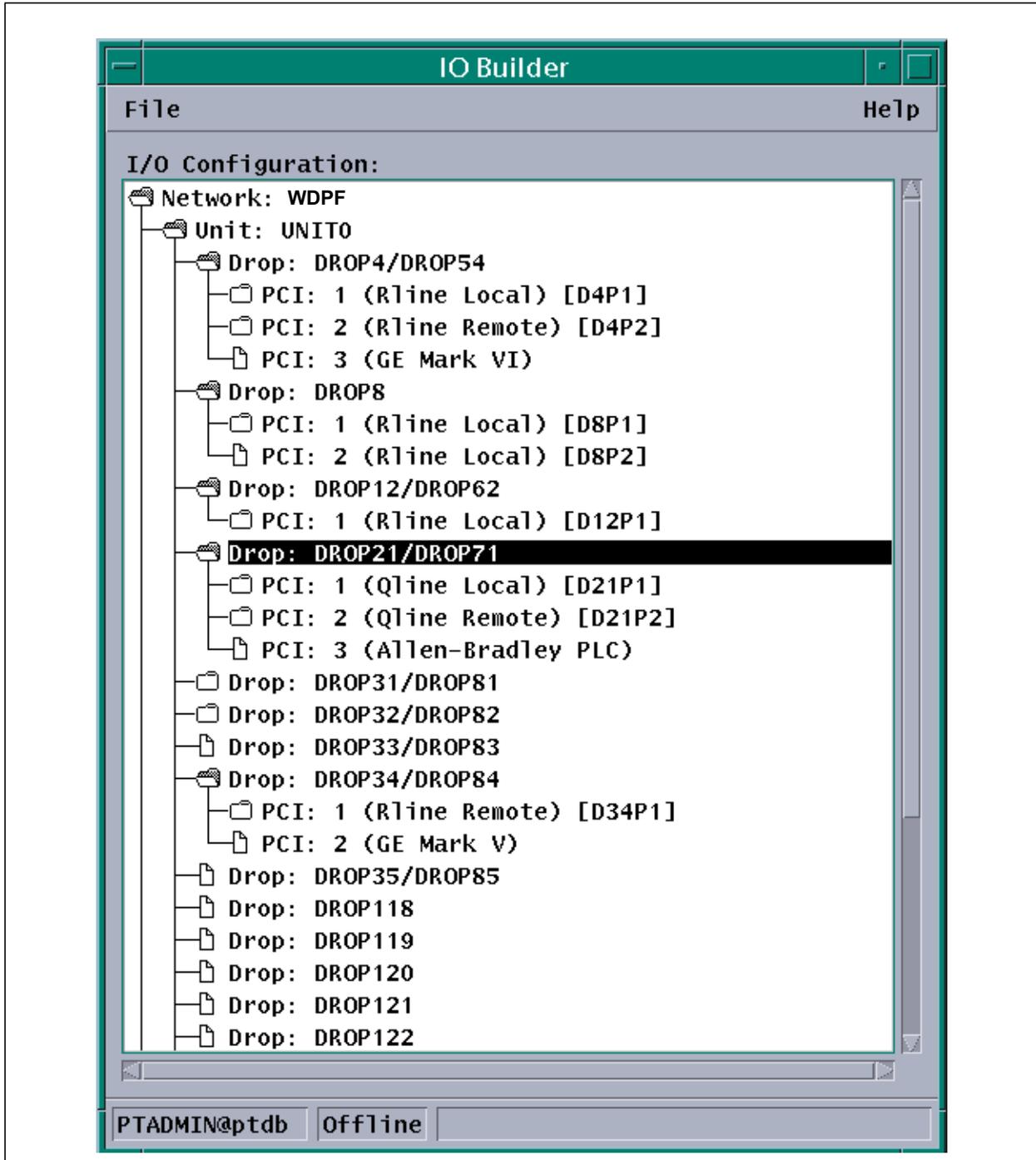
Figure 3-1. Example of I/O Builder Configuration Screen

3-3. Ovation I/O Base Types

Ovation I/O bases house the Ovation I/O modules and provide a mechanism for the user to land field wiring and connect field signals to the Ovation I/O. Series of bases can be connected together to form a "branch" of Ovation I/O.

The Ovation system supports two different types of bases: the Standard I/O base and the Relay Output base. The different bases can be mixed within a given I/O branch and cabinet.

3-3.1. Standard I/O Base

The Standard I/O base houses up to two standard I/O modules (see Figure 3-2). Ovation I/O modules supported in the standard I/O bases include analog input, analog output, contact input, digital input, digital output, loop interface, pulse accumulator, RTD interface, sequence of events, serial link controller, servo driver, speed detector, and valve positioner.

Each Standard I/O module is assigned a logical address. Since each Standard I/O base can house two Ovation I/O modules, a Standard I/O base occupies **two** logical module addresses.

3-3.2. Relay Output Base

The Relay Output base houses one module (see Figure 3-2) and requires **one** I/O address. The Relay base is longer than the Standard I/O base unit because of the additional space required to house the relays. Although the Relay output base only contains one module, it is **1.5 times longer** than the Standard I/O module base.
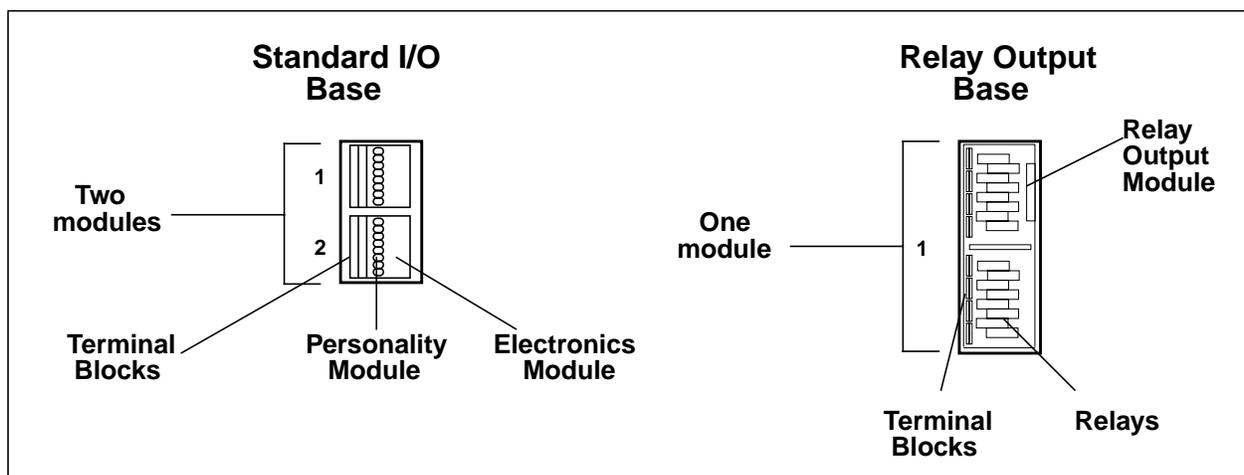

**Figure 3-2. Standard I/O and Relay Output Bases**

3-3.3. Guidelines for Positioning Modules

The following guidelines should be observed when selecting module positions (as shown in the figures below):

- Modules are placed from **top to bottom** on the left side of a cabinet and from **bottom to top** on the right side of a cabinet.

- If Relay Output modules are mixed with Standard I/O modules on the same branch (see figure below), the Standard I/O module base must **ALWAYS** start in an odd-numbered module position on the branch (positions 1/2, 3/4, 5/6, or 7/8).

  Relay modules can be placed in odd or even numbered positions. For example, modules can begin in 1, 2, 3, 4, 5, 6, 7, or 8 slots.

- Physical cabinet size and branch power requirements may limit the number of modules that can be configured in a branch.
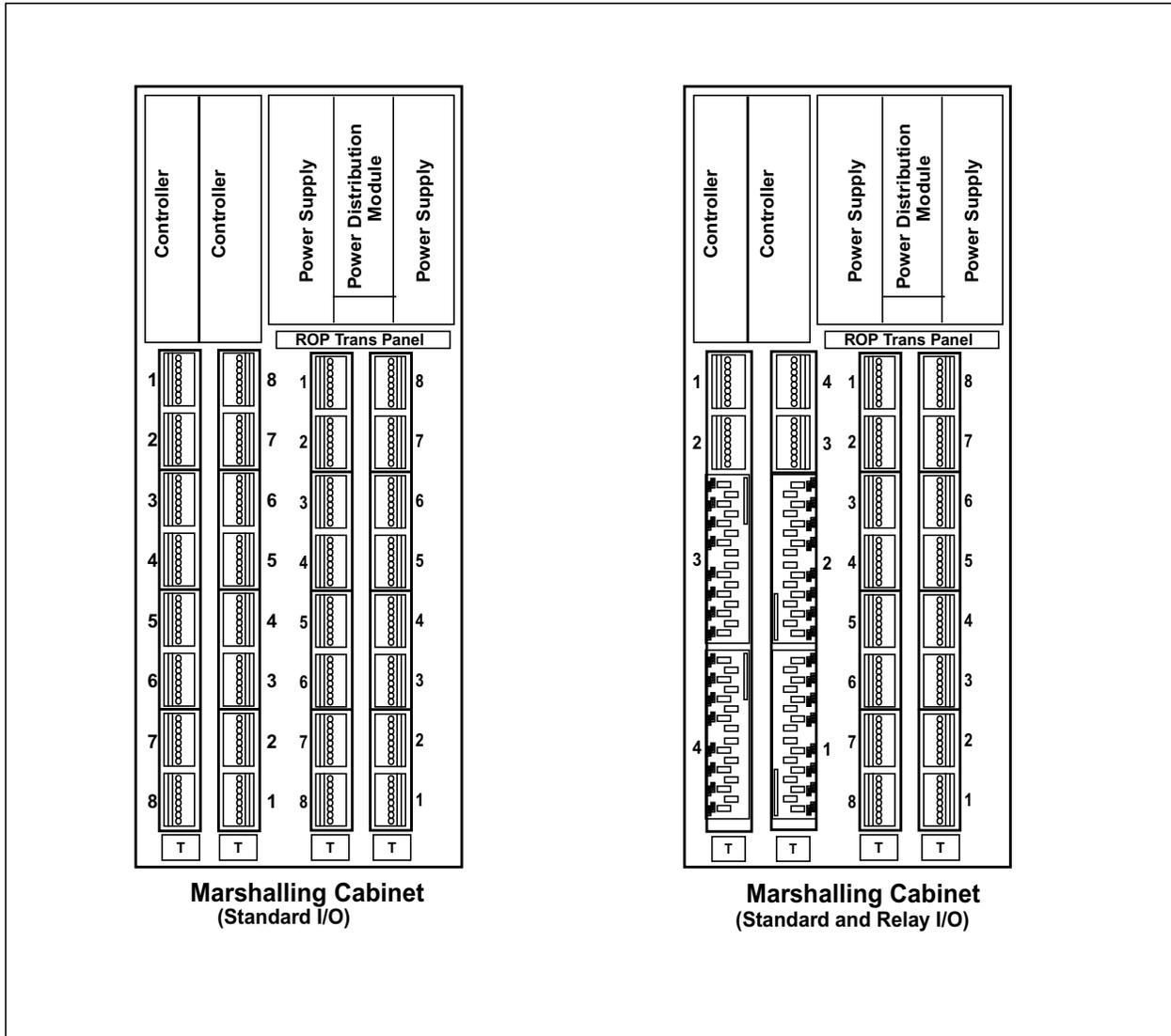

Controller Cabinet　　　**Extended Cabinet**　　　**Remote Node Cabinet**
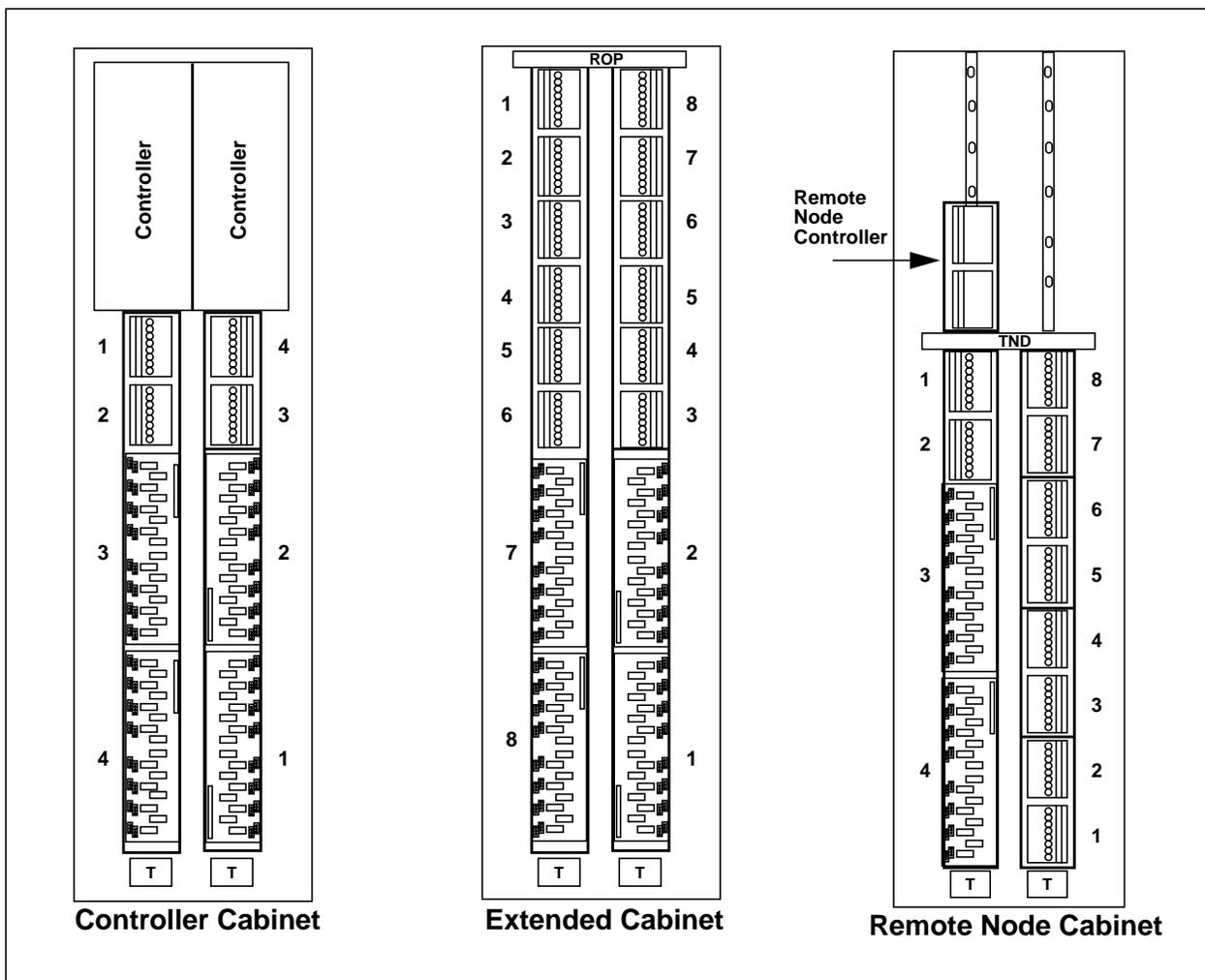
Figure 3-3. Examples of Valid I/O Module Locations — Marshalling Cabinet

3-4. Addressing the Ovation I/O Modules

The I/O Builder assigns an address to each Ovation module defined by the I/O Builder. This address is based on the logical location of the module with respect to the Ovation controller and is used by the Point Builder to configure the hardware information for a point. This address will appear in the I/O Module field in the Hardware tab of the Point Builder.

A standard I/O base consists of two logical modules. A relay output base has one logical module.

3-4.1. Addressing Format

The logical I/O address is composed of three numbers, (four when remote I/O is used) separated by decimals and in the following format:

P.N.B.S
where:

P = Position of the PCI card in the Controller
   1 is left-most card in the Controller
   2 is right-most card in the Controller

N = Node (only used in Remote I/O; 1 through 8)

B = Branch (1 through 8)

S = Slot where module is located (1 through 8 for Ovation I/O)
   (1 through 12 for Q-Line I/O)

Standard I/O Base Assemblies

The I/O addressing for the Ovation database is determined from the positions of the bases installed in the cabinets. Installation of standard I/O bases requires at least two I/O module addresses on a branch. The I/O module position must **always** start on odd positions.

I/O modules should be in the left-most branch of each side of a cabinet from the TOP down to the BOTTOM. I/O modules in the right-most branch of each side of a cabinet are addressed from the BOTTOM up to the TOP.

Westinghouse recommends that all bases (typically four) be installed in the right side of a cabinet, even if they are not all filled with I/O modules. This will prevent disruption of the database if additional I/O modules are installed in the future.

Relay Output Base Assemblies

Relay output bases can be located before or after standard I/O bases. Installation of relay output bases requires one I/O module address on a branch and can begin on an **odd** or **even** position.

Note

Physical cabinet space may limit the maximum number of bases in a given cabinet style.

When a relay output base is used before a standard I/O base, an even number of relay output bases must be used so the I/O base will start at an odd position. If a standard I/O base follows an odd number of relay output bases, the configuration is incorrect and will **not** work (see Figure 3-4 for examples).
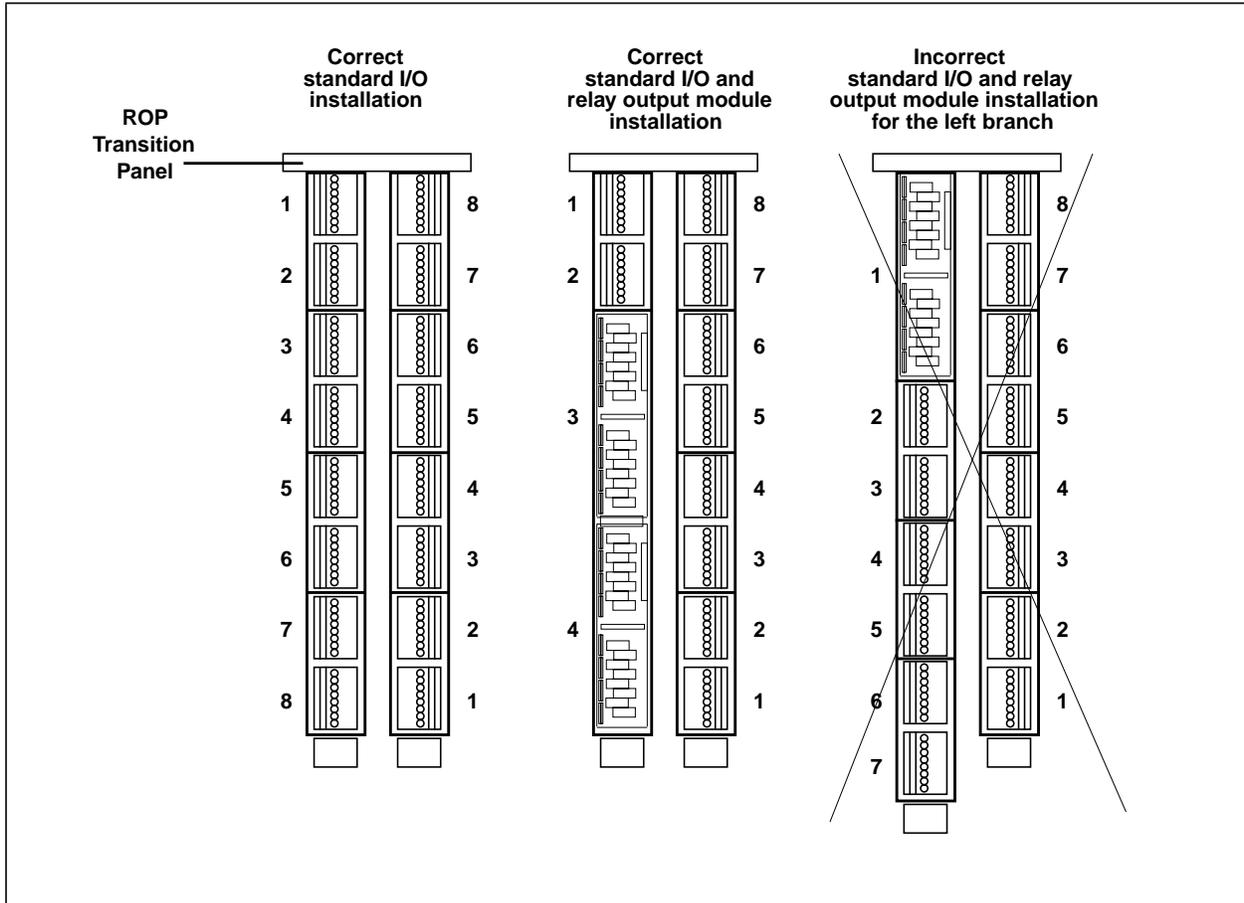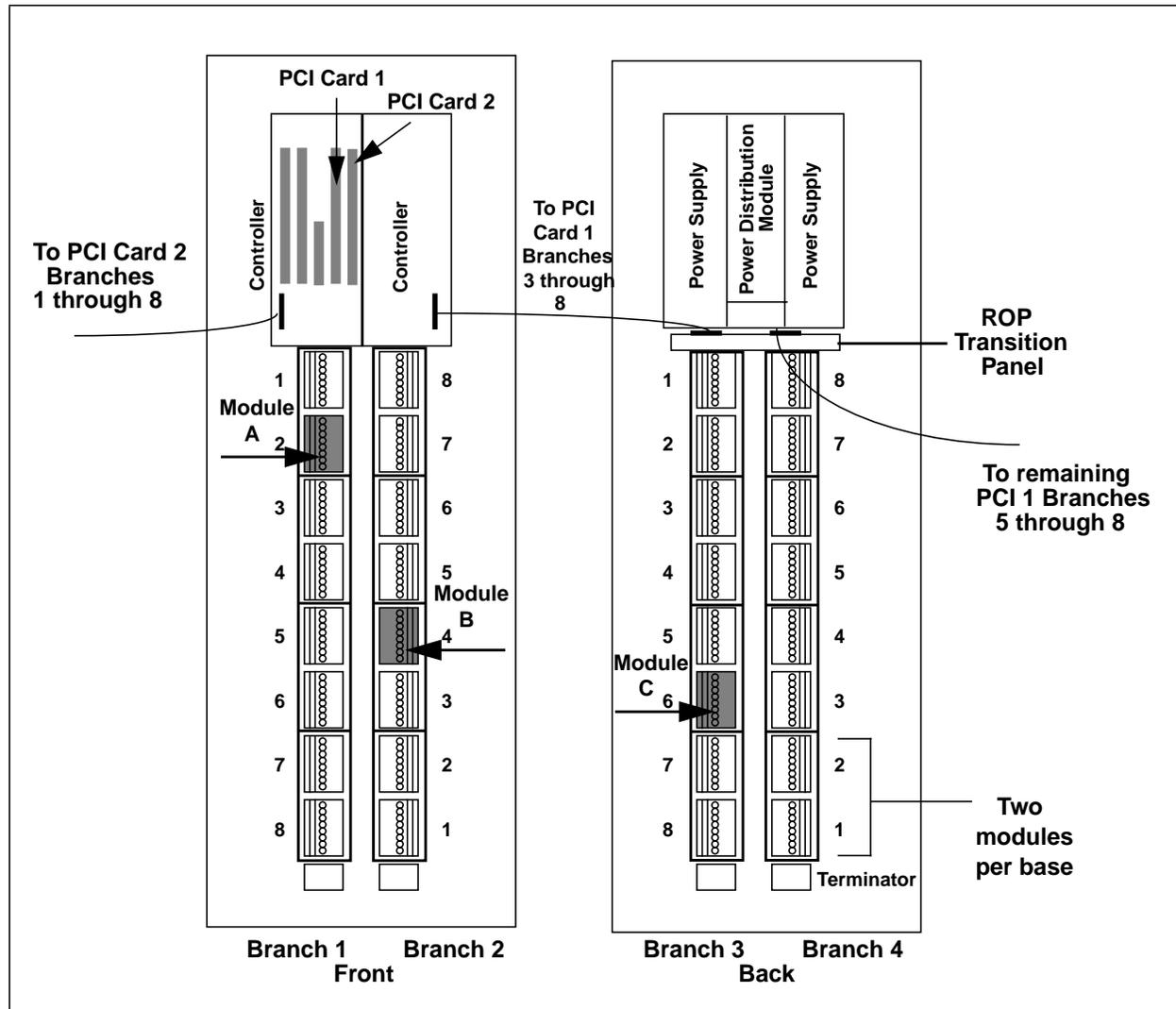

Figure 3-4. I/O and Relay Output Module Configuration Examples

3-4.2. Examples of Module Addresses

PCI Card 1 is directly connected to Branches 1 and 2, and controls Branches 3 through 8 via a connector on the **right** side of the Controller enclosure.

PCI Card 2 controls Branches 1 through 8 via a connector on the **left** side of the Controller enclosure.


Figure 3-5. I/O Address Examples (Ovation Controller Cabinet)

- Module A address = 1.1.2

- Module B address = 1.2.4

- Module C address = 1.3.6

Note

ROP and TND transition panels are used when configuring cabinets in Figure 3-6 through Figure 3-8 (front of cabinet). Branch 7 in Figure 3-8 (back of cabinet) is composed solely of relay panels using RRP and RRB transition panels. See "Ovation I/O Reference Manual" (R3-1150) for more information on transition panels.
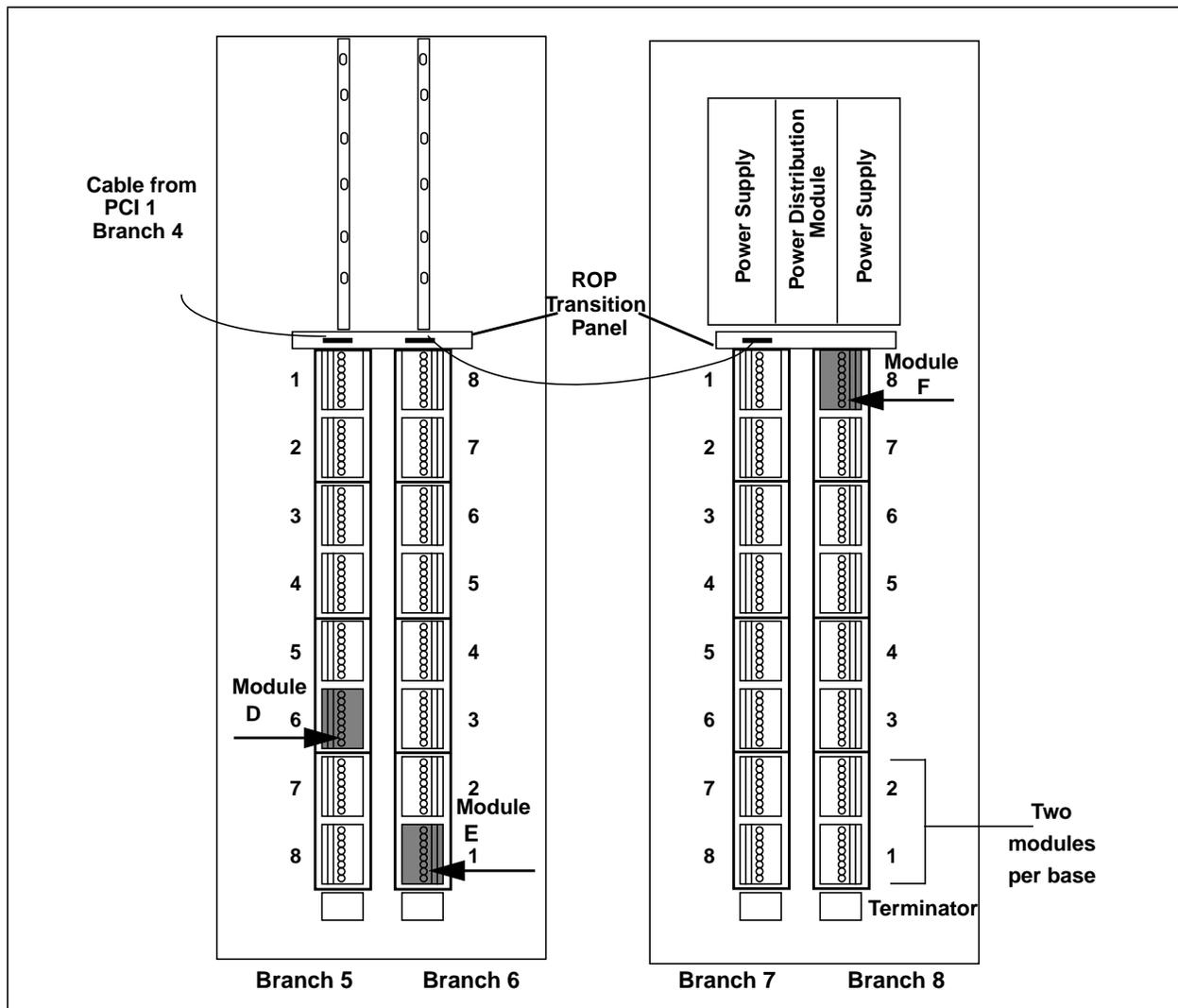
Figure 3-6. I/O Address Examples (Extended I/O Cabinet)

- Module D address = 1.5.6

- Module E address = 1.6.1

- Module F address = 1.8.8
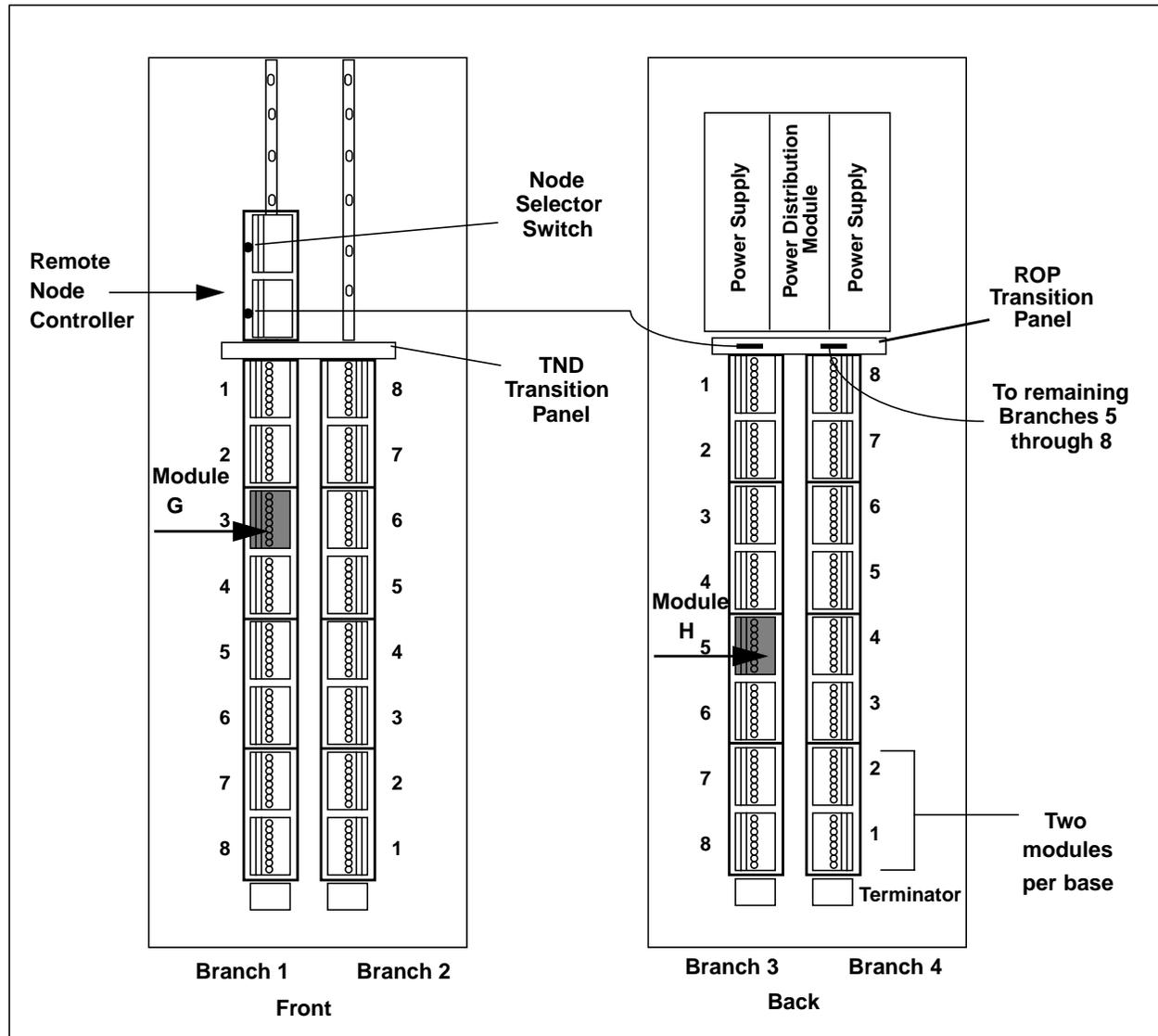
Figure 3-7. I/O Address Examples (Remote Node Cabinet)

The Node address (1 through 8) for Ovation remote I/O is determined by where the Node is connected to the MAU Attachment Unit (located in the Controller cabinet). The Node Selector Switch in the Remote Node Cabinet is then set to match the connection position. Refer to the Ovation Remote I/O section in the "Ovation I/O Reference Manual" (R3-1150) for details about addresses for remote nodes.

Assume the PCRR card is in position 1, and the Node is in MAU position 1 for the following examples:

• Module G address = 1.1.1.3

• Module H address = 1.1.3.5
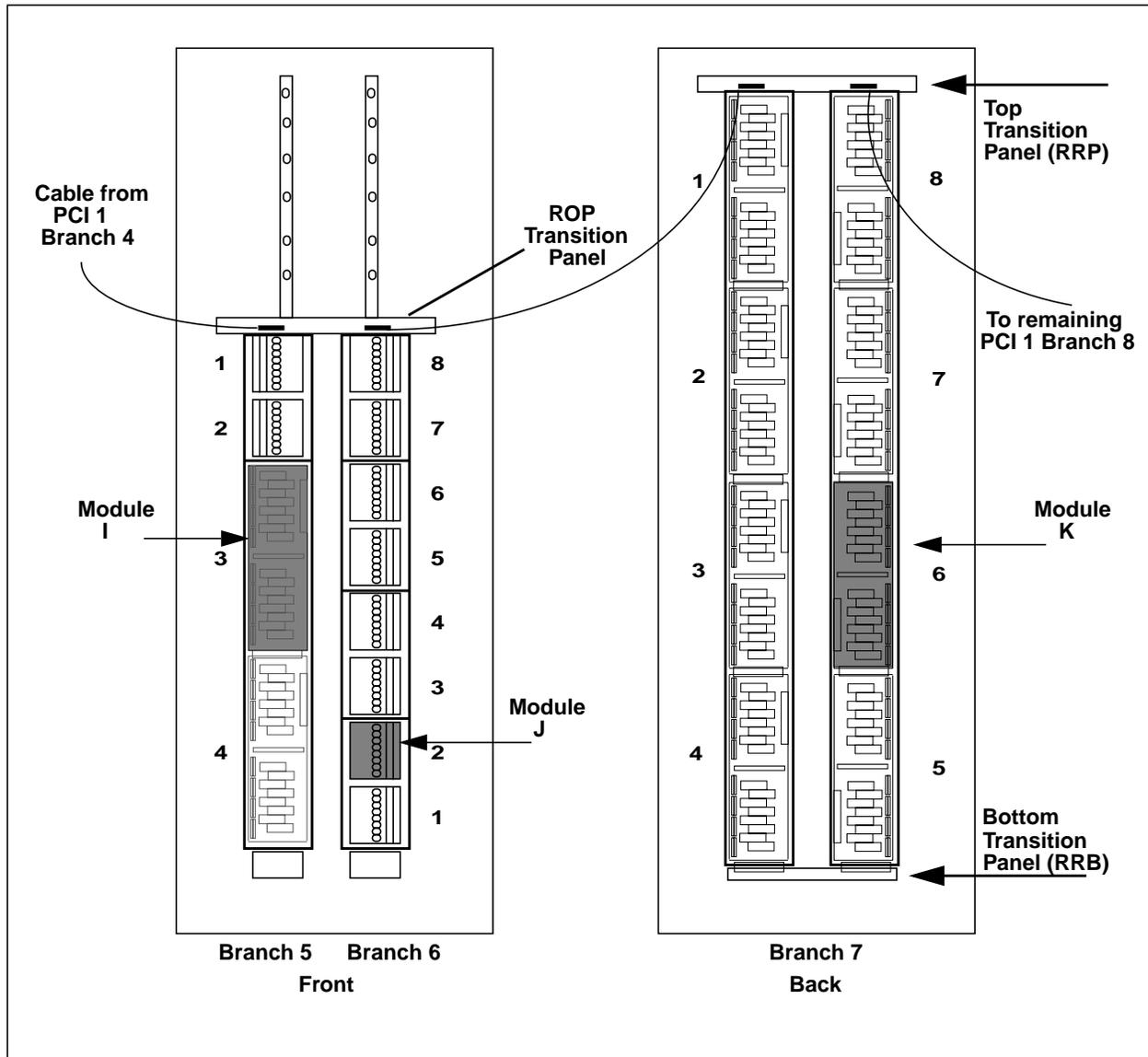
Figure 3-8. I/O Address Examples (Relay Output Modules)

Assume the PCRL card is in position 1, and the cable is connected from Branch 4 of **PCI Card 1** card:

- Module I address = 1.5.3

- Module J address = 1.6.2

- Module K address = 1.7.6

Note

> The back of this extended cabinet contains only one branch of relay output modules due to physical limitations.

The relay output modules can also be used with the RRP and RRB transition panels (instead of the ROP or TND panel). Using the RRP and RRB transition panel allows one "branch" of up to eight relay bases to be housed in a single side of an Ovation ventilated extended cabinet in two columns of four bases (Figure 3-8).

Setup may vary with the type of cabinet used. For more information on I/O cabinet configurations, see"Planning and Installing Your Ovation System" (U 3-1000) or (U 3-1005).

3-5. Addressing the Q-Line I/O Modules

Addresses for Q-Line modules are entered (in hexadecimal) by the user into a dialog box (see Figure 3-9). This box appears when a Q-Line module is defined and configured by the Ovation I/O Builder.
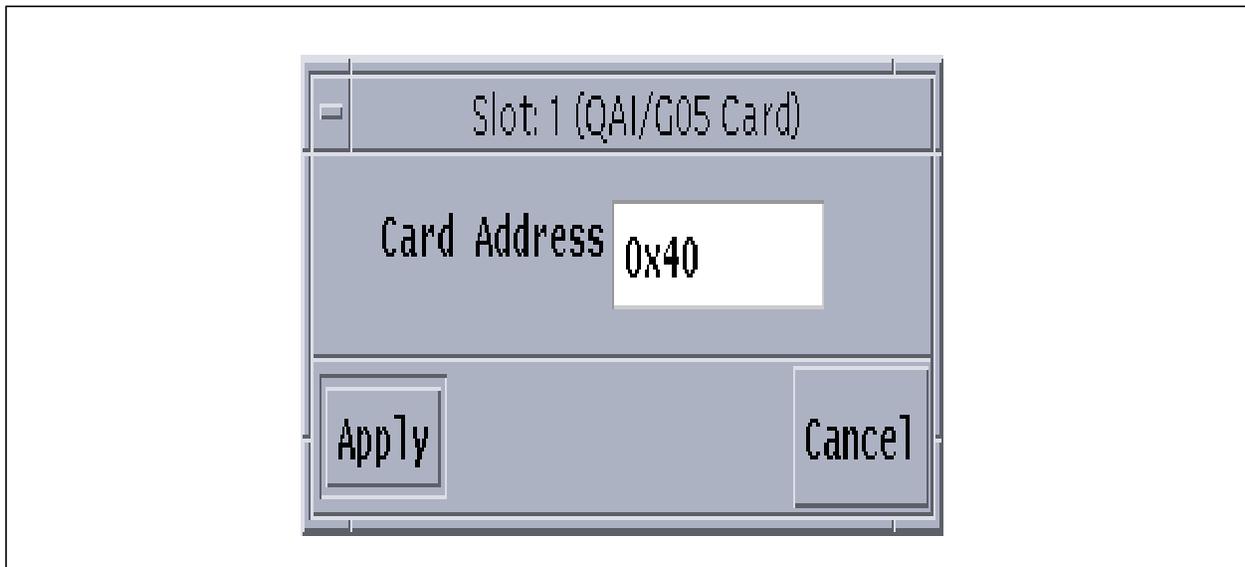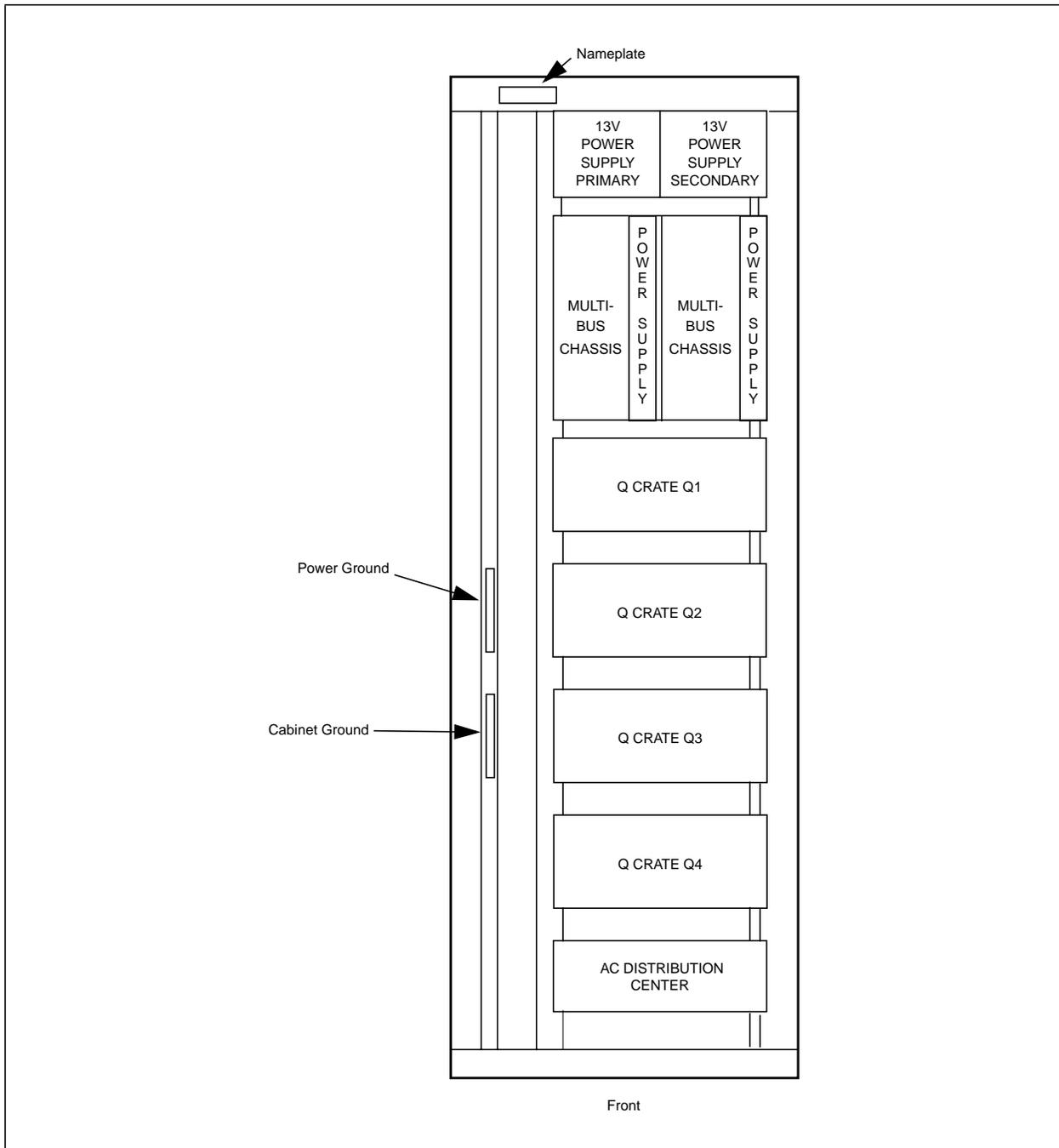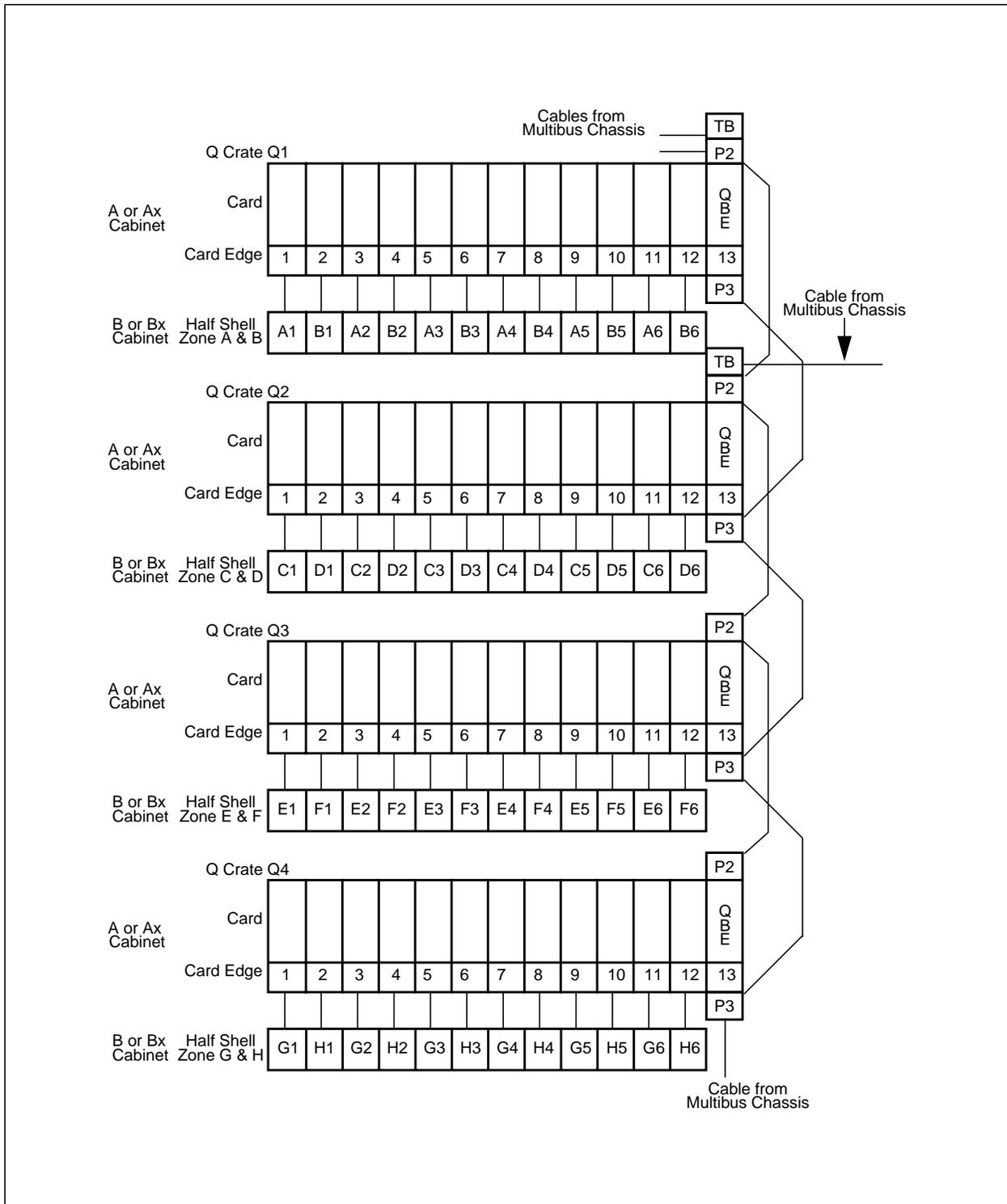

Figure 3-9. Q-Line Module Address Dialog Box

The address for a Q-Line card is determined by the jumper settings on the actual Q-Line card. A visual inspection of the card should be used to determine the jumper settings.

Refer to "Q-Line Installation Manual" (M0-0053) for additional address information about the Q-Line modules.

The following is a typical 486 DPU configuration accommodating four Q-Crates of Q-Line I/O modules.

Nameplate

13V POWER SUPPLY PRIMARY

13V POWER SUPPLY SECONDARY

MULTI-BUS CHASSIS

POWER SUPPLY

MULTI-BUS CHASSIS

POWER SUPPLY

Q CRATE Q1

Power Ground

Q CRATE Q2

Cabinet Ground

Q CRATE Q3

Q CRATE Q4

AC DISTRIBUTION CENTER

Front

The following is a typical Q-Line configuration with corresponding termination halfshell location.

Westinghouse Process Control, Inc. Proprietary Class 2C

3-6. Accessing the I/O Builder

Use the following procedure to login and access the I/O Builder from an Ovation Engineering Station:

1. Select the Front Panel **menu icon** from the control bar at the bottom of the Engineering Station.
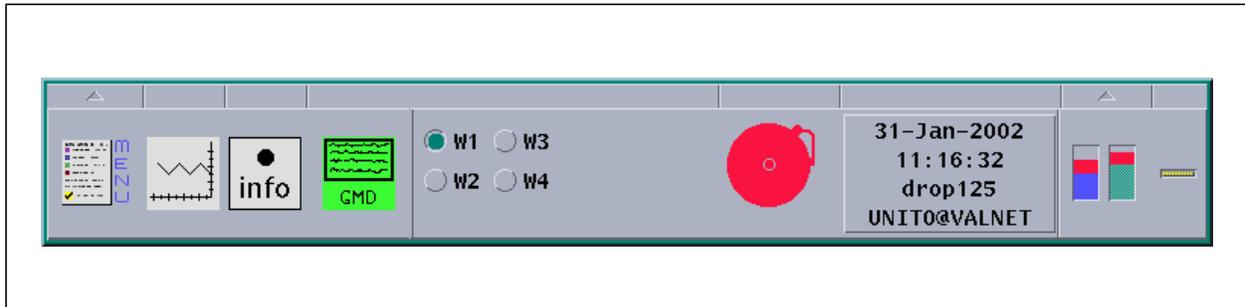
The Main menu will appear as shown in <u>Figure 3-10</u>.
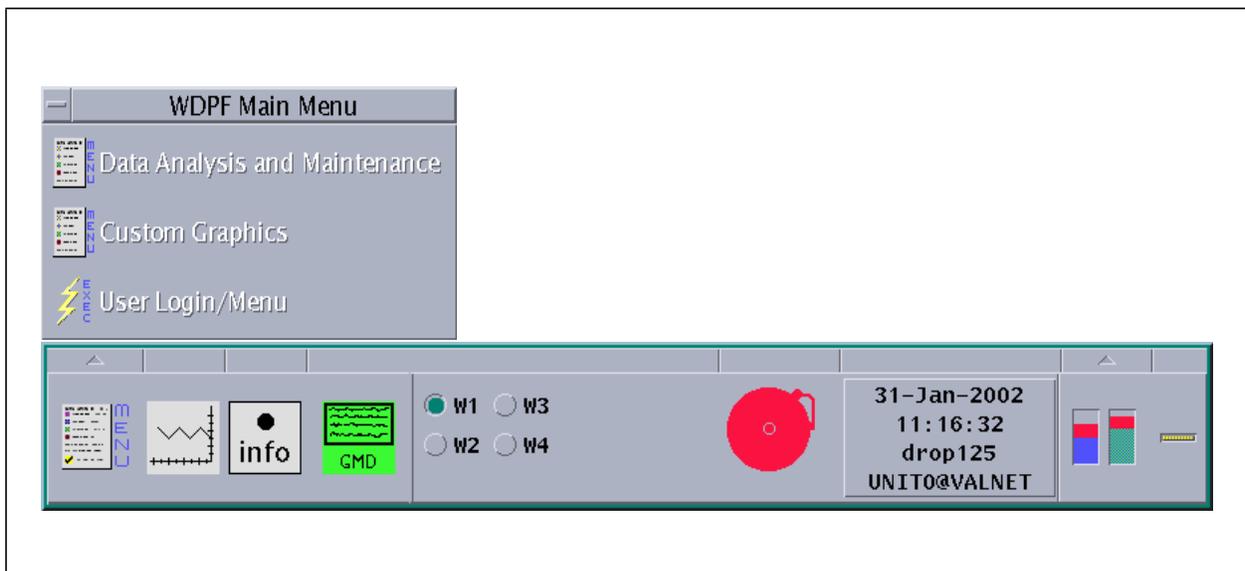
Figure 3-10. Engineering Station Main Menu

2. Select the **User Login/Menu** item from the menu. If the **Level 4 User Function** menu appears, login has already been established. Skip to Step 6.

If login has not been established, the **Ovation Login** window appears (see Figure 3-11).

Figure 3-11. WEStation Login Window

3. Enter the user name (the name that was assigned by the System Administrator) in the **Username** entry field.

Note

A trailing space after a username is **not** valid (for example, "user4 " is valid for Solaris, but **not** for an Ovation username).

Usernames are identified via the Admin Tool. Refer to "Using the Ovation Init and Admin Tools" (R3-1105) for additional information.

4. Enter the user's password in the **Password** entry field. For security reasons, the password is not echoed (does not appear in the field).

Note

The password **must** be at least six characters long and combine upper-case letters, lower-case letters and must contain at least one non a-z character such as numbers and special characters (for example, # or ~). However, only the first eight characters of a password are read; any remaining characters are ignored. See the applicable operating system documentation for information on password rules.

5. Select the **Login** button (or press the **Return** key on the keyboard to automatically select **Login**).

    The entered user name and password are verified against the system's username password data. If the login is successful, the Login window is replaced with the Level 4 User Function menu which presents a menu of Engineering Station functions (see Figure 3-12). The menu is based on the group to which the user belongs.

6. The top-level Engineering Station menu will be displayed as shown in the example in Figure 3-12. Select the **Tools** item from the menu.
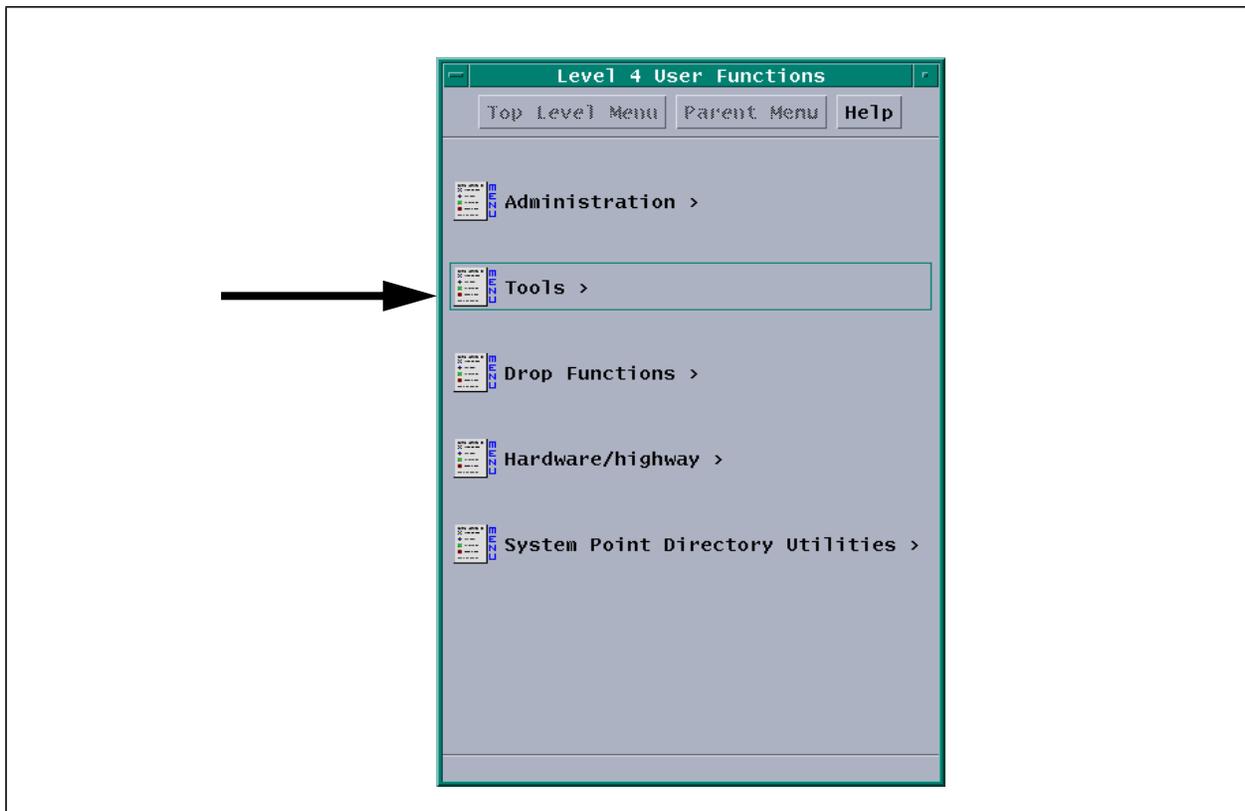
Figure 3-12. Level 4 User Functions Menu

7. The Tools menu will be displayed as shown in the example in <u>Figure 3-13</u>. Select the **Power Tools** item from the menu.
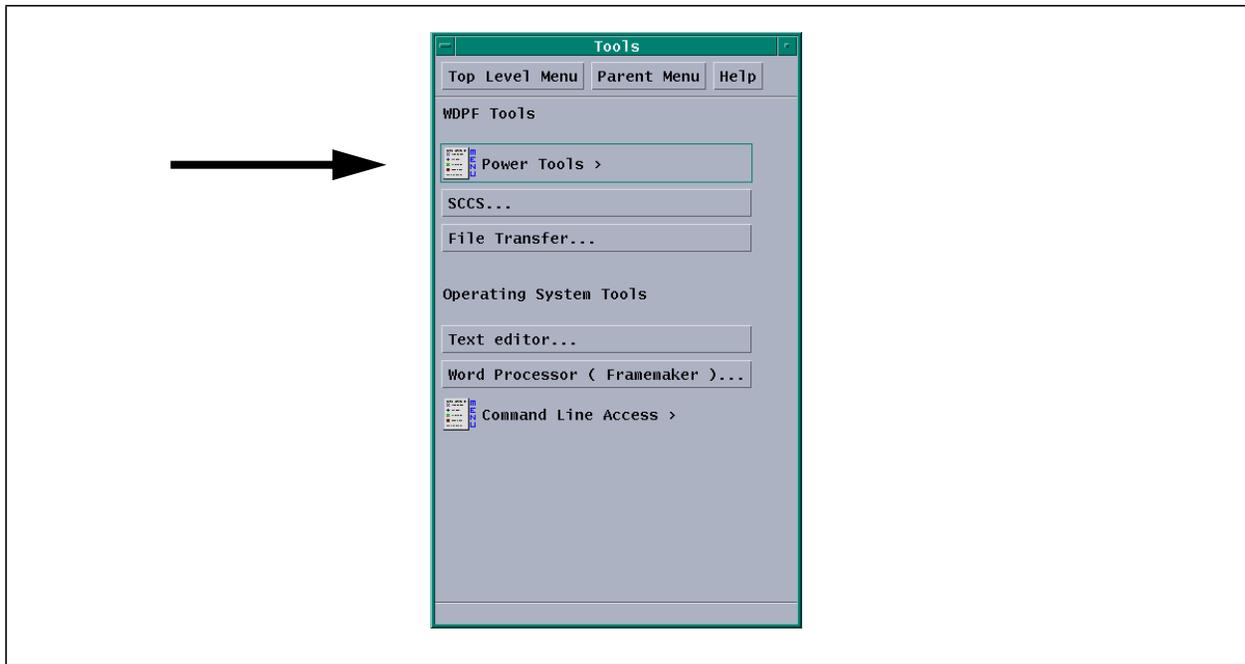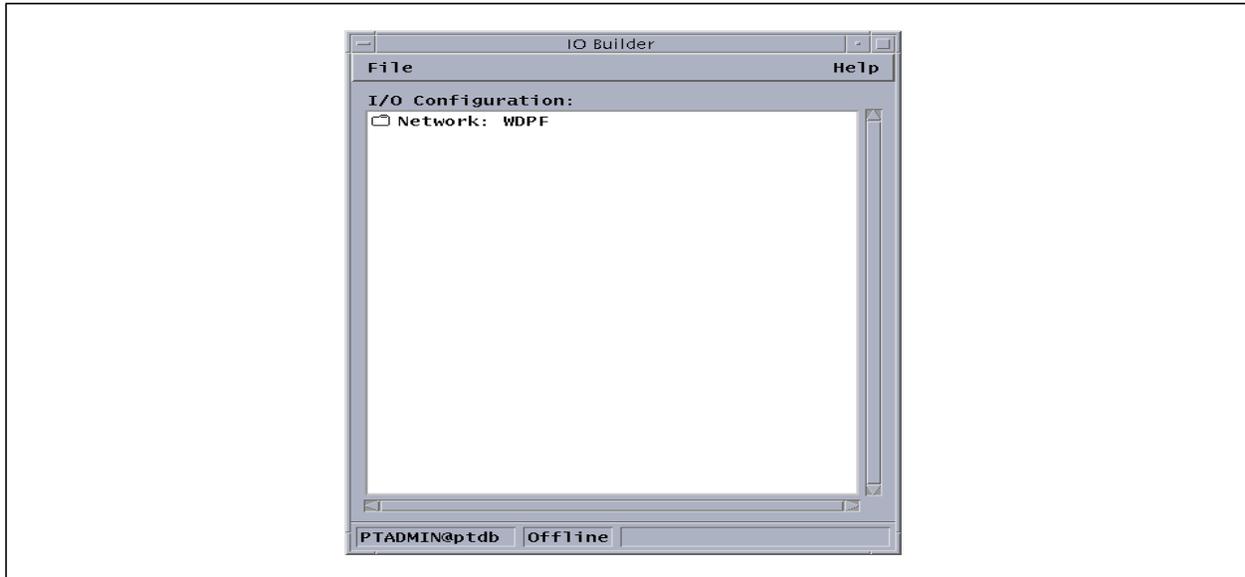

Figure 3-13. Tools Menu

8. The Power Tools menu will be displayed as shown in the example in <u>Figure 3-14</u>. Select the **I/O Builder** item from the menu.
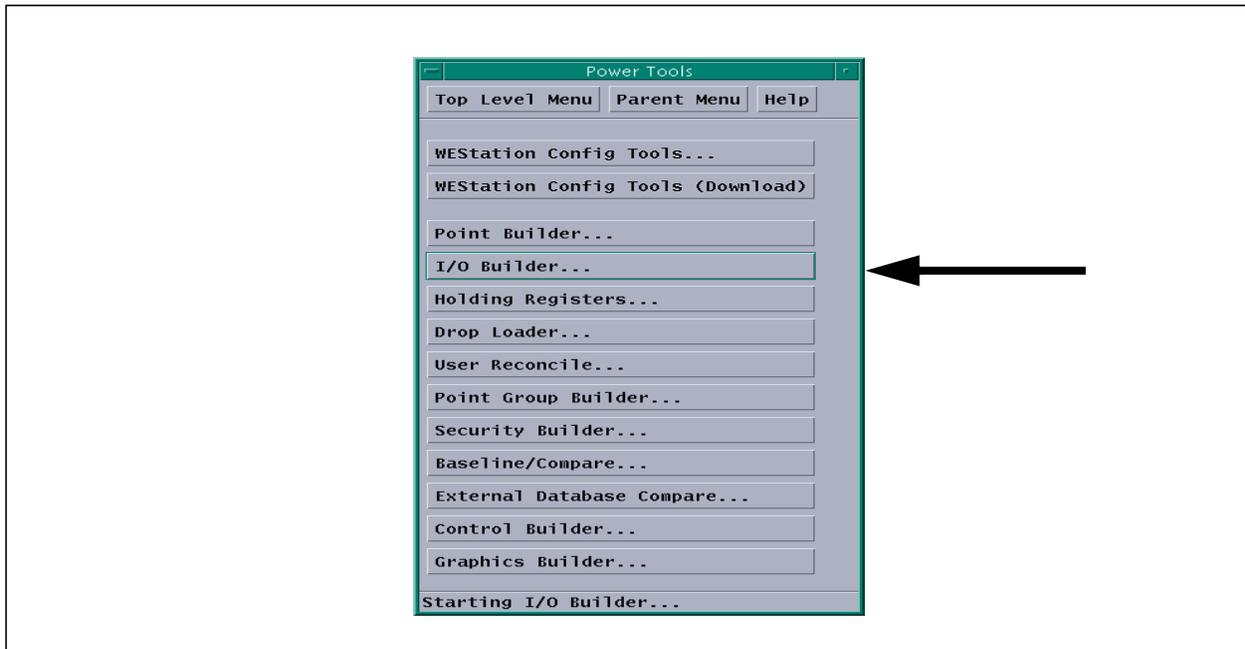
Figure 3-14. Power Tools Menu
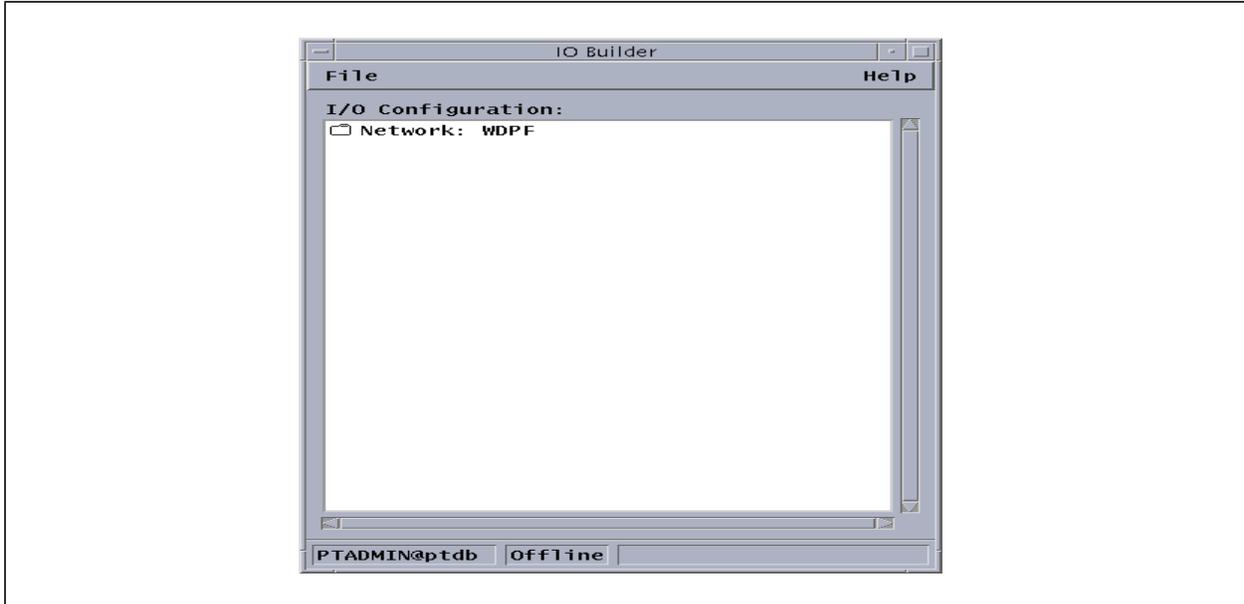
9. The I/O Builder window appears with the available network(s) displayed.

Figure 3-15. I/O Builder Initial Screen

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3-7. Defining the I/O Builder Elements

1. Access the I/O Builder window.

2. The network(s) that have been defined by the Ovation Init Tool will be displayed (as described in <u>R3-1105</u>).

    Units and drops are also defined by the Ovation Init Tool. If they have not been defined by the Tool, they will not appear in the I/O Builder display.

Note

Double click on the **text** of any element to expand or collapse the elements below it. Or**, Click** on the folder icon of any element to expand or collapse the elements below it.

3. The following elements can be defined by the user:

    — PCIs / I/O Devices

    — Nodes (for remote I/O only)

    — Crates (for Q-Line I/O)

    — Branches

    — Slots

    — Modules

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4. Open a network folder to show any units that are already defined for the network. The available network names, unit names, and drop numbers have already been defined by the Ovation Init Tool and are therefore recognized by the I/O Builder.
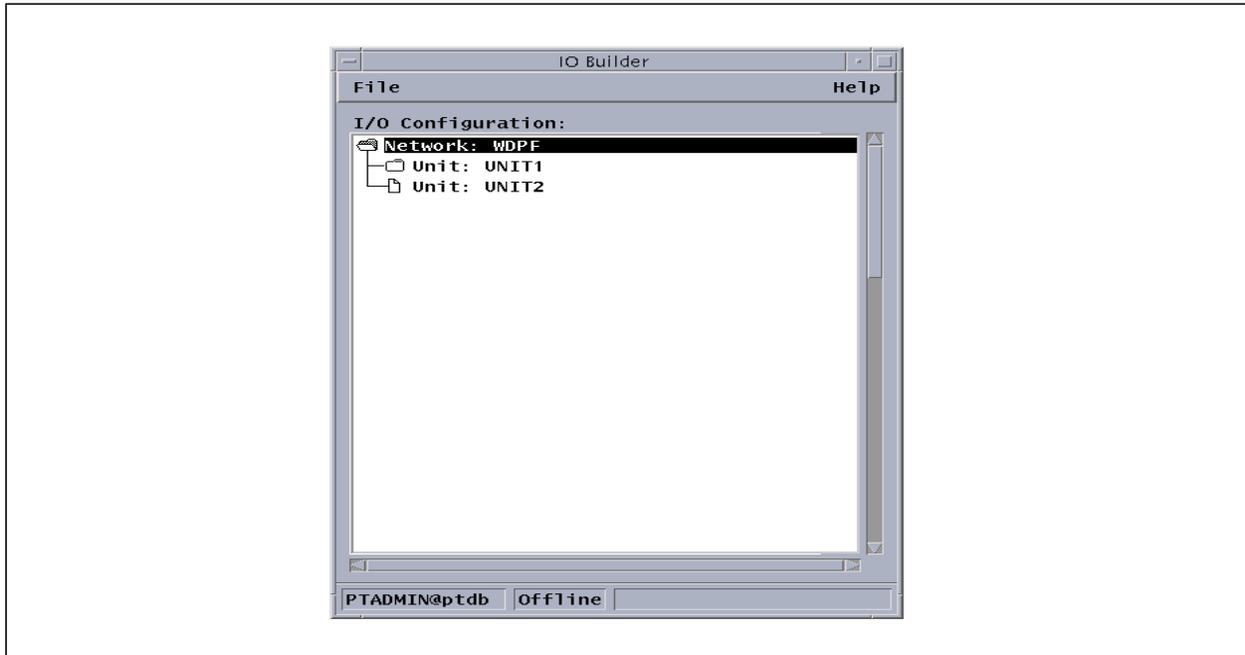
5. Right-click on any element that is to be defined or configured.

    Right-clicking on any element displays a menu that offers the following options:

    — **Add** will add a new element.

    — **Delete** will delete a defined element. Limitations are:

        — The I/O Builder will only delete the **last** item in a group that permits deletion. For example, if you have three nodes defined for a PCRR PCI, you can only delete Node 3.

        — The I/O Builder will not delete an element unless the subsets (or children) of the element are deleted first. For example, you cannot delete a node unless you delete its branches first.

Note

Defined **modules** must be removed, not deleted. See Section 4-4 for instructions.

— **Define** will identify the type of module that will be used in a slot.

— **Config** will configure the module fields for a selected module.

— **Service** will put a module and its associated points into or out of service.

Note

If an option is not available for a particular selection, it will be grayed out. If a third party device is selected, the Config and Service options cannot be used.

— **Print** will send the configuration screen to the printer.

— **Print Options** will define the printer that is to be used. Figure 3-16 provides an example of the Print Options dialog box.
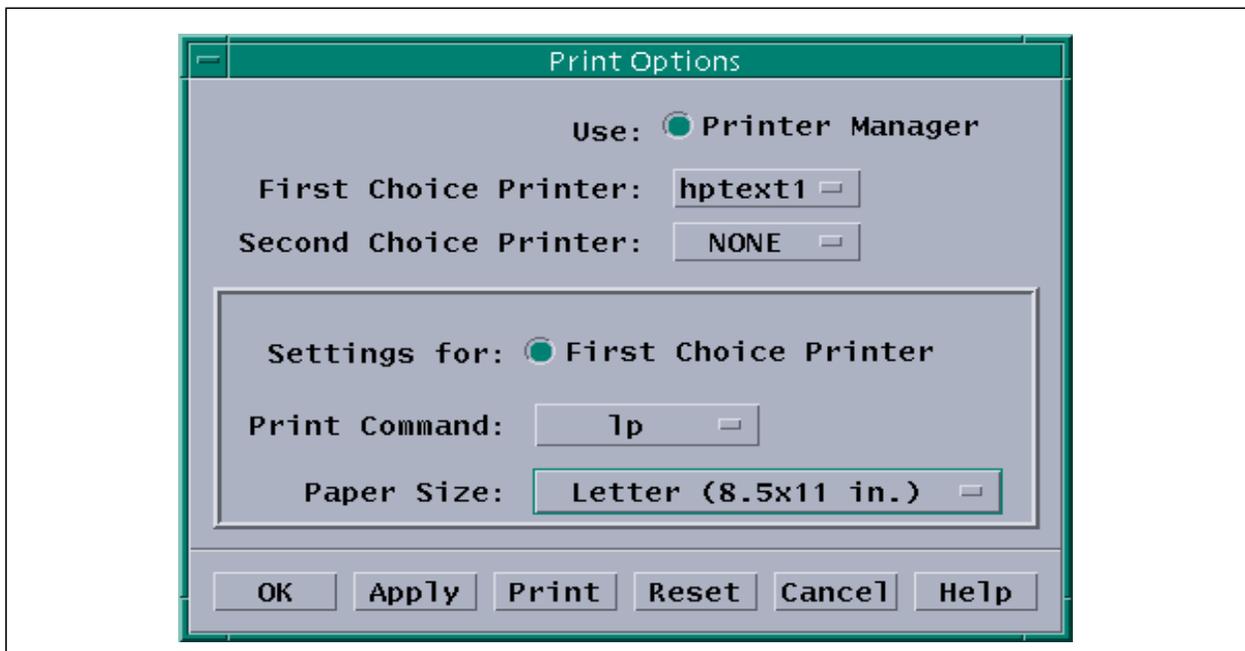
Figure 3-16. Print Options Dialog Box

6. Open a unit folder to show the drops contained within the unit. The available unit names and drop numbers have already been defined by the Ovation Init Tool.
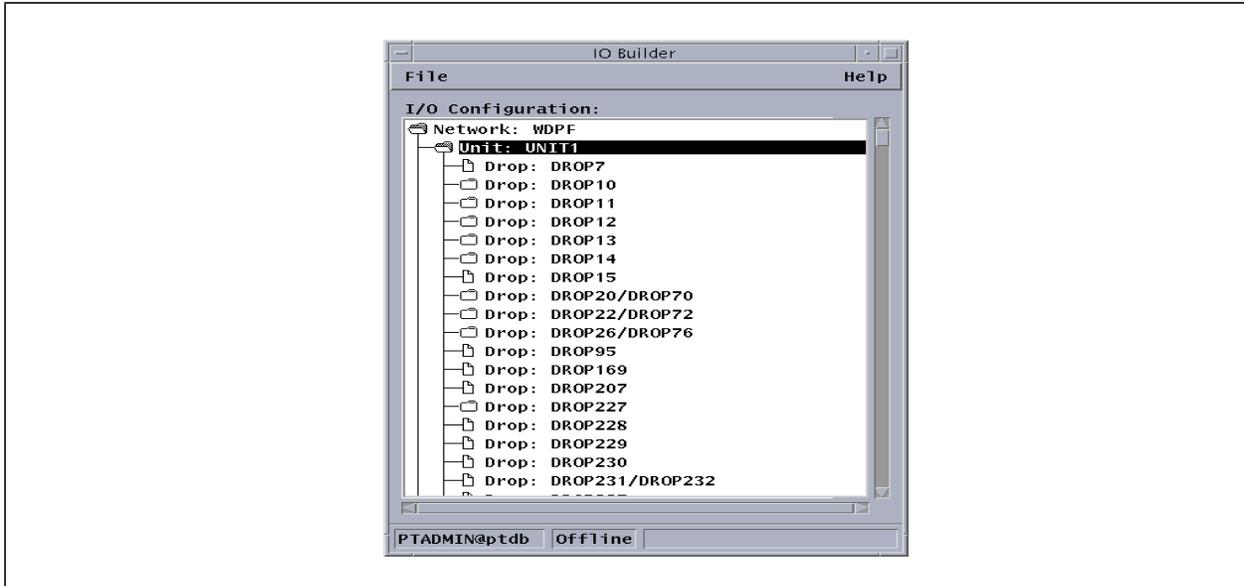
7. Open a drop folder to show the PCI/Devices already defined for the drop.

8. Right-click on a **drop name**. A menu appears containing options applicable for PCI's/Devices.

9. Select the **Define** option. Select the desired **type of PCI** from the menu that appears. Table 3-2 describes the effect each card choice has on the I/O Builder.
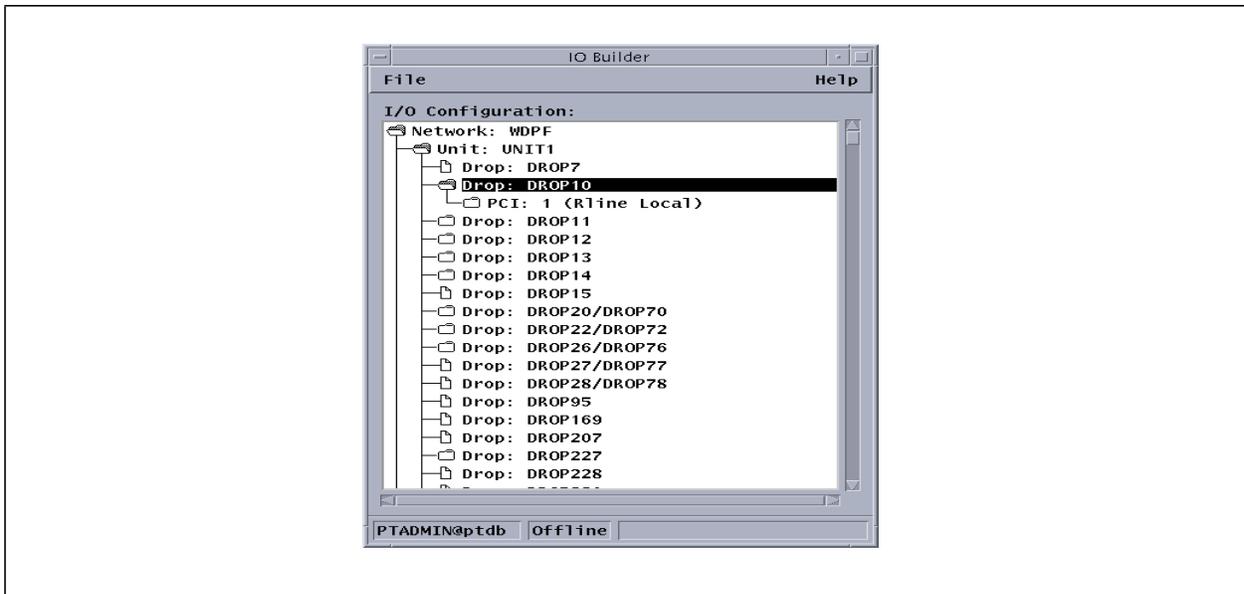

Table 3-2. PCI Card Choices

PCI Card	Results
Qline Local (PCQL)	User can define up to four crates for each PCQL card defined. The operation of adding a crate will automatically create 12 slots for Q-Line modules. The user can define and configure a Q-Line module for each slot.
Qline Remote (PCRR)	User can define up to eight remote Q-line nodes for each PCRR card defined. Up to four crates can be subsequently added to each remote Q-line node. The operation adding a crate will automatically create 12 slots for Q-line modules.[1] A maximum of 384 slots (Q-line modules) can be defined for each Remote Q-line I/O device (8 nodes of 4 crates of 12 modules).
Rline Local (PCRL)	User can define up to eight branches for each PCRL card defined. The operation of adding a branch will automatically create eight slots for Ovation modules. The user can define and configure an Ovation module for each slot.
Rline Remote (PCRR)	User can define up to eight Remote Ovation nodes for each PCRR card defined. Up to eight branches can be subsequently added to each remote Ovation node. The operation of adding a branch will automatically create eight slots for Ovation modules. The user can define and configure an Ovation module for each slot. A maximum of 512 slots (Ovation Modules) can be defined for each Remote Rline I/O device (8 nodes of 8 branches of 8modules).
Third Party Device	User can define a third party device that will then be seen by the Ovation system as a "virtual" hardware device. It is not really the PCI slot in the Controller, but is defined in this manner so the Controller can interface with it. There are no elements under the device and it cannot be configured or serviced by the I/O Builder application.
[1] User can define and configure a Q-line I/O module for each slot.		

10. After the selected PCI appears in the I/O Configuration list, right-click on it to access the menu again. Select the **Config** option. The following screen appears.
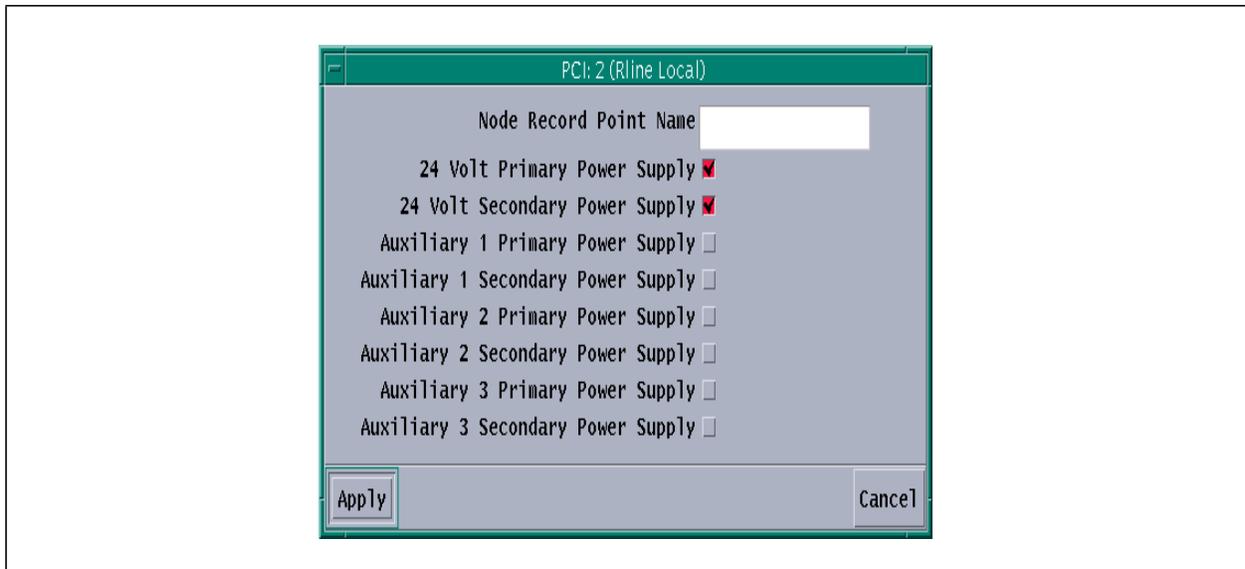
11. Insert a name for the PCI card in the "Node Record Point Name" entry field. This corresponds to the RN record type (see R3-1140) and identifies the PCI card to the Ovation database. Configure the card by selecting the **appropriate settings** and select the **Apply** button.

12. Right-click on a **PCI** name (double-clicking on it will show any crates, nodes, or branches that are already defined).

    A menu appears containing options for adding/editing crates, nodes, or branches. Select the desired available option(s).
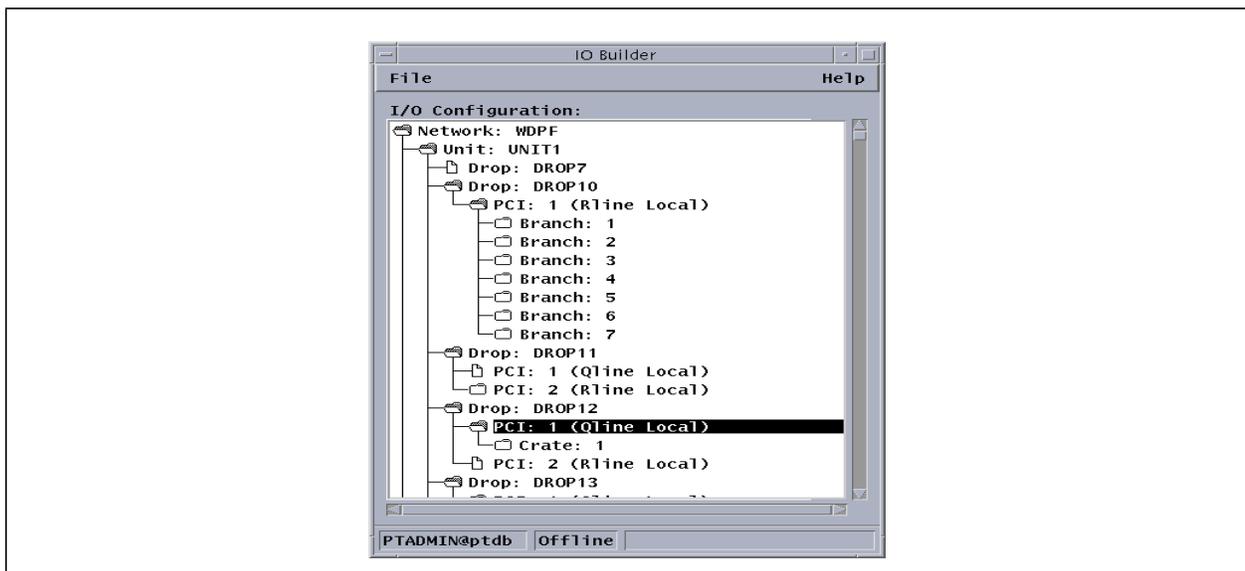
13. Right-click on a **crate, node, or branch** name (double-clicking on it will show any slots or branches that are already defined).

    A menu appears containing options for adding/editing slots or branches. Select the desired available **option(s)** for the slot or branch elements.

```
┌─────────────────────────────────────────────────────────┐
│                        IO Builder                        │
│ File                                                Help │
│ I/O Configuration:                                       │
│ Network: WDPF                                            │
│   Unit: UNIT1                                            │
│     Drop: DROP7                                          │
│     Drop: DROP10                                         │
│       PCI: 1 (Rline Local)                               │
│         Branch: 1                                        │
│           Slot: 1 (Analog Input +/- 20mV) [RMD10P1B1S1]  │
│           Slot: 2 (Analog Input +/- 20mV) [RMD10P1B1S2]  │
│           Slot: 3 (Analog Input +/- 20mV) [RMD10P1B1S3]  │
│           Slot: 4 (Analog Input +/- 20mV) [RMD10P1B1S4]  │
│           Slot: 5 (Analog Input +/- 20mV) [RMD10P1B1S5]  │
│           Slot: 6 (Analog Input +/- 20mV) [RMD10P1B1S6]  │
│           Slot: 7 (Analog Input +/- 20mV) [RMD10P1B1S7]  │
│           Slot: 8 (Analog Input +/- 20mV) [RMD10P1B1S8]  │
│         Branch: 2                                        │
│         Branch: 3                                        │
│         Branch: 4                                        │
│         Branch: 5                                        │
│         Branch: 6                                        │
│         Branch: 7                                        │
│     Drop: DROP11                                         │
│       PCI: 1 (Qline Local)                               │
│       PCI: 2 (Rline Local)                               │
│     Drop: DROP12                                         │
│       PCI: 1 (Qline Local)                               │
│         Crate: 1                                         │
│           Slot: 1 (QAI/GO5 Card)                         │
│           Slot: 2 (QSE/GO2 Card)                         │
│           Slot: 3 (QSE/GO1 Card)                         │
│                                                          │
│ PTADMIN@ptdb   Offline                                   │
└─────────────────────────────────────────────────────────┘
```

14. Once all the elements are defined down to the slot level, the slots must be configured. This is done by defining the type of module for each slot and then configuring that module (see Section 4).

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Section 4. Defining and Configuring the Modules

4-1. Section Overview

After the available slots have been identified for the I/O Builder, the modules must be defined and configured. This section provides the information needed to accomplish those procedures.

Module configuration is done through menus and dialog boxes. Right click on a slot and a menu will appear. The type of menu that appears will depend on the type of PCI that has been defined (PCQL, PCRL, or PCRR).
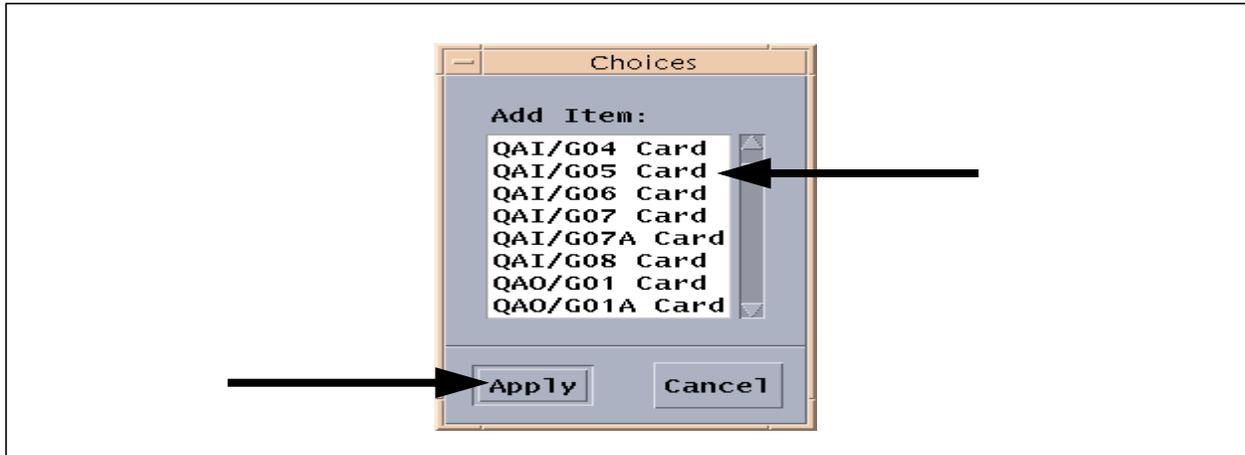
4-2. Defining and Configuring Q-Line Modules

If a PCQL card is defined for the PCI type, then menus that are appropriate for the Q-Line modules will appear.

1. Select a **crate** under the PCQL PCI (Q-Line Local) and display the slots.

2. Right click on a **slot** to display the slot menu.
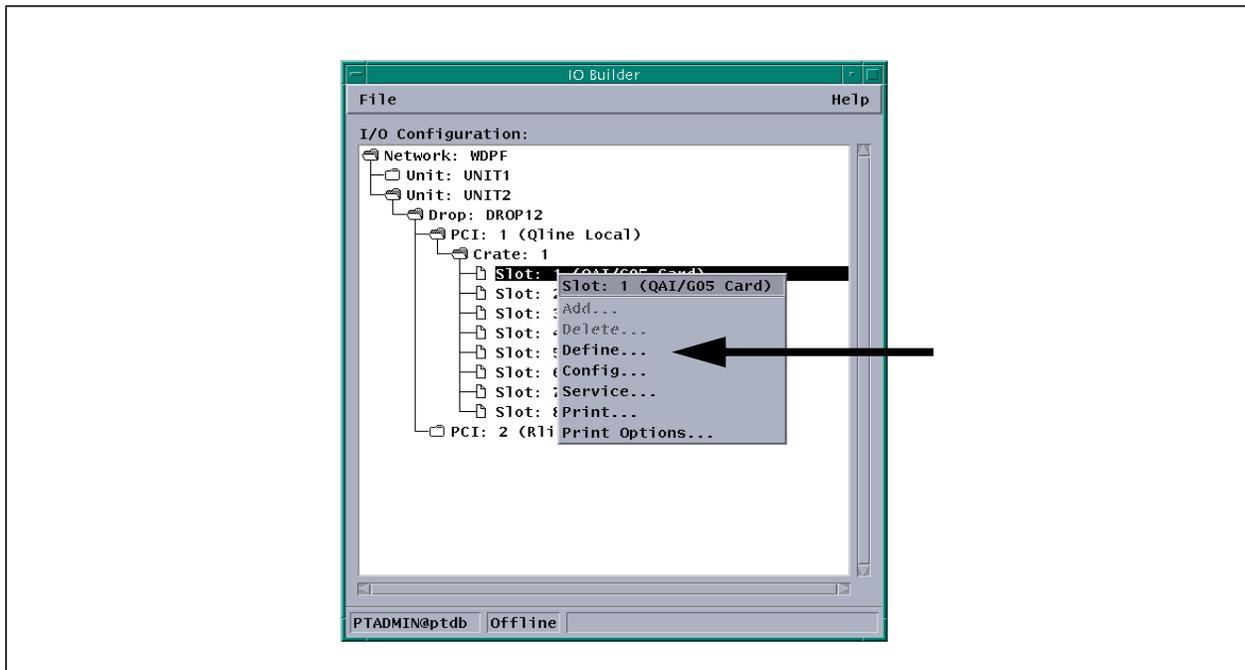
3. Select the **Define** option. A menu containing all the possible Q-Cards appears.

4. Select the desired **Q-Card** and select the **Apply** button.

    The Card Address box appears.

5. Enter the **address** of the Q-Card and press the **Apply** button (refer to <u>Section 3-5</u> and <u>M0-0053</u> for information about addressing Q-Line modules).

6. The Q-Card has now been defined, configured, and entered in the database.
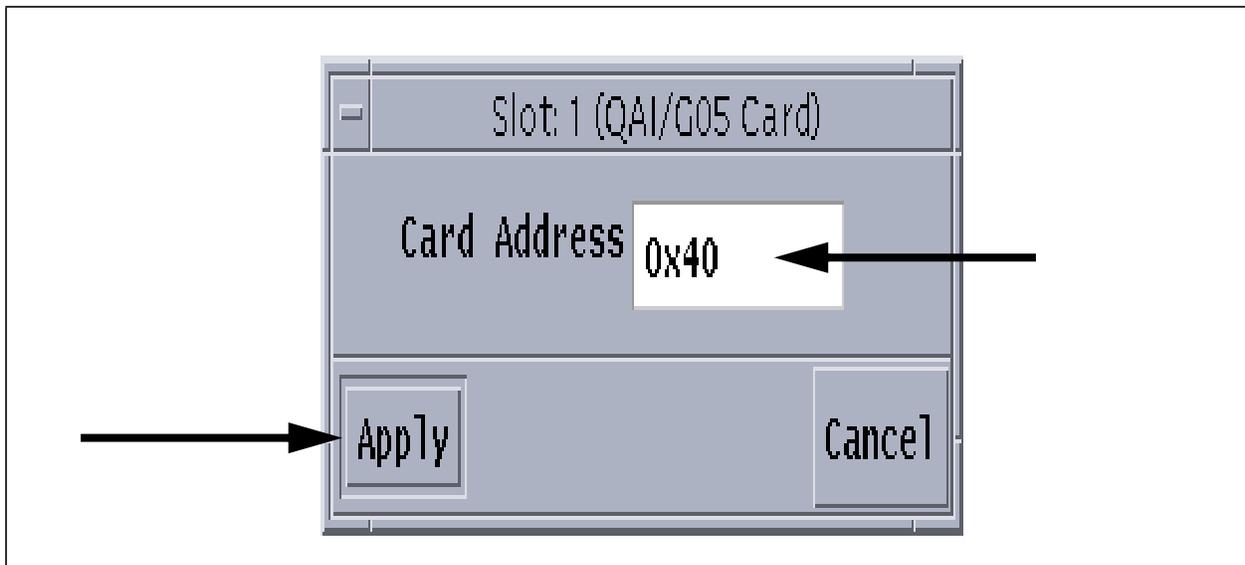
4-3. Defining and Configuring Ovation (R-Line) Modules

If a PCRL or PCRR card is defined for the PCI type, then menus that are appropriate for the Ovation modules will appear.

1. Select a **branch** under the PCRL (Rline Local) or PCRR (Rline Remote) PCI and display the slots.

2. Right click on a **slot** to display the slot menu.
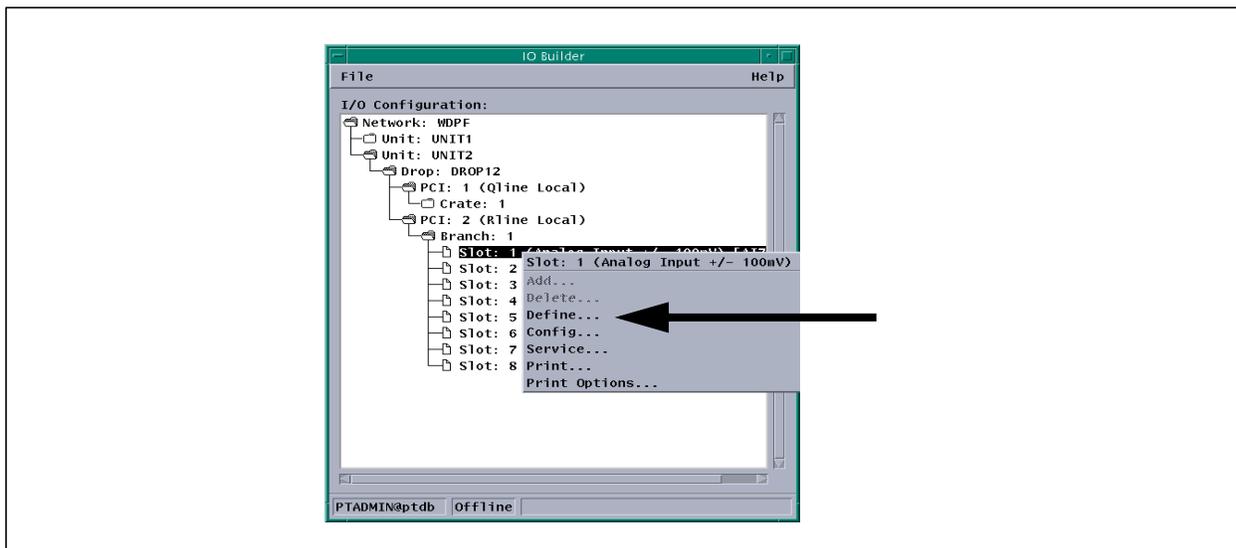
3. Select the **Define** option. A menu containing all the possible Ovation module choices appears (refer to Table 4-1).
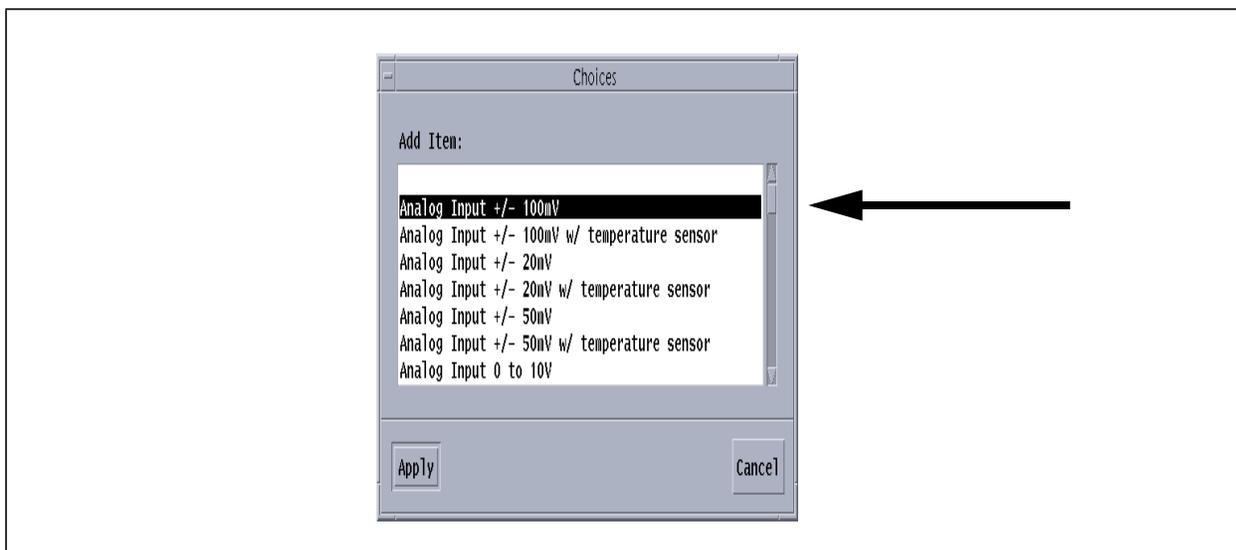
4. Select the desired **Ovation module** and select the **Apply** button.

5. The applicable dialog box will appear.

    Refer to <u>Section 4-6</u> for examples of the Ovation module configuration dialog boxes and definitions of the fields in the boxes.

6. Enter or select the desired information about the module. Select the **Apply** button. The Ovation module has now been defined, configured, and entered in the database.

Note

When using the I/O Builder to configure the Valve Positioner (VP) module, note that the VP module's voltage/current description (displayed in the Slot position at the top of the window) is applicable only for terminations. For software configuration, all VP modules are configured identically.

Table 4-1. Ovation Module Choices

Module Type	Channels	Electronic Module	Personality Module
Analog Input 13 bit (± 20mV)	8	1C31113G01	1C31116G01
Analog Input 13 bit (± 20mV) w/temp. sensor	9 [1]	1C31113G01	1C31116G04
Analog Input 13 bit (± 50mV)	8	1C31113G02	1C31116G01
Analog Input 13 bit (± 50mV) w/temp. sensor	9 [1]	1C31113G02	1C31116G04
Analog Input 13 bit (± 100mV)	8	1C31113G03	1C31116G01
Analog Input 13 bit (± 100 mV) w/temp. sensor	9 [1]	1C31113G03	1C31116G04
Analog Input 13 bit (± 1V)	8	1C31113G04	1C31116G01
Analog Input 13 bit (± 5V)	8	1C31113G05	1C31116G01
Analog Input 13 bit (0 to 20mA) local power	8	1C31113G05	1C31116G03
Analog Input 13 bit (0 to 20mA) remote power	8	1C31113G05	1C31116G02
Analog Input 13 bit (4 to 20mA) local power	8	1C31113G05	1C31116G03A
Analog Input 13 bit (4 to 20mA) remote power	8	1C31113G05	1C31116G02A
Analog Input 13 bit (± 10V)	8	1C31113G06	1C31116G01
Analog Input 14 bit (4 to 20mA)	8	1C31224G0l	1C31227G01A

Table 4-1. Ovation Module Choices (Cont'd)

Module Type	Channels	Electronic Module	Personality Module
Analog Input 14 bit ($\pm$ 1V)	8	1C31224G02	1C31227G02
Analog Input 14 bit (4 to 20mA) high speed	8	5X00070G01	1C31227G01A
Analog Input 14 bit ($\pm$ 100mV $\pm$ 250mV $\pm$ 1V) high speed	8	5X00070G02	1C31227G02[2]
Analog Input 14 bit ($\pm$1mA) local pwr. HS	8	5X00070G02	1C31116G03
Analog Input 14 bit ($\pm$ 1mA) remote pwr. HS	8	5X00070G02	1C31116G02
Analog Input 14 bit ($\pm$ 5V to $\pm$10V) high speed	8	5X00070G03	1C31227G02[2]
Analog Input 14 bit ($\pm$ 20mA $\pm$50mA $\pm$100mA) w/temp comp. med. speed	9	5X00070G04	1C31116G04[2]
Analog Output (0 to +5V)	4	1C31129G01	1C31132G01
Analog Output (0 to +10V)	4	1C31129G02	1C31132G01
Analog Output (0 to 20mA) w/diagnostics	4	1C31129G03	1C31132G01
Analog Output (4 to 20mA) w/diagnostics	4	1C31129G03	1C31132G01A
Analog Output (0 to 20mA) w/o diagnostics	4	1C31129G04	1C31132G01
Analog Output (4 to 20mA) w/o diagnostics	4	1C31129G04	1C31132G01A
Compact Contact Input w/Onboard 48 V auxiliary	16	1C31234G01	1C31238H01 (Cavity Insert) [3]
Contact Input w/Onboard 48 V auxiliary	16	1C31142G01	1C31110G03
Digital In compact (24 VAC/DC or 48 VDC single ended)	16	1C31232G01	1C31238H01 (Cavity Insert) [3]
Digital In compact (24 VAC/DC or 48 VDC differential)	16	1C31232G02	1C31238H01 (Cavity Insert) [3]
Digital In compact (24/48V differential individually fused)	16	1C31232G02	5X00034G01
Digital In compact (125 VAC/DC differential)	16	1C31232G03	1C31238H01 (Cavity Insert) [3]
Digital In compact (125V differential individually fused)	16	1C31232G03	5X00034G01
Digital In (24 VAC/DC or 48 VDC single ended)	16	1C31107G01	1C31110G01
Digital In (24 VAC/DC or 48 VDC differential)	16	1C31107G01	1C31110G02

Table 4-1. Ovation Module Choices (Cont'd)

Module Type	Channels	Electronic Module	Personality Module
Digital In (125 VAC/DC single ended)	16	1C31107G02	1C31110G01
Digital In (125 VAC/DC differential)	16	1C31107G02	1C31110G02
Digital Out (5 to 60 VDC)	16	1C31122G01	1C31125G01
Digital Out (5 to 60 VDC w/relay pnl comm)	16	1C31122G01	1C31125G02
Digital Out (5 to 60 VDC w/relay pnl comm ext fuses)	16	1C31122G01	1C31125G03
HART Analog Input (4 to 20mA)	8	5X00058G01	5X00059G01A
HART Analog Output (4 to 20mA)	8	5X00062G01	5X00063G01A
Loop Interface (AI: 0 to 10V AO: 0 to 10V)	2-4 analog 4-digital	1C31174G01	1C31177G01
Loop Interface (AI: 0 to 5V AO: 0 to 10V)	2-4 analog 4-digital	1C31174G02	1C31177G01
Loop Interface (AI: 4 to 20mA AO: 4 - 20mA local powered)	2-4 analog 4-digital	1C31174G03	1C31177G02
Loop Interface (AI: 4 to 20mA AO: 4 to 20mA remote powered)	2-4 analog 4-digital	1C31174G03	1C31177G03
Loop Interface (AI: 4 to 20mA no AO, local powered)	2-4 analog 2-digital	1C31174G04	1C31177G02
Loop Interface (AI: 4 to 20mA no AO, remote powered)	2-4 analog 2-digital	1C31174G04	1C31177G03
Pulse Accumulator (24/48V 5/12V med speed neg com)	2	1C31147G01	1C31150G01
Pulse Accumulator (24/48V 5/12V med speed pos com)	2	1C31147G01	1C31150G02
Pulse Accumulator (24/48V 5/12V med speed ext PS)	2	1C31147G01	1C31150G03
Pulse Accumulator (5V high speed neg com)	2	1C31147G02	1C31150G01
Pulse Accumulator (5V high speed pos com)	2	1C31147G02	1C31150G02
Pulse Accumulator (5V high speed ext PS)	2	1C31147G02	1C31150G03
RTD Interface	4	1C31161G01	1C31164G01
RTD Interface (CE Mark certified)	4	1C31161G02	1C31164G02

Table 4-1. Ovation Module Choices (Cont'd)

Module Type	Channels	Electronic Module	Personality Module
Relay Output Module G2R	16	1C31219G01	1C31223G01 (Base Unit)
Relay Output Module KUEP	12	1C31219G01	1C31222G01 (Base Unit)
Seq. of Events (24VDC or 48VDC single ended)	16	1C31157G01	1C31110G01
Seq. of Events (24VDC or 48VDC differential)	16	1C31157G01	1C31110G02
Seq. of Events (125VDC single ended)	16	1C31157G02	1C31110G01
Seq. of Events (125VDC differential)	16	1C31157G02	1C31110G02
Seq. of Events contact input w/48V wetting	16	1C31157G03	1C31110G03
Seq. of Events compact (24VDC or 48VDC single ended)	16	1C31233G01	1C31238H01 (Cavity Insert) [3]
Seq. of Events compact (24VDC or 48VDC differential)	16	1C31233G02	1C31238H01 (Cavity Insert) [3]
Seq. of Events compact (24/48V differential individually fused)	16	1C31233G02	5X00034G01
Seq. of Events compact (125VDC differential individually fused)	16	1C31233G03	5X00034G01
Seq. of Events compact (125VDC differential)	16	1C31233G03	1C31238H01 (Cavity Insert) [3]
Seq. of Events compact contact input w/48V wetting	16	1C31233G04	1C31238H01 (Cavity Insert) [3]
Serial Link Controller RS232	0	1C31166G01	1C31169G01
Serial Link Controller RS485 4 wire	0	1C31166G01	1C31169G02
Servo Driver with Readback (DC LVDT Output)	6	1C31199G01	1C31201G01
Servo Driver with Readback (1 KHz LVT Output)	6	1C31199G02	1C31201G02
Servo Driver with Readback (3 KHz LVT Output)	6	1C31199G03	1C31201G02

Table 4-1. Ovation Module Choices (Cont'd)

Module Type	Channels	Electronic Module	Personality Module
Speed Detector Interface	2 analog 6-digital	1C31189G01	1C31192G01
Valve Position Controller (17 Volt LVDT: 24.8 mA)	5 analog 3-digital	1C31194G01	1C31197G01
Valve Position Controller (23.75 Volt LVDT: 16.8 mA)	5 analog 3-digital	1C31194G02	1C31197G02
Valve Position Controller (23.75Volt LVDT: 8.3 mA)	5 analog 3-digital	1C31194G02	1C31197G03
Valve Position Controller (23.75Volt LVDT: 36 mA) **Note** **The I/O Builder does not currently list this module type (36 mA), but you can define it by selecting any of the listed Valve Position Controller module types.**	5 analog 3-digital	1C31194G02	1C31197G04

[1] A ninth channel is provided when using the Analog Input module with temperature sensor. This ninth point is needed for the **CJ Compensation field** of the Point Builder Instrumentation Tab when defining the eight other thermocouple points for the AI module (refer to U3-1041 for additional information).

[2] Modules will require a modification of the process points in order for these points to have their scale (YS) and bias (YB) fields to be recalculated. An example of a modification of an analog point would be to change the point's Channel on the Hardware Tab (in the Point Builder U3-1041) to another value, change it back to its original setting, and save the point.

[3] This is an insert that fits into the Personality module position and provides a wiring schematic label for the module. There is no actual Personality module required for this module type.

4-4. Removing a Defined Module

Once a module type has been defined for a slot by the I/O Builder, it **must be removed** before you can change it to another module type. Use the following procedure to remove a defined module:

1. Select the **module** that is to be removed.

CAUTION

When an Ovation module is removed:

- **Points whose address fields match the deleted module will have their hardware information zeroed out. The points must then be individually re-attached to the new module.**

- **Associated module point (RM) will be deleted from the database.**

- **Associated node point (RN) for I/O Devices/PCI's, and Remote Nodes will be deleted from the database.**

2. **Right click** to display the module menu.
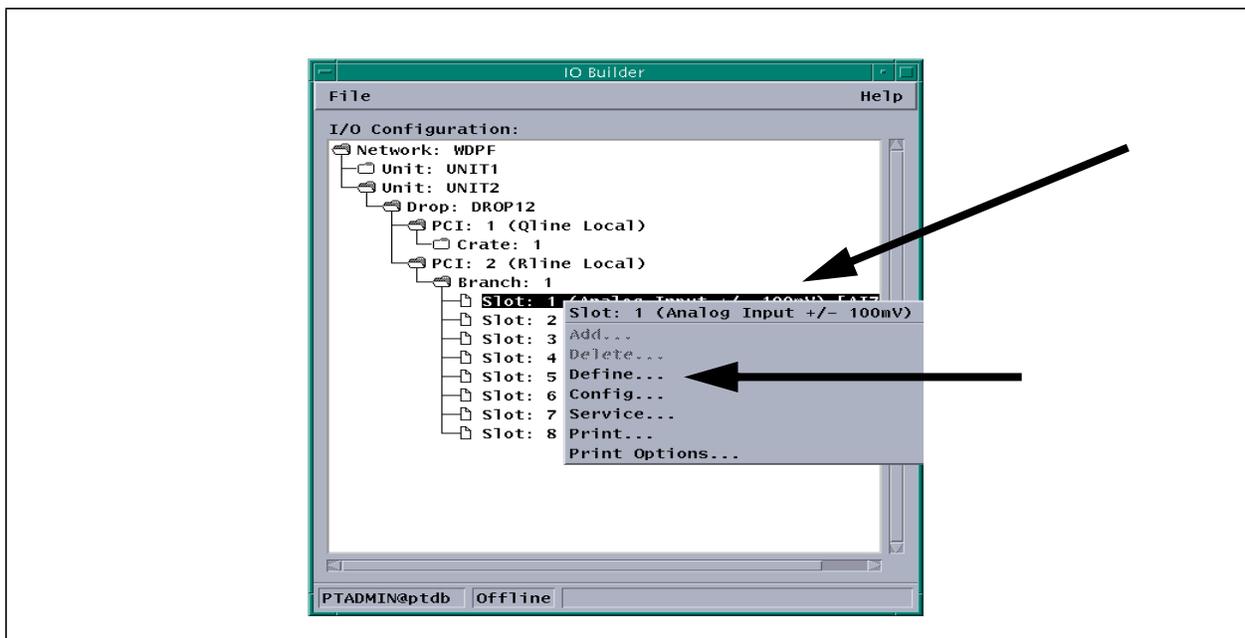
3. Select **Define** from the module menu.

4. Select the **blank** at the top of the Define list.

5. Select the **Apply** button. This removes the module safely.
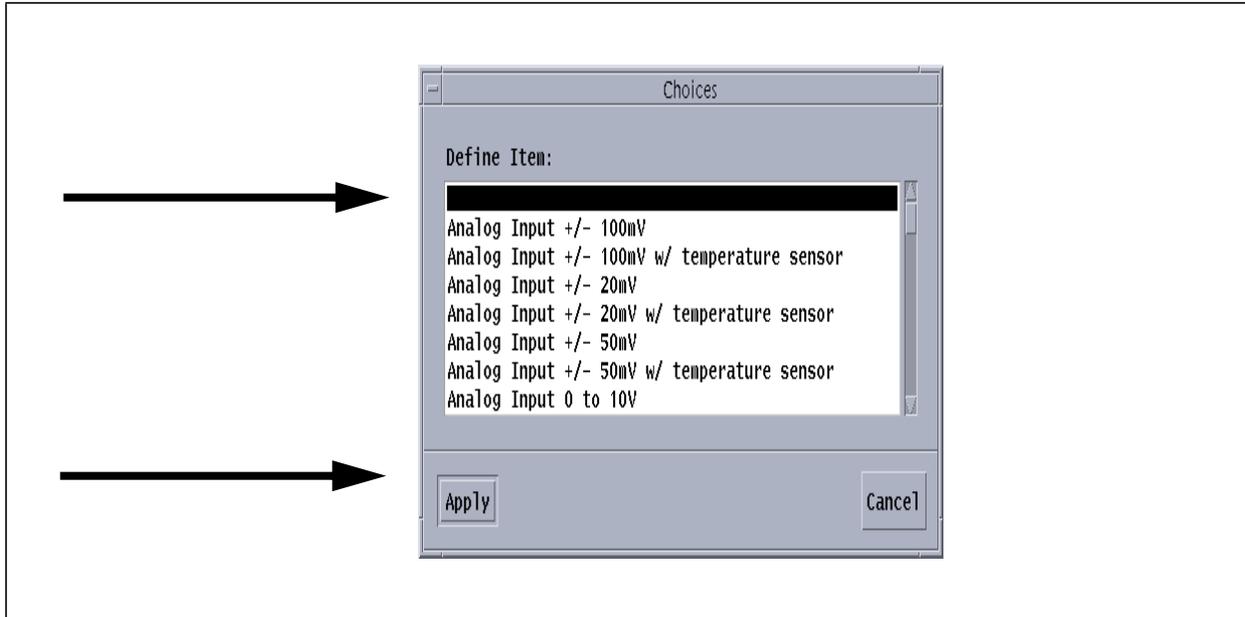
6. You can now define another module for the slot.

4-5. Taking a Module Out of Service

Ovation offers an "Out of Service" feature for I/O modules. This feature permits a user to place an I/O module and all of its associated I/O points into an "out of service" condition in order to perform module maintenance or replacement.

Placing a point into an "out of service" condition also takes the point off scan. Points which are in an "out of service" condition cannot be put on scan until the "out of service" condition is removed.

Use the following procedure to put a module out of service:

1. Select the **module** that is to be placed "out of service."

2. Right click to display the module menu.

3. Select **Service** from the module menu.

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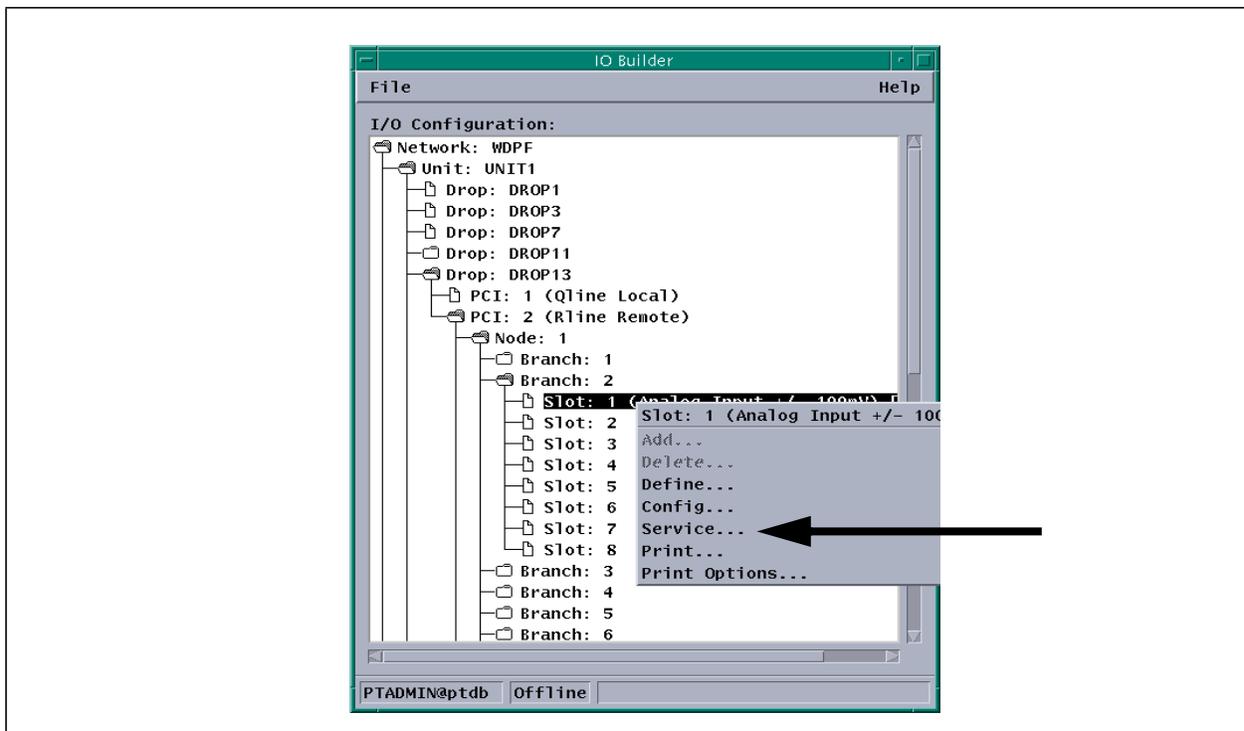
4. The "Taking Points Out of Service" window will appear with the following information displayed in the window.

    — **Point Names** for all the points associated with the selected module.

    — **Descriptions** provides English Descriptions (if applicable) for the points.

    — **Bit** will display the bit number of the packed point associated with the selected module. This field is blank if the point is not a packed point.

    — **Original Status** for the point is only displayed when the module is out of service.

    If the module is already out of service, the display will indicate the previous scan status of each point (that is, the status in effect when the module was removed from service).

5. Select the desired function:

    • **Set all Points out of Service** will put the module and all its I/O points out of service and the points will be "off scan."

    • **Restore Points to Original Status** will put the module and all its points back in service and the points back to their original scan state.

Westinghouse Process Control, Inc. Proprietary Class 2C
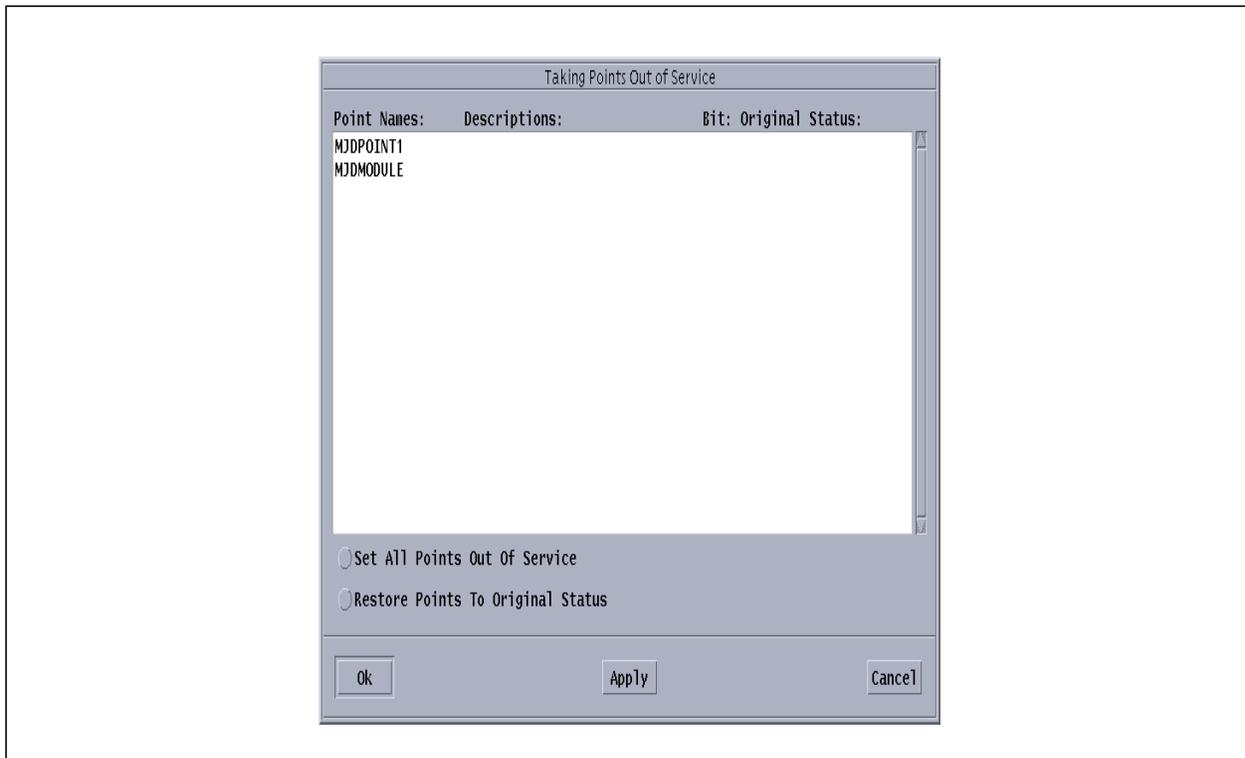
6. Select the **OK** button to apply changes and dismiss window or **Cancel** to dismiss window without applying changes.

7. When putting a module out of service, a Module Out of Service Warning window will appear. Click **OK**. This will remove the point from scan and set the quality of the points to **Fair**.
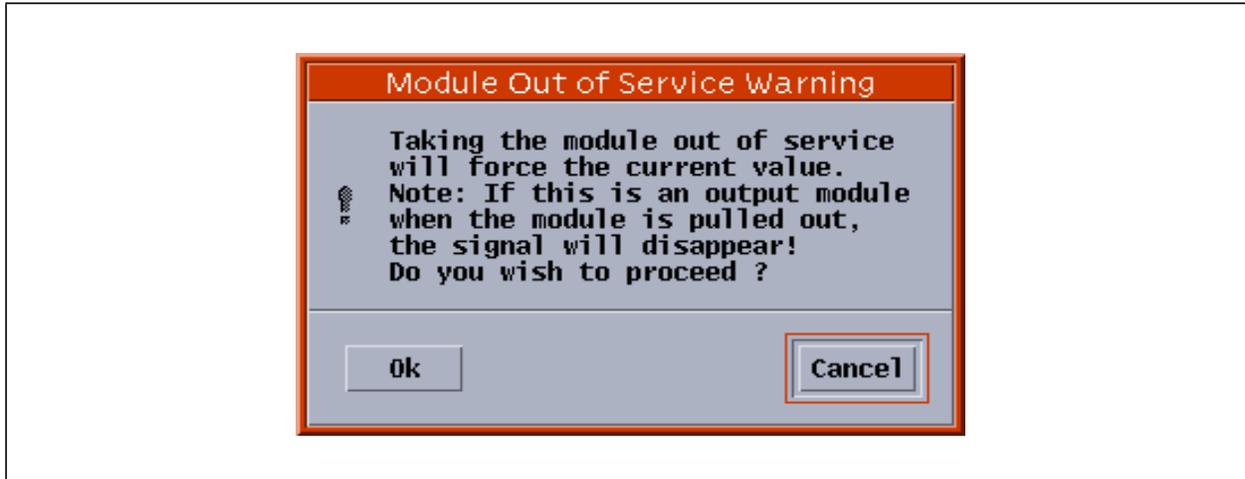
4-6. Ovation Module Configuration Dialog Boxes

This section provides examples of the Ovation module configuration dialog boxes and tables that describe the fields in the dialog boxes.

4-6.1. Analog Input Configuration
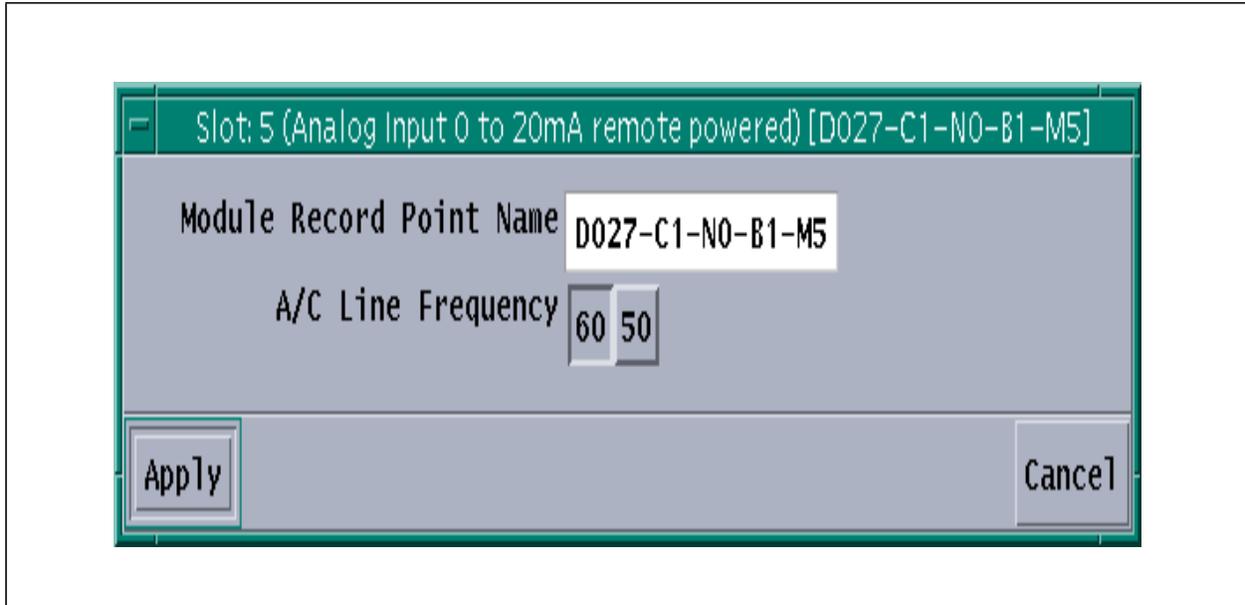
Figure 4-1. Analog Input Dialog Box
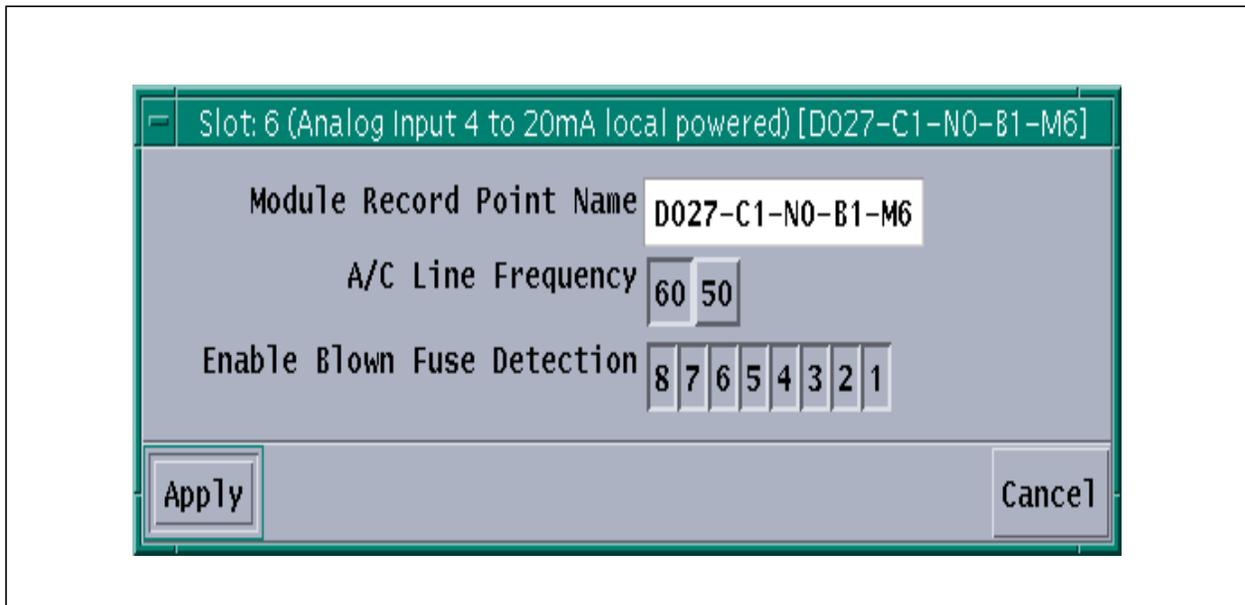
Figure 4-2. Analog Input Dialog Box (4 - 20 mA)

Table 4-2. Analog Input Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
A/C Line Frequency	Defines the type of AC used in the system (50 Hz or 60Hz). Input sampling rate is 80ms at 50Hz, and 83.3ms at 60Hz. Default is 60Hz.
Enable Blown Fuse Detection	Eight channels (1 - 8) are displayed. When a channel(s) is selected, if the current input for that channel(s) falls below 2.5 mA, then a blown fuse will be reported to the Controller and the channel LED will be lit. **Note** There is no "Blown Fuse Detection" for the 14 Bit Analog Input Module.

4-6.2. Analog Output Configuration
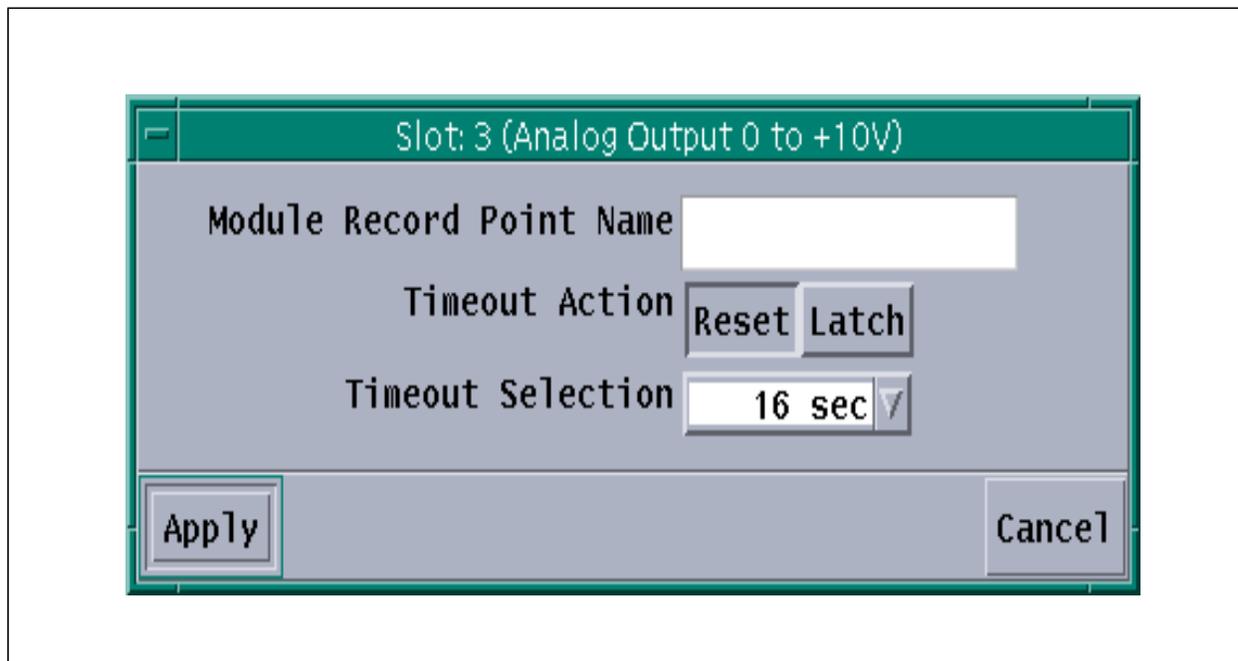
Figure 4-3. Analog Output Dialog Box

Table 4-3. Analog Output Dialog Box Fields

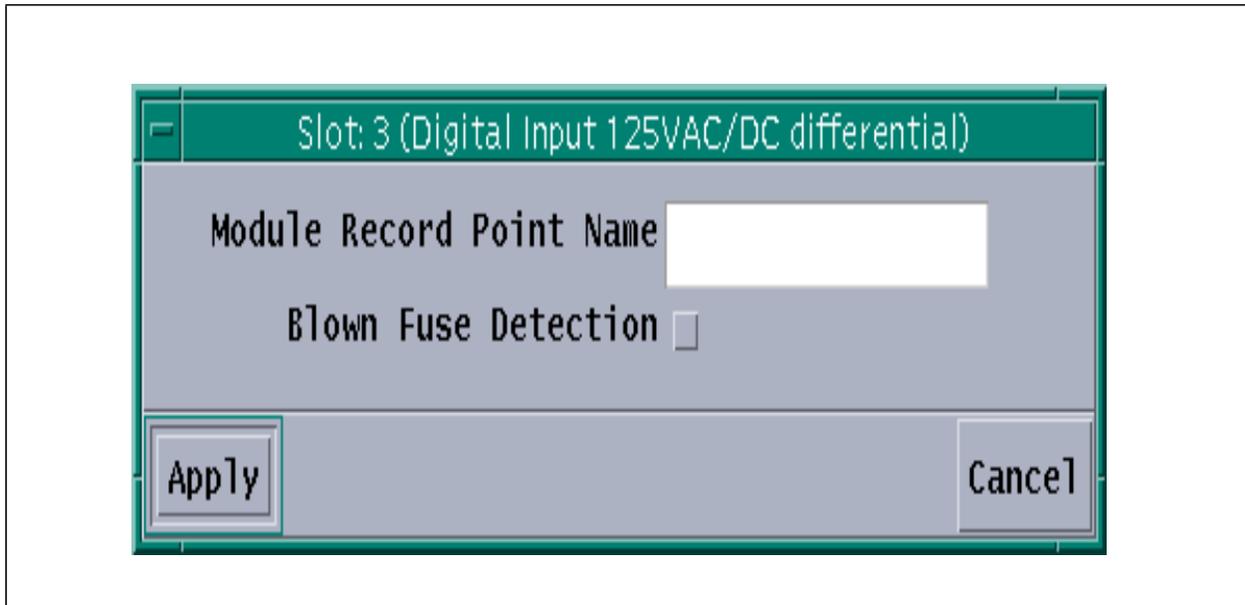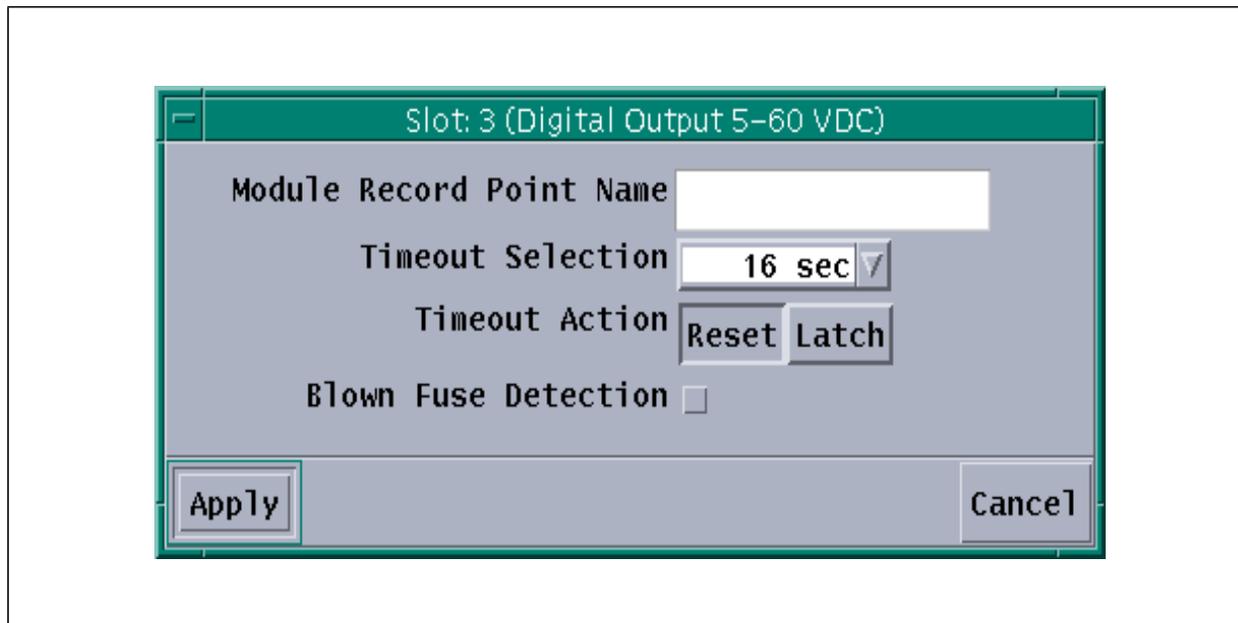| Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Timeout Action	Reset = After the timeout period, output goes to 0. Latch = After the timeout period, the last output will be held.
Timeout Selection	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 seconds 500 milliseconds 250 milliseconds 125 milliseconds 62.6 milliseconds

4-6.3. Compact Contact Input Configuration
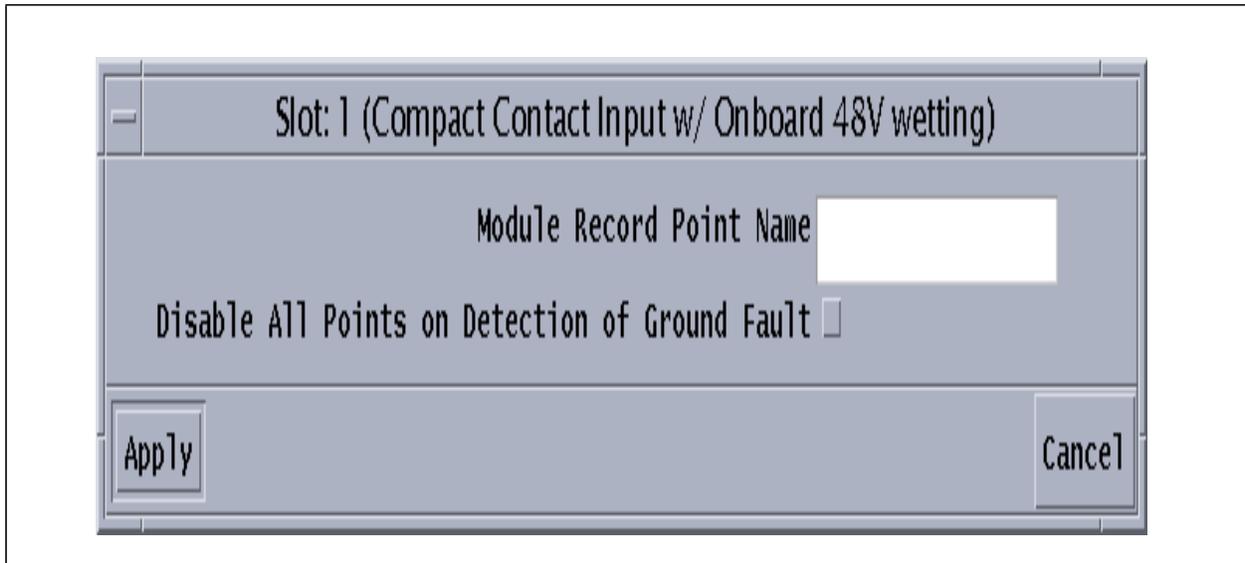
Figure 4-4. Compact Contact Input Dialog Box

Table 4-4. Compact Contact Input Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Disable All Points on Detection of Ground Fault	When set, the module will report an error when an input line or return line is shorted to earth ground, and will light the "E" LED.

4-6.4. Contact Input Configuration
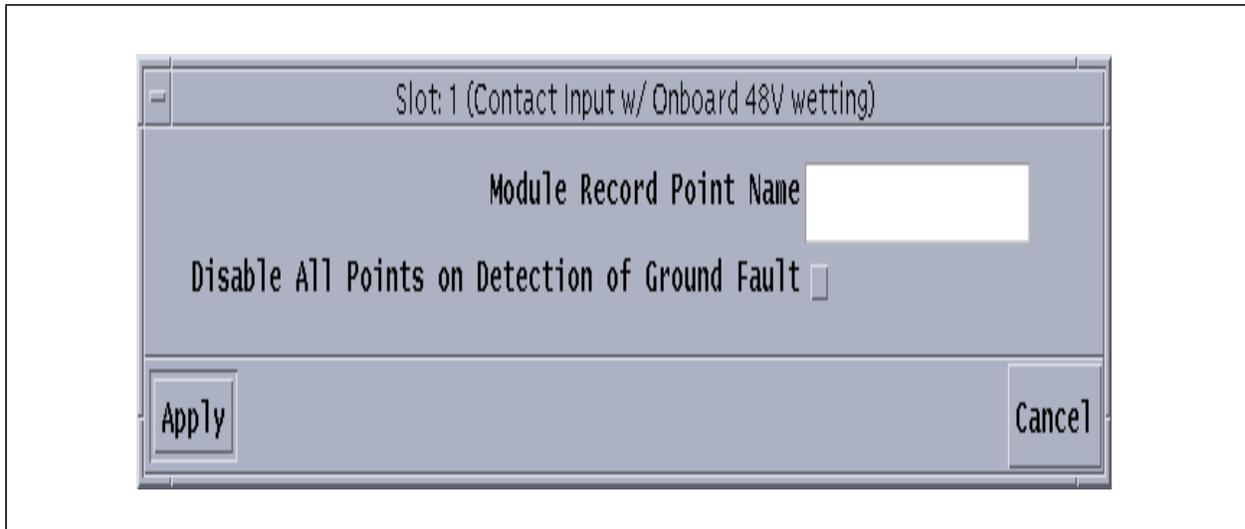
Figure 4-5. Contact Input Dialog Box

Table 4-5. Contact Input Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Disable All Points on Detection of Ground Fault	When set, the module will report an error when an input line or return line is shorted to earth ground, and will light the "E" LED.

4-6.5. Compact Digital Input Configuration
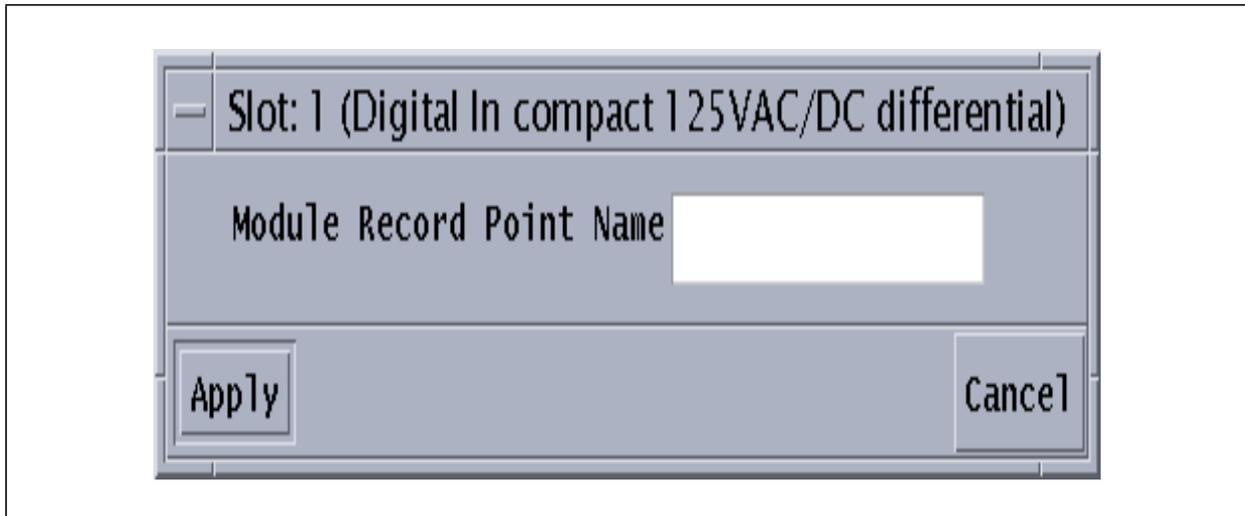
Figure 4-6. Compact Digital Input Dialog Box

Table 4-6. Compact Digital Input Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.

4-6.6. Digital Input Configuration

Figure 4-7. Digital Input Dialog Box

Table 4-7. Digital Input Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Blown Fuse Detection	When set, if an auxiliary power supply fuse is blown, the module will report an error and will light the "E" LED.

4-6.7. Digital Output Configuration

Figure 4-8. Digital Output Dialog Box

Table 4-8. Digital Output Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Timeout Selection	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 seconds 500 milliseconds 250 milliseconds 125 milliseconds 62.6 milliseconds
Timeout Action	**Reset** = After the timeout period, output is cleared (output transistor is shut off). **Latch** = After the timeout period, the last output will be held.
Blown Fuse Detection	When set, if a fuse is blown, the module will report an error and will light the "E" LED.

4-6.8. HART Analog Input Configuration
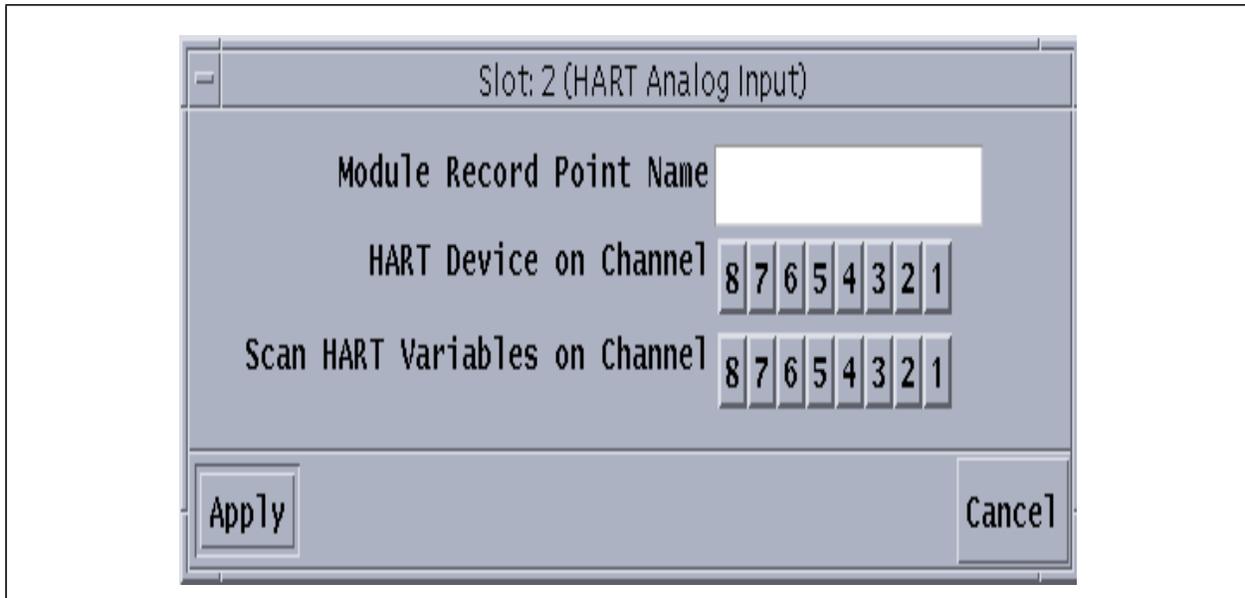
Figure 4-9. HART Analog Input Dialog Box

Table 4-9. HART Analog Input Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
HART Device on Channel	Indicates if a HART device is attached to the channel. Enables AMS pass through support.
Scan HART Variables on Channel	Indicates that a channel is or is not configured to permit Ovation (Analog) process points to utilize HART multivariable data.

4-6.9. HART Analog Output Configuration
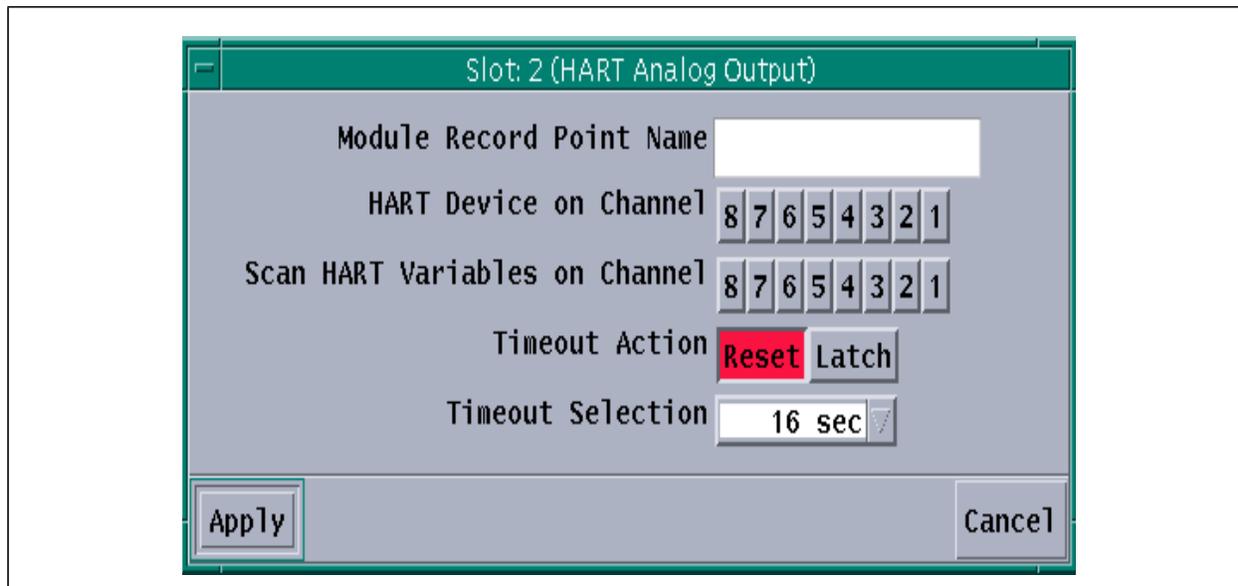
Figure 4-10. HART Analog Output Dialog Box

Table 4-10. HART Analog Output Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
HART Device on Channel	Indicates if a HART device is attached to the channel. Enables AMS pass through support.
Scan HART Variables on Channel	Indicates that a channel is or is not configured to permit Ovation (Analog) process points to utilize HART multivariable data.
Timeout Action	**Reset** = After the timeout period, output goes to 0. **Latch** = After the timeout period, the last output will be held.
Timeout Selection	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 seconds 500 milliseconds 250 milliseconds 125 milliseconds 62.6 milliseconds

4-6.10. Loop Interface Configuration

Table 4-11. Loop Interface Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
A/C Line Frequency	Defines the type of AC used in the system (50 Hz or 60Hz). Input sampling rate is 80ms at 50Hz, and 83.3ms at 60Hz. Default is 60Hz.
Blown Fuse Detection Enabled (inputs)	When set, if a fuse is blown, the module will report the appropriate error and will light the "4 Fuse" LED.
Blown Fuse Detection Enabled (outputs)	When set, if a fuse is blown, the module will report the appropriate error and will light the "4 Fuse" LED.
Digital Outputs on Controller Timeout	**Shutoff** = After the timeout period, output is cleared (output transistor is shut off). **Hold** = After the timeout period, the last output will be held.
Communications Timeout Selection	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 second 500 milliseconds 250 milliseconds 125 milliseconds 62.5 milliseconds
Controller Defines Process Variable [1]	When set, indicates that the Controller is defining the process variable. The process variable can then be configured as the analog point assigned to analog channel 7.
Controller Defines Setpoint [1]	When set, indicates that the Controller is defining the setpoint. The process variable can then be configured as the analog point assigned to analog channel 8.

[1] This field is only valid if the Electronics module firmware is at Version 5 or later of EMOD (1C31174).
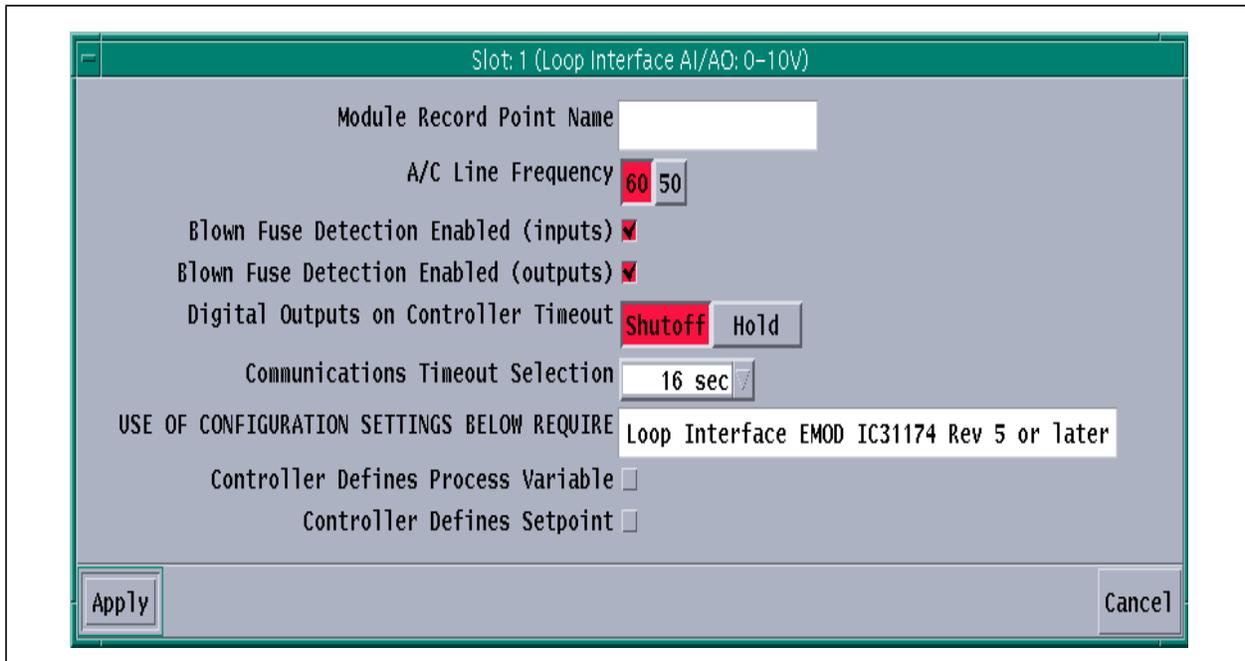
Figure 4-11. Loop Interface Dialog Box
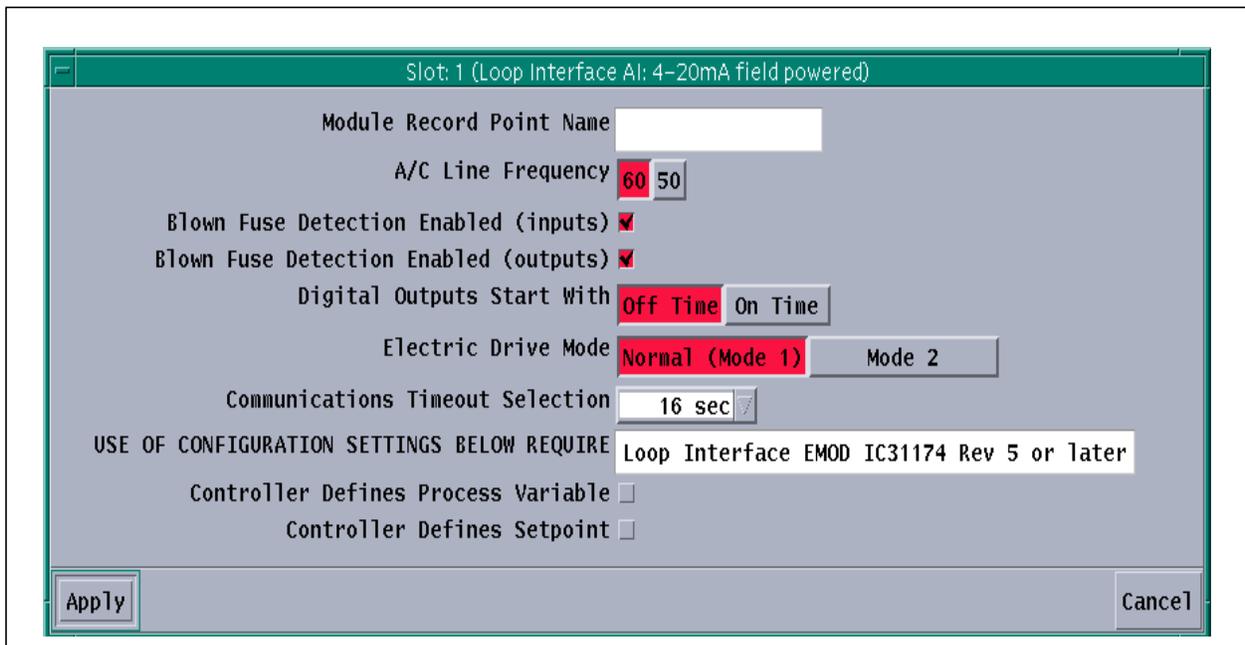
Figure 4-12. Loop Interface Dialog Box (Electric Drive Mode)

Table 4-12. Loop Interface Dialog Box Fields (Electric Drive Mode)

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in <u>U3-1041</u>) also apply to this field.
A/C Line Frequency	Defines the type of AC used in the system (50 Hz or 60Hz). Input sampling rate is 80ms at 50Hz, and 83.3ms at 60Hz. Default is 60Hz.
Blown Fuse Detection Enabled (inputs)	When set, if a fuse is blown, the module will report the appropriate error and will light the "4 Fuse" LED.
Blown Fuse Detection Enabled (outputs)	When set, if a fuse is blown, the module will report the appropriate error and will light the "4 Fuse" LED.
Digital Outputs Start With	**Off Time** = Pulses start with Off time. **On Time** = Pulses start with On time.

Electric Drive Mode	Electric drive provides two choices for modes:
	    Mode 1 (normal) = Calculates Process Variable as
	    normal type.
	    Output is 2 digital outputs (raise/lower)
	
	    Mode 2 = Calculates Process Variable.
	    Output is 2 digital outputs.
	    For all modes except local, a demand of 0 forces a
	    hard lower.

Communications Tiimeout Selection	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 second 500 milliseconds 250 milliseconds 125 milliseconds 62.5 milliseconds
Controller Defined Process Variable [1]	When set, indicates that the Controller is defining the process variable. The process variable can then be configured as the analog point assigned to analog channel 7.
Controller Defined Setpoint [1]	When set, indicates that the Controller is defining the setpoint. The process variable can then be configured as the analog point assigned to analog channel 8.

[1] This field is only valid if the Electronics module firmware is at Version 5 or later of EMOD (1C31174).

4-6.11. Pulse Accumulator Configuration
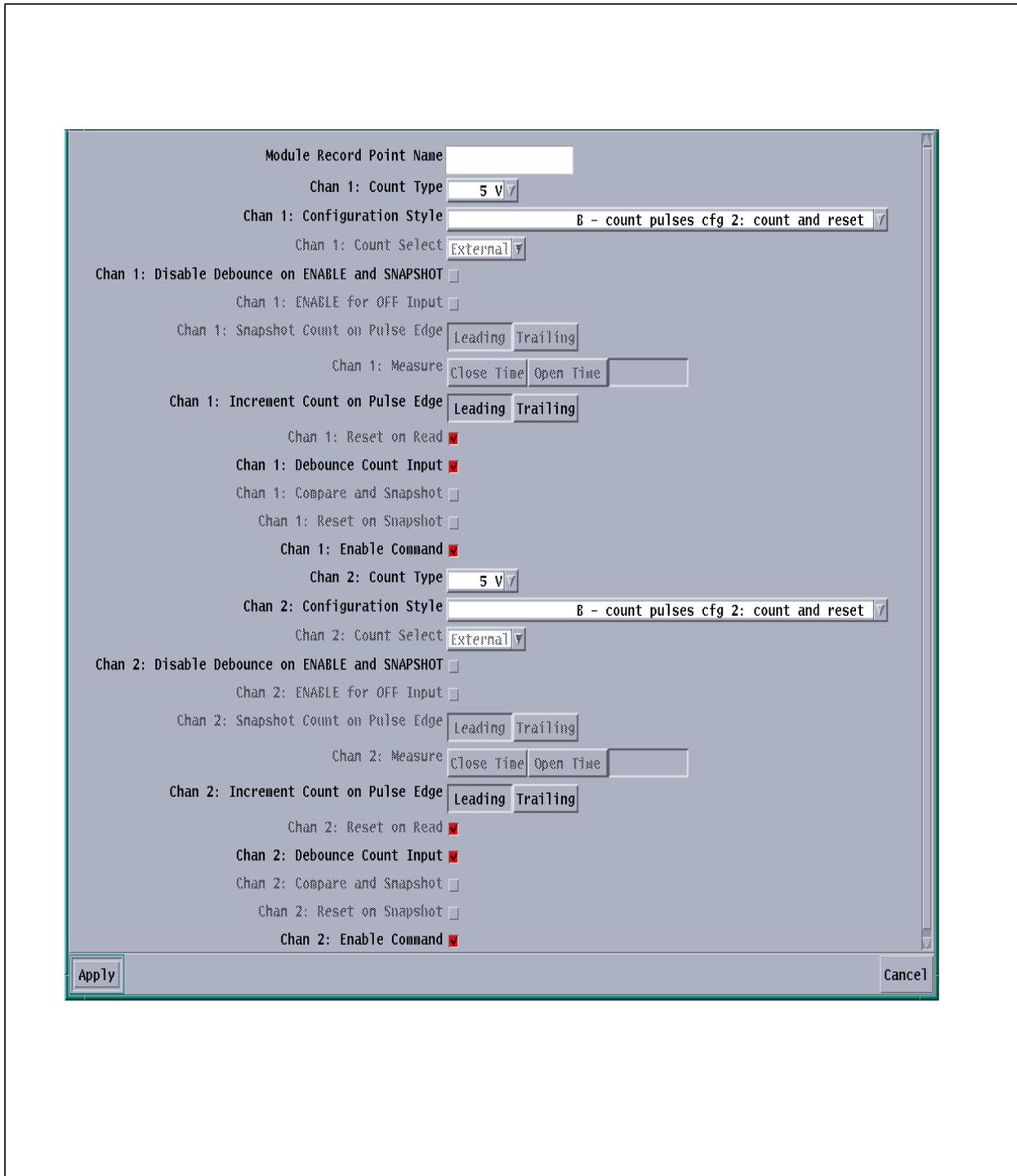
Figure 4-13. Pulse Accumulator Dialog Box

Table 4-13. Pulse Accumulator Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Chan 1 or 2: Count Type	Field input voltage range. Defines different terminal block connections: +5V (high speed) +5/12V (medium speed) 24/48V
Chan 1 or 2: Configuration Style **Refer to Table 4-14 for matrix of parameters to set for each style.**	A = count pulses till reset by Controller B = count pulses and reset C = measure width of long pulse D = measure width of last pulse E = measure total width of several pulses since last read F = measure period of repetitive pulses G = measure pulse width ratios (Channel 1 measures pulse width; Channel 2 measures pulse period) H = measure speed (frequency) (Channel 1 is used for the time base; Channel 2 counts the input pulses) Configuration styles can be mixed on a card, except Styles G and H.
Chan 1 or 2: Count Select	Selects input to the counter through bits 15 and 14 in register D: 0 0 = External count input 01 = 1 Khz 10 = 10 Khz 11 = 100Khz
Chan 1 or 2: Disable Debounce on ENABLE and SNAPSHOT inputs	When set, will disable the debounce (chattering or noise) on Enable and Snapshot inputs.
Chan 1 or 2: ENABLE for OFF Input	When set, open time of ENABLE input will be measured. When not set, closed time of ENABLE input will be measured.
Chan 1 or 2: Snapshot Count on Pulse Edge	Select "Leading" to snapshot on the leading edge of input pulse. Select "Trailing" to snapshot on the trailing edge of input pulse.
Chan 1 or 2: Measure	Close Time = Closed time of ENABLE input will be measured. Open Time = Open time of ENABLE input will be measured.
Chan 1 or 2: Increment Count on Pulse Edge	Select "Leading" to increment count on the leading edge of input pulse. Select "Trailing" to increment count on the trailing edge of input pulse.
Chan 1 or 2: Reset on Read	When set, the counter goes back to zero (0) after the pulse is read.
Chan 1 or 2: Debounce Count Input	When set, will debounce (reject chatter or noise) the input count.

Table 4-13. Pulse Accumulator Dialog Box Fields (Cont'd)

Field	Description
Chan 1 or 2: Compare and Snapshot	Only set for Configuration H.
Chan 1 or 2: Reset on Snapshot	When set, the counter goes back to zero (0) after the snapshot occurs.
Chan 1 or 2: Enable command	When set, counter has been enabled to count and does not need the external ENABLE signal.

Table 4-14. Fields to Configure for Configuration Styles

Field	Configuration Style							
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Module Record Point Name	X	X	X	X	X	X	X	X
Count Type	X	X	X	X	X	X	X	X
Configuration Style	A	B	C	D	E	F	G	H
Count Select			X	X	X	X	X	X
Disable Debounce on ENABLE and SNAPSHOT	X	X	X	X	X	X	X	
ENABLE for OFF input				X	X			
Snapshot Count on Pulse Edge				X			X	
Measure			X	X	X			
Increment Count on Pulse Edge	X	X						
Reset on Read		X			X			
Debounce Count Input	X	X						X
Compare and Snapshot								X
Reset on Snapshot				X		X	X	X
Enable command	X	X				X	X	X

4-6.12. RTD Configuration
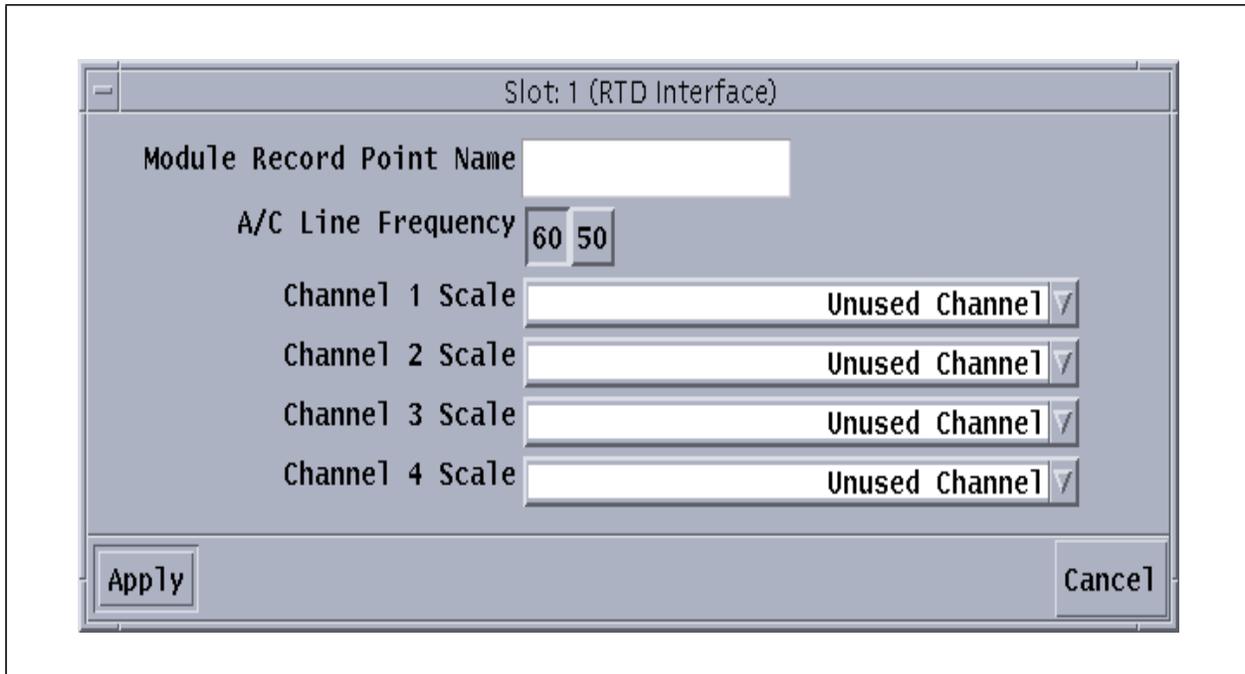
Figure 4-14. RTD Dialog Box

Table 4-15. RTD Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in <u>U3-1041</u>) also apply to this field.
A/C Line Frequency	Defines the type of AC used in the system (50 Hz or 60Hz). Input sampling rate is 80ms at 50Hz, and 83.3ms at 60Hz. Default is 60Hz.
Channel 1 Scale	Refer to <u>Table 4-16</u> for descriptions of the items in the menu.
Channel 2 Scale	Refer to <u>Table 4-16</u> for descriptions of the items in the menu.
Channel 3 Scale	Refer to <u>Table 4-16</u> for descriptions of the items in the menu.
Channel 4 Scale	Refer to <u>Table 4-16</u> for descriptions of the items in the menu.

Table 4-16. RTD Scrolling List Values

Scale # (HEX)	Wires	Type	Temp °F	Temp °C	Rcold (ohm)	Rhot (ohm)	Excitation current (ma)	Accuracy counts	Accuracy % of SPAN
1	3	PL	0 to 1200	-18 to 649	6	106.3	0.1556	9	0.22
2	3	CU	0 to 302	-18 to 150	8.5	16.5	1.51	13	0.32
D	3	CU	32 to 284	0 to 140	50	80	1.0756	11	0.27
11	3	CU	32 to 230	0 to 110	53	78	1.1291	12	0.30
19	3	PL	-4 to 334	-16 to 168	92	163.67	0.5121	11	0.27
22	3	PL	32 to 520	0 to 269	100	200	0.4087	10	0.25
23	3	PL	32 to 1040	0 to 561	100	301	0.2554	10	0.25
25	3	NI	12 to 464	-11 to 240	109	251	0.2104	10	0.25
26	3	NI	32 to 150	0 to 70	120	170	0.5240	13	0.32
28	3	NI	32 to 278	0 to 122	120	225	0.3682	11	0.27
80	4	PL	32 to 544	0 to 290	100	208	0.3921	10	0.25
81	4	PL	356 to 446	180 to 230	168	186	0.5240	30	0.74
82	4	PL	32 to 698	0 to 370	200	473	0.1675	12	0.30
83	4	PL	514 to 648	268 to 342	402	452	0.2142	29	0.71
84	4	PL	32 to 124	0 to 51	100	120	0.7860	19	0.47
85	4	PL	32 to 217	0 to 103	100	140	0.6386	13	0.32
86	4	PL	32 to 412	0 to 211	100	180	0.4644	11	0.27
87	4	PL	32 to 714	0 to 379	100	240	0.3296	10	0.25
88	4	PL	511 to 662	266 to 350	200	230	0.4170	24	0.59

4-6.13. Relay Output Module G2R Configuration
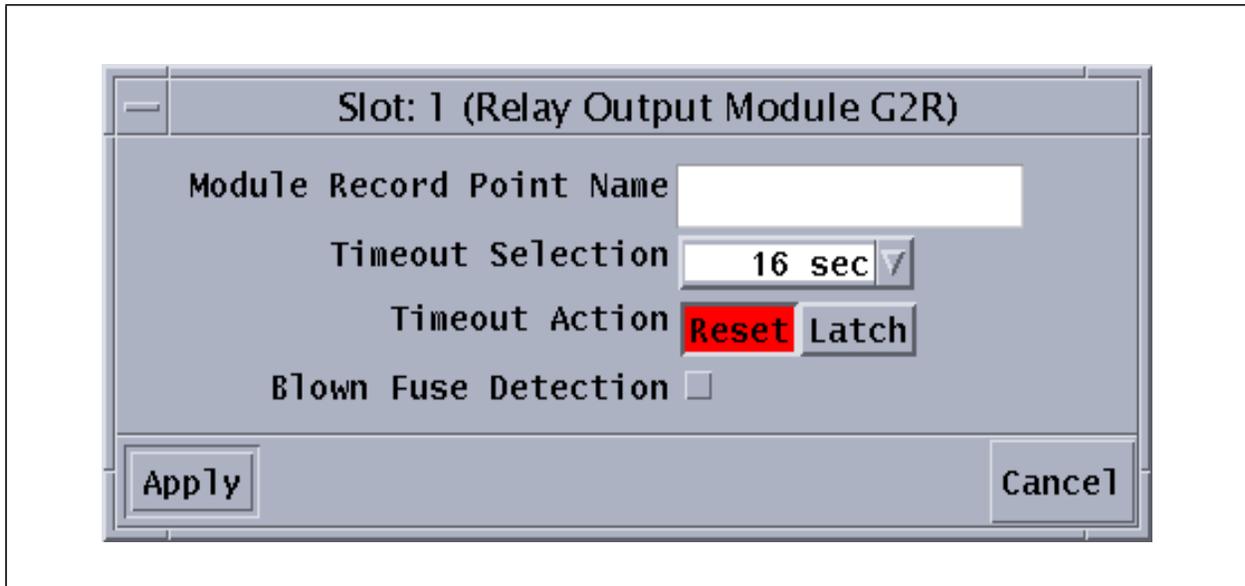
Figure 4-15. Relay Output Module G2R Dialog Box

Table 4-17. Relay Output Module G2R Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Timeout Selection	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 seconds 500 microseconds 250 microseconds 125 microseconds 62.6 microseconds
Timeout Action	**Reset** = After the timeout period, output is cleared (output transistor is shut off). **Latch** = After the timeout period, the last output will be held.
Blown Fuse Detection	Should be set, module will report a blown fuse and will light the "E" LED.

4-6.14. Relay Output Module KUEP Configuration
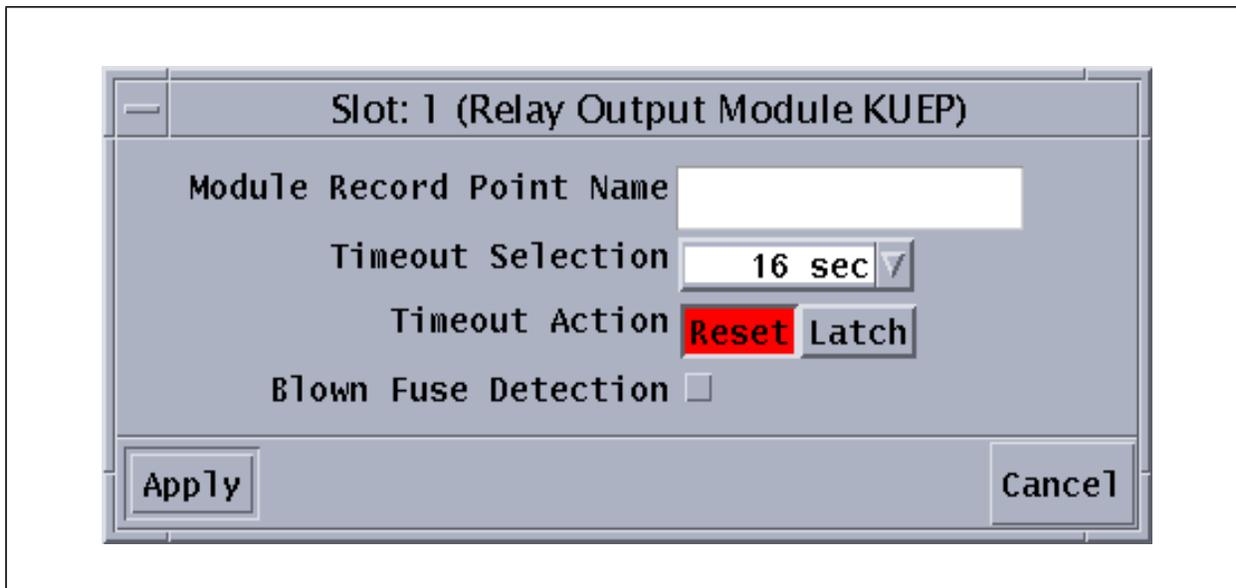
Figure 4-16. Relay Output Module KUEP Dialog Box

Table 4-18. Relay Output Module KUEP Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Timeout Selection	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 seconds 500 microseconds 250 microseconds 125 microseconds 62.6 microseconds
Timeout Action	**Reset** = After the timeout period, output is cleared (output transistor is shut off). **Latch** = After the timeout period, the last output will be held.
Blown Fuse Detection	Should be set, module will report a blown fuse and will light the "E" LED.

4-6.15. Sequence of Events Configuration
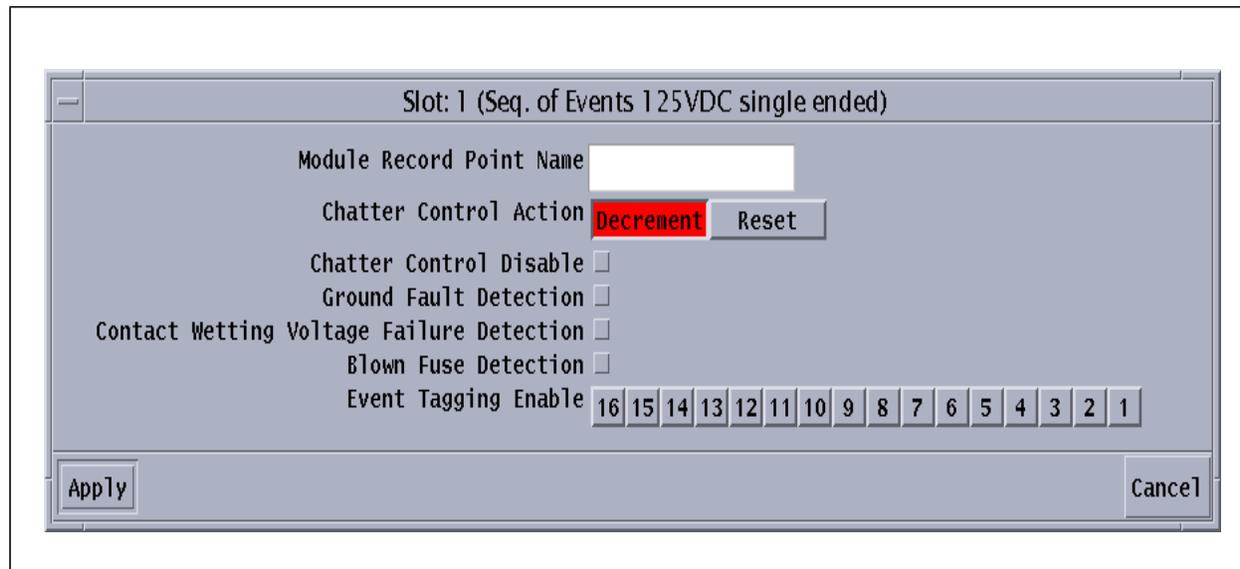
Figure 4-17. Sequence of Events Dialog Box

Table 4-19. Sequence of Events Dialog Box Fields (24VDC/48VDC/125VDC single-ended)

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Chatter Control Action	Chatter control counter is reset or it is decremented every 100 milliseconds. Reset setting is recommended.
Chatter Control Disable	It is recommended that this not be set so that chatter control will be enabled.
Ground Fault Detection	Should not be set.
Contact Wetting Voltage Failure Detection	Should not be set.
Blown Fuse Detection	Should be set, module will report a blown fuse and will light the "E" LED.
Event Tagging Enable	Channels that are set will enable the event tagging mask for that channel. **Note:** All channels enabled for event tagging **MUST** have an associated digital point configured for that channel.

Table 4-20. Sequence of Events Dialog Box Fields (24VDC/48VDC/125VDC differential)

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Chatter Control Action	Chatter control counter is reset or is decremented every 100 milliseconds. Reset setting is recommended.
Chatter Control Disable	It is recommended that this not be set so that chatter control will be enabled.
Ground Fault Detection	User can set as needed.
Contact Wetting Voltage Failure Detection	Should not be set.
Event Tagging Enable	Channels that are set will enable the event tagging mask for that channel. **Note:** All channels enabled for event tagging **MUST** have an associated digital point configured for that channel.

Table 4-21. Sequence of Events Dialog Box Fields (48VDC contact input)

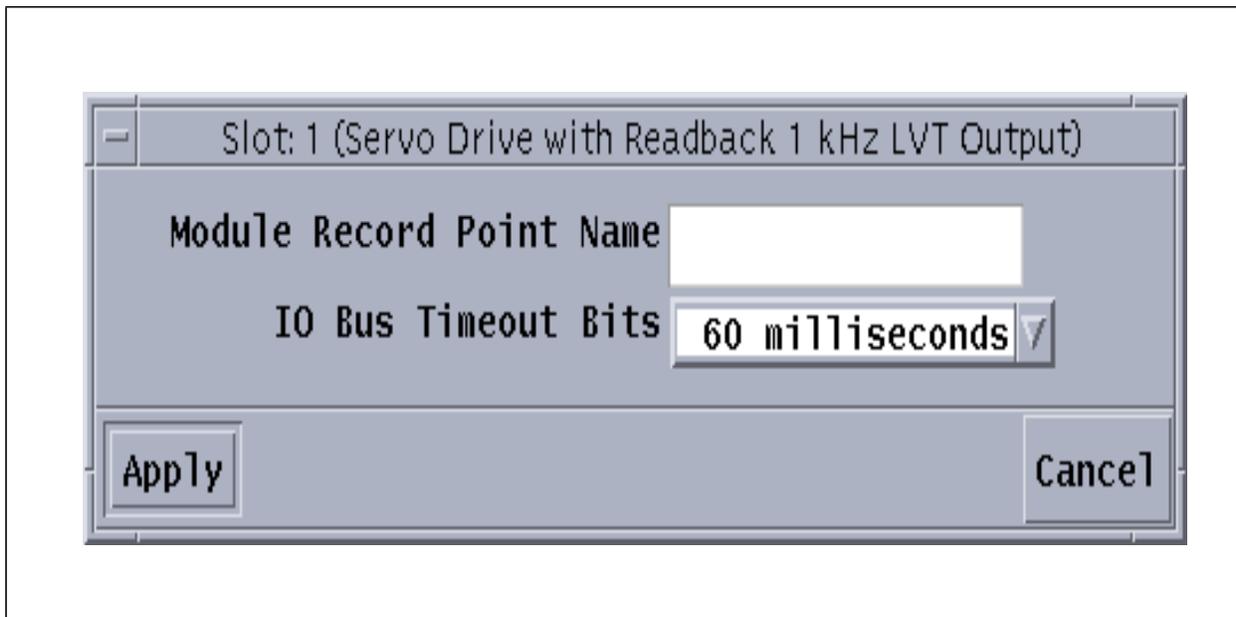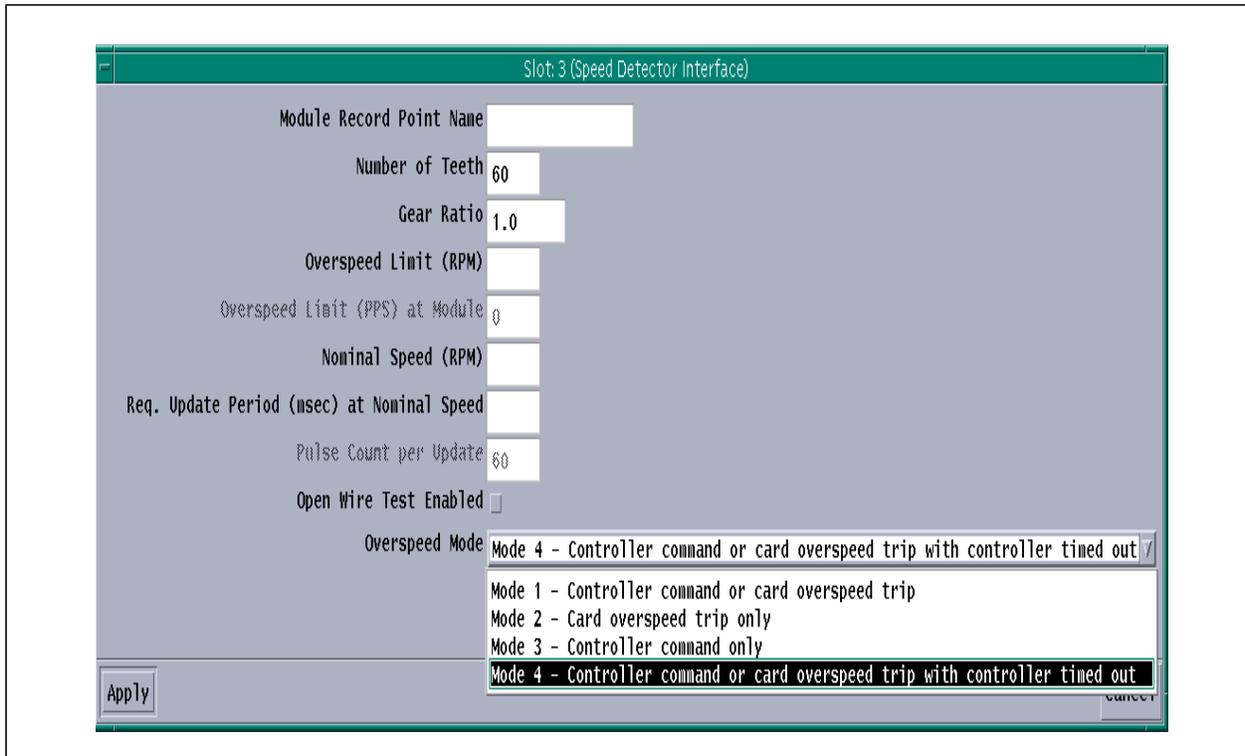| Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Chatter Control Action	Chatter control counter is reset or is decremented every 100 milliseconds. Reset setting is recommended.
Chatter Control Disable	It is recommended that this not be set so that chatter control will be enabled.
Ground Fault Detection	Should be set.
Contact Wetting Voltage Failure Detection	Should be set.
Blown Fuse Detection	Should not be set.
Event Tagging Enable	Channels that are set will enable the event tagging mask for that channel. **Note:** All channels enabled for event tagging **MUST** have an associated digital point configured for that channel.

4-6.16. Compact Sequence of Events Configuration
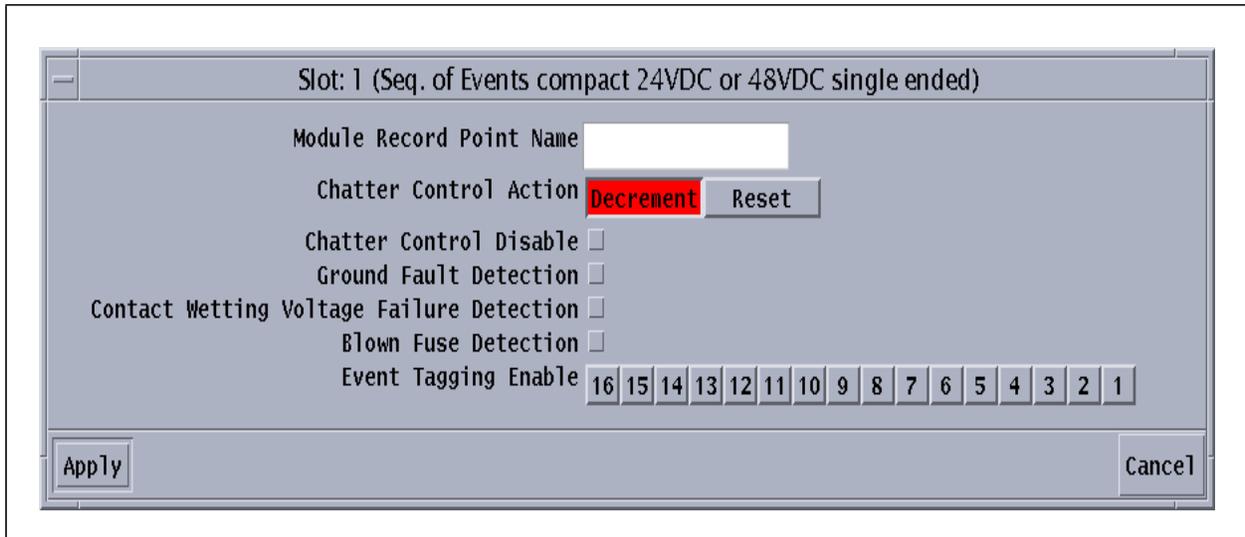
Figure 4-18. Compact Sequence of Events Dialog Box

Table 4-22. Compact Sequence of Events Fields (24VDC/48VDC/125VDC single-ended)

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Chatter Control Action	Chatter control counter is reset or it is decremented every 100 milliseconds. Reset setting is recommended.
Chatter Control Disable	It is recommended that this not be set so that chatter control will be enabled.
Ground Fault Detection	Should not be set.
Contact Wetting Voltage Failure Detection	Should not be set.
Blown Fuse Detection	Should be set. Module will report a blown fuse and will light the "E" LED.
Event Tagging Enable	Channels that are set will enable the event tagging mask for that channel. **Note:** All channels enabled for event tagging **MUST** have an associated digital point configured for that channel.

Table 4-23. Compact Sequence of Events Fields (24VDC/48VDC/125VDC differential)

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Chatter Control Action	Chatter control counter is reset or it is decremented every 100 milliseconds. Reset setting is recommended.
Chatter Control Disable	It is recommended that this not be set so that chatter control will be enabled.
Ground Fault Detection	Should not be set.
Contact Wetting Voltage Failure Detection	Should not be set.
Event Tagging Enable	Channels that are set will enable the event tagging mask for that channel. **Note:** All channels enabled for event tagging **MUST** have an associated digital point configured for that channel.

Table 4-24. Compact Sequence of Events Dialog Box Fields (48VDC contact input)

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Chatter Control Action	Chatter control counter is reset or is decremented every 100 milliseconds. Reset setting is recommended.
Chatter Control Disable	It is recommended that this not be set so that chatter control will be enabled.
Ground Fault Detection	Should be set.
Contact Wetting Voltage Failure Detection	Should be set.
Blown Fuse Detection	Should not be set.
Event Tagging Enable	Channels that are set will enable the event tagging mask for that channel. **Note:** All channels enabled for event tagging **MUST** have an associated digital point configured for that channel.

4-6.17. Serial Link Controller Configuration
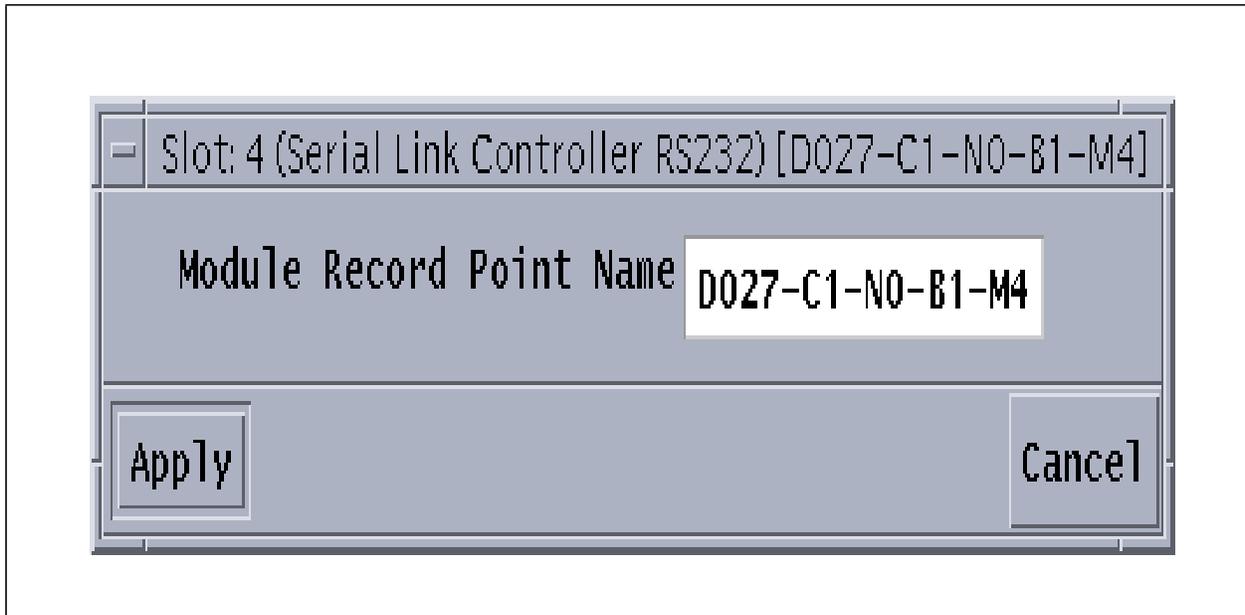
Figure 4-19. Serial Link Controller Dialog Box

Table 4-25. Serial Link Controller Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in <u>U3-1041</u>) also apply to this field.

4-6.18. Servo Driver Configuration

Figure 4-20. Servo Driver Dialog Box

Table 4-26. Servo Driver Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in <u>U3-1041</u>) also apply to this field.
IO Bus Timeout Bits	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 second 500 milliseconds 250 milliseconds 120 milliseconds 60 milliseconds

4-6.19. Speed Detector Configuration

Figure 4-21. Speed Detector Dialog Box

Table 4-27. Speed Detector Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
Number of Teeth	Number of teeth on output gear (that is, pulses per revolution).
Gear Ratio	Ratio between motor/device and the output gear.
Overspeed Limit (RPM)	Overspeed limit at the motor.
Overspeed Limit (PPS) at module	Read-only information field.
Nominal Speed (RPM)	Nominal speed at the motor.
Requested Update Period (msec) at Nominal Speed	Maximum time in microseconds for the speed calculation requested for high resolution reading. When motor operates at nominal speed or faster, the update period is guaranteed to be less than this requested update period.

Table 4-27. Speed Detector Dialog Box Fields (Cont'd)

Field	Description
Pulse Count per Update	This is a read-only information field. It displays the number of pulses used for high revolution speed calculation.
Open Wire Test Enabled	Enable this option if the module will check for broken wire, and if the source resistor is below 1000 ohms.
Overspeed Mode (there are four different modes for energizing the relay's outputs when an overspeed condition exists)	Mode 1 - Controller command or card overspeed trip. Relay is energized by the Controller or by the module when an overspeed condition is detected. Mode 2 - Card overspeed trip only. Relay is energized by the module when an overspeed condition is detected. Mode 3 - Controller command only. Relay is energized by the Controller. Mode 4 - Controller command or card overspeed trip with Controller timed out. Relay is energized by the Controller when an overspeed condition is detected. However, the relay can be energized by the module if the Controller is timed out for two seconds and an overspeed condition is detected. **Mode 4 is the recommended default mode.**

4-6.20. Valve Positioner Configuration
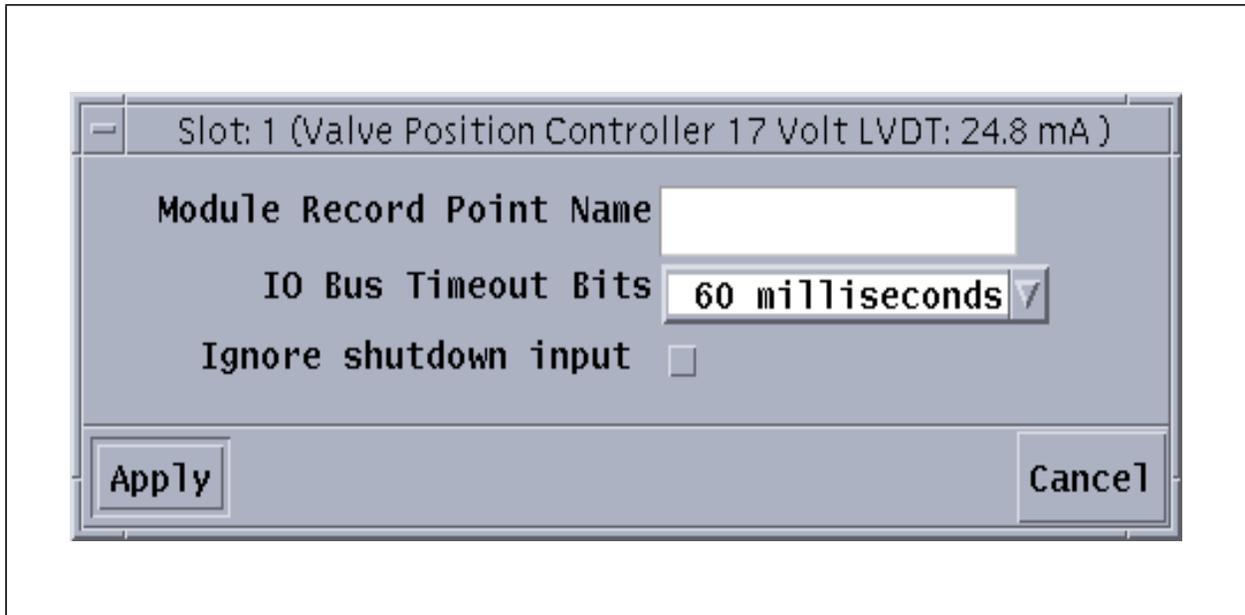
Figure 4-22. Valve Positioner Dialog Box

Table 4-28. Valve Positioner Dialog Box Fields

Field	Description
Module Record Point Name	User-defined name for module that identifies module to the Ovation database. Rules for naming points (described in U3-1041) also apply to this field.
IO Bus Timeout Bits	Pull-down menu used to define the timeout period: 16 seconds 4 seconds 2 seconds 1 second 500 milliseconds 250 milliseconds 120 milliseconds 60 milliseconds
Ignore shutdown input	If selected, the Valve Positioner module will ignore the input in Normal mode. If not selected, the Valve Positioner module will close the valve when shutdown input is activated.