Prisma II bdr 2:1 Redundant Receive Processor

Installation and Operation Guide

For Your Safety

Explanation of Warning and Caution Icons

Avoid personal injury and product damage! Do not proceed beyond any symbol until you fully understand the indicated conditions.

The following warning and caution icons alert you to important information about the safe operation of this product:

You may find this symbol in the document that accompanies this product. This symbol indicates important operating or maintenance instructions.

You may find this symbol affixed to the product. This symbol indicates a live terminal where a dangerous voltage may be present; the tip of the flash points to the terminal device.

You may find this symbol affixed to the product. This symbol indicates a protective ground terminal.

You may find this symbol affixed to the product. This symbol indicates a chassis terminal (normally used for equipotential bonding).

You may find this symbol affixed to the product. This symbol warns of a potentially hot surface.

You may find this symbol affixed to the product and in this document. This symbol indicates an infrared laser that transmits intensity-modulated light and emits invisible laser radiation or an LED that transmits intensity-modulated light.

Important

Please read this entire guide. If this guide provides installation or operation instructions, give particular attention to all safety statements included in this guide.

Notices

Trademark Acknowledgments

Publication Disclaimer

Copyright

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Safety Precautions

Protect Yourself From Electric Shock and Your System From Damage!

- This product complies with international safety and design standards. Observe all safety procedures that appear throughout this guide, and the safety symbols that are affixed to this product.
- If circumstances impair the safe operation of this product, stop operation and secure this product against further operation.

Avoid personal injury and product damage! Do not proceed beyond any symbol until you fully understand the indicated conditions!

You will find this symbol in the literature that accompanies this product. This symbol indicates important operating or maintenance instructions.

You may find this symbol affixed to this product. This symbol indicates a live terminal; the flash points to the terminal device.

You may find this symbol affixed to this product. This symbol indicates a protective earth terminal.

You may find this symbol affixed to this product. This symbol indicates excessive or dangerous heat.

Factory Servicex

Refer service only to service personnel who are authorized by the factory.

Enclosure

- Do not allow moisture to enter this product.
- Do not open the enclosure of this product unless otherwise specified.
- Do not push objects through openings in the enclosure of this product.

Cables

- Always pull on the plug or the connector to disconnect a cable. Never pull on the cable itself.
- Do not walk on or place stress on cables or plugs.

Compliance

Laser and Electrical Safety

UL 1419:1997: A sample of this equipment has been tested and found to meet the requirements of UL 1419:1997.

CSA C22.2 No. 1:1994: A sample of this equipment has been tested and found to meet the requirements of CSA C22.2 No. 1:1994.

Electromagnetic Compatibility

FCC Part 15 Subpart B: This equipment has been tested and found to comply with the limits for a Class A digital device according to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada ICES-003: This Class A digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Industrie Canadienne ICES-003: Cet appareil numèrique de la class A respecte toutes les exigences du Règlement sur le matèriel brouilleur du Canada.

Laser Safety

Introduction

This product receives intensity-modulated light and may emit invisible radiation.

Warning: Radiation

> ⚠ **WARNING:**
> **Avoid personal injury! Use of controls, adjustments, or procedures other than those specified herein may result in hazardous radiation exposure.**

- Do not apply power to this product if the fiber is unmated or unterminated.
- Do not stare into an unmated fiber or at any mirror-like surface that could reflect light that is emitted from an unterminated fiber.
- Do not view an activated fiber with optical instruments.

Warning: Fiber Chips

> ⚠ **WARNING:**
> **Avoid personal injury! Wear safety glasses and use extreme caution when you handle the glass chips that are inside the cladding of the optical fiber. X-ray cannot detect these glass chips if they become embedded in the skin. Place the chips immediately in a small waste container and discard.**

Modifications

Do not make modifications to this product without the approval of Cisco.

Whenever modifications that may affect hazard levels are made to the optical fiber communication system, the person or organization that performs such modification must reassess hazard levels. They must do this by conducting tests and measurements wherever appropriate for the ensurance of compliance. If there is a change in the hazard level, they must re-label this product.

Laser Warning Labels

The Prisma II® bdr™ Optical Receiver sub-modules bears the following labels.

Chapter 1
Introduction

Overview

Introduction

This chapter introduces the front and back panels of the Prisma II™ bdr™ 2:1 Redundant Receive Processor, the Prisma II bdr Optical Receiver sub-modules and presents a configuration overview.

Qualified Personnel

Only appropriately qualified and trained personnel should attempt to install this product.

> ⚠ **WARNING:**
>
> **Allow only qualified personnel to install, operate, maintain, and service this product. Otherwise, personal injury or equipment damage may occur.**

In This Chapter

This chapter contains the following topics.

Topic	See Page
Introduction to the bdr Receive Processor	1-2
The Front Panel of the Receive Processor	1-5
The Front Panel of the Optical Receiver Sub-Module	1-7
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Introduction to the bdr Receive Processor

bdr Receive Processor Overview

The Prisma II optical network is an advanced transmission system designed to optimize network architectures and increase reliability, scalability, and cost effectiveness. The Prisma II bdr Receive Processor is designed to operate over a wide range of optical input powers and loss budgets. Microprocessor control allows ease of installation and flexibility of application. The Prisma II bdr Receive Processor houses two optical receiver sub-modules.

bdr Receive Processor Features

The Prisma II bdr Receive Processor has the following features.

- Front panel green LED to indicate operating status
- Front panel red LED to indicate alarm status
- -20 dB test points (2)
- Optical receiver sub-module insertion slots (2)
- Plug-and-play capability
- Compatible with Cisco LCI software and TNCS software
- Blind mate RF connections

Prisma II bdr Digital Reverse 2:1 Multiplexing System

The Prisma II platform supports Cisco's Baseband Digital Reverse technology. The Prisma II bdr Digital Reverse 2:1 Multiplexing System includes a unique approach for incorporating network redundancy. At the transmit end of the system, typically in a hub or remote terminal, two 5 to 42 MHz analog reverse path signals are input to a transmit processor. The transmit processor converts each signal to a baseband digital data stream and time division multiplexes the two streams into a single data stream. The data stream is duplicated to enable routing for redundant optical transport.

One (non-redundant application) or two (redundant application) transmitter sub-modules installed within the transmit processor, convert the baseband data stream to an optical signal for transmission at either 1310 nm or 1550 nm ITU grid wavelengths. ITU grid wavelengths are used for Dense Wave Division Multiplexing (DWDM) applications.

On the receive end, typically in a large hub or headend, one or two Prisma II bdr Optical Receiver sub-modules located in the Prisma II Receive Processor receive the optical signal and perform conversion back to the baseband data stream. The Prisma II bdr Receive Processor de-multiplexes the data stream and converts the two resultant data streams back to two analog RF signals.

The Prisma II bdr Receive Processor can be controlled by an ICIM, the LCI software, or TNCS software. The Prisma II bdr Receive Processor will only operate with a Prisma II bdr Transmit Processor or the Model 6940/6944 bdr 2:1 Enhanced Node Digital Module. It is not compatable with previous Prisma bdr products.

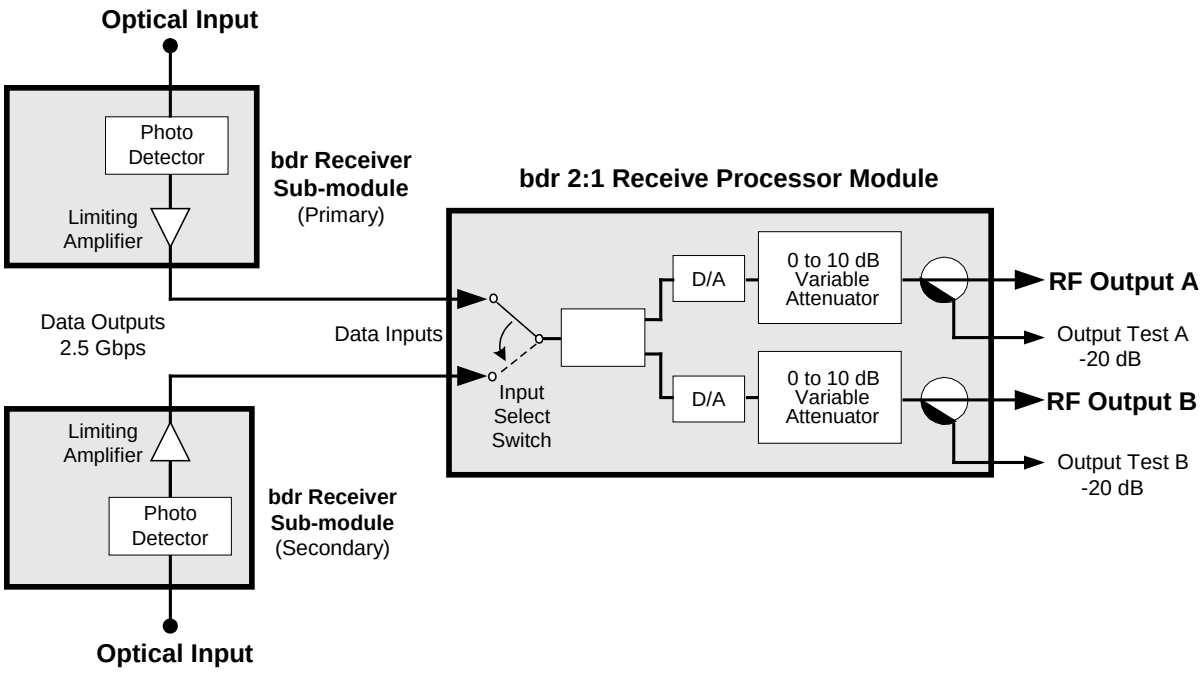
Optical Input

Optical input connectors for the Prisma II Receive Processor are SC/APC.

> ⚠ **WARNING:**
>
> **Avoid damage to your eyes! Do not look into any optical connector while the system is active. Even if the unit is off, there may still be hazardous optical levels present.**

Receive Processor Block Diagram

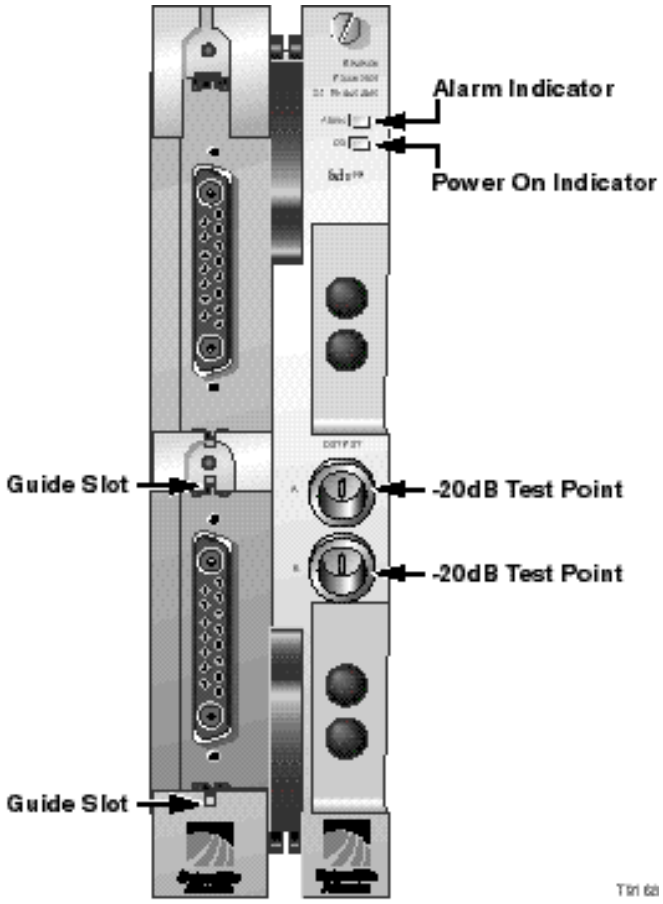
A block diagram of the Prisma II bdr Receive Processor with two Prisma II bdr Optical Receiver sub-modules is shown below.



The Front Panel of the Receive Processor

Illustration

The front panel of the Prisma II bdr Receive Processor is shown below.



Receive Processor Front Panel Features

The features of the front of the Prisma II bdr Receive Processor are shown below.

Part	Function
Alarm Indicator	Illuminates or blinks when an alarm condition occurs
Power On Indicator	Illuminates when power is supplied to the module
-20 dB Test Point	Provides a –20 dB sample of the RF output signal
Prisma II bdr Optical Receiver Sub-module insertion guide slots	Guides the bdr optical receiver sub-module into processor

The Front Panel of the Receive Processor, Continued

Optical Receiver Sub-Module

The Prisma II bdr Receive Processor houses one or two bdr optical receiver sub-modules. The receiver detects high-speed 2.5 Gbps optical signals and converts it to a PECL differential bit stream. This signal is transported to the receive processor. The optical receiver sub-modules incorporate a single bicolor LED. The LED is an indicator of optical input and DC power presence to the receiver.

The bicolor LED status is shown in the table below.

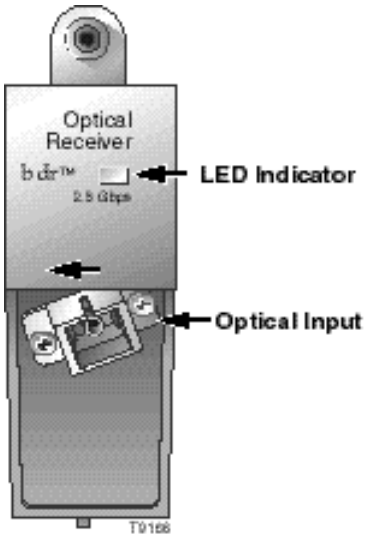
* Input light must be modulated. The LED may illumate red even in the presence of CW light.

Condition	LED Status/Color
DC Power OFF/Optical Input OFF	OFF
DC Power ON/ Optical Input OFF	Red
DC Power ON/Optical Input ON*	Green
DC Power OFF/Optical Input ON	OFF

The Front Panel of the Optical Receiver Sub-Module

Illustration

The front panel of the Prisma II bdr Optical Receiver sub-module is shown below.



Optical Receiver Sub-Module Front Panel Features

The features of the front of the Prisma II bdr Optical Receiver sub-module are shown below.

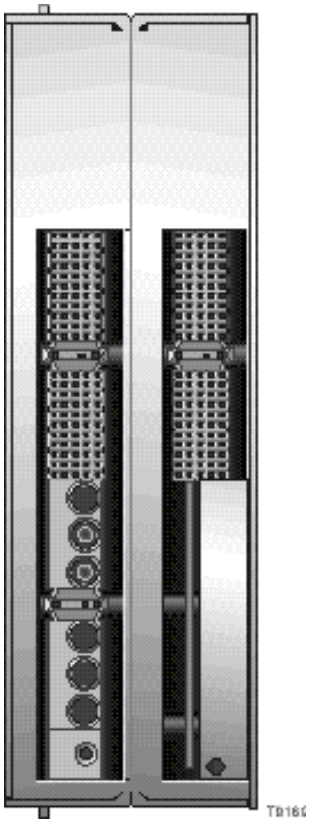
Part	Function
LED Indicator	Illuminates red when an alarm condition occurs, illuminates green when operation is normal.
Optical Input	Connects the input optical fiber to the receiver.

The Back Panel of the Receive Processor

Back Panel Connectors

Blind-mate connectors make it easy to install the Prisma II Receive Processor in the Prisma II Chassis. The chassis provides:

- RF signal output connection
- Electrical power input connection
- Alarm communications connection
- Status-monitoring communications
- Communications and control connections



Power and Communications Connector

The power and communications connector on the back of the module mates with a connector inside of the chassis, and supplies power from the chassis to the processor. The 110-pin connector also routes alarm and status-monitoring information from the processor to the Prisma II Chassis.

Configuration Overview

Overview

The Prisma II bdr Receive Processor is shipped from the factory with operational parameters set to factory defaults. However, you may choose to configure the operating parameters so that they are best suited for your application.

Configuration and Monitoring Methods

The Prisma II bdr Receive Processor may be controlled using one of three different methods.

- The Prisma II Intelligent Communications Interface Module (ICIM)

  If an ICIM is installed in the Prisma II Chassis, it may be used to configure and monitor Prisma II application modules within its domain. For instructions on operating this module using the ICIM, refer to Chapter 3, **Operation Using the ICIM**.

- The Local Craft Interface (LCI) software

  The Local Craft Interface (LCI) software running on a locally connected PC may be used to configure operating parameters of Prisma II modules. For instructions on operating this module using the LCI software, refer to Chapter 4, **Operation Using LCI**.

- Cisco's Transmission Network Control System (TNCS) software

  If the ICIM is installed, TNCS software may be used to configure and monitor all functions of the Prisma II modules. For instructions on operating this module using TNCS, see the manual that was shipped with the TNCS software, *TNCS Administrator Software User's Guide*, part number 730201.

Configuration Summary

Using any of the above methods, you can configure the following parameters.

- Configure the number of receivers to be used
- Enable or disable redundant mode
- Enable default or forced receiver switching
- Control muting and gain of RF outputs A and B

For detailed information on configuring this module, see Chapter 3, **Operation Using the ICIM,** or Chapter 4, **Operation Using LCI**.

Chapter 2
Installation

Overview

Introduction

This chapter contains instructions, site requirements, equipment, and tools needed to install the Prisma II bdr 2:1 Redundant Receive Processor and Prisma II bdr Optical Receiver sub-modules.

Qualified Personnel

⚠ **WARNING:**
Allow only qualified personnel to install, operate, maintain, or service this product. Otherwise, personal injury or equipment damage may occur.

In This Chapter

This chapter contains the following topics.

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Site Requirements	2-3
Connecting the RF Cables to the Chassis	2-6
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Connecting Optical Cables	2-9
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Preparing for Installation

Overview

Before you begin, make sure that all modules are in good condition and that you have the tools and equipment listed here.

Unpacking and Inspecting the Module

As you unpack the module, inspect it for shipping damage. If you find any damage, contact Cisco. Refer to Chapter 6 for information on contactingCisco's Technical Assistance Center.

Equipment and Tools Needed

Before you begin, make sure that the module is in good condition. You need the following equipment and tools to install these modules.

You need . . .	**To . . .**
a Prisma II Chassis with power supply	provide housing, power and input/output connections to the module.
3/8-in. flat-blade screwdriver	secure the module in the chassis.
two optical cables with connectors	carry optical input signals.
open end wrench	secure cable connectors.

Site Requirements

Overview

Before you begin, make certain that your installation site meets the requirements discussed in this section.

Access Requirements

Ensure that only authorized personnel have access to this equipment. Otherwise, personal injury or equipment damage may occur.

> ⚠ **WARNING:**
> **Use this product in locations that restrict access to all persons who are not authorized. Otherwise, personal injury or equipment damage may occur.**

Equipment Rack

To install this module, your site must be equipped with an Electronics Industry Association (EIA) equipment rack that properly houses the Prisma II Chassis with proper spacing for air circulation. For instructions on installing the chassis in the rack, refer to *Prisma II Chassis Installation and Operation Guide*, part number 713375.

Operating Environment

> ⚠ **CAUTION:**
>
> **Avoid damage to this product! Operating this product above the maximum operating temperature specified voids the warranty.**

Follow these recommendations to maintain an acceptable operating temperature.

- Temperature inside the rack must be between -40°C and 65°C (-40°F and 149°F).
- Keep cooling vents clear and free of obstructions.
- Provide ventilation, as needed, using one or more of the following methods.

  - air-deflecting baffles

  - forced-air ventilation

  - air outlets above enclosures

Power Requirements

The Prisma II modules receive their electrical power from the Prisma II Chassis. The module may be installed with the chassis powered-up.

Space Requirements

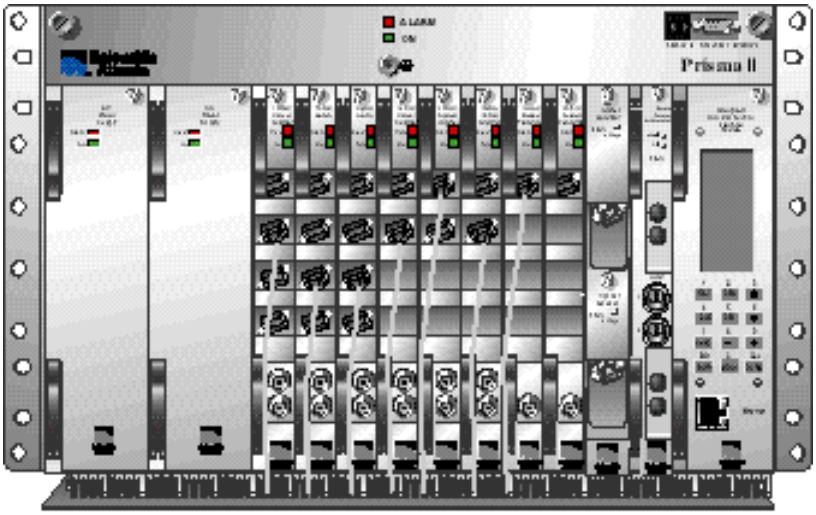
The Prisma II bdr Receive Processor is a double-wide module. It is usually installed in slots 5 through 16. Slots 1 through 4 are usually reserved for the power supplies. Slots 15 and 16 are reserved for the Intelligent Communications Interface Module (ICIM), if installed. If an ICIM is not installed, this or any other module could be installed in these slots. Slot 2 and slot 4 are reserved for an internal power supply if installed. If an internal power supply is not installed here, any other single-wide module could be installed in these slots.

Chassis Style

The Prisma II Chassis may be configured as front access or rear access depending on the system you have purchased. Power, RF input or output, and other connectors may be located on either the front or rear of the Prisma II Chassis. Connections to the chassis serve the same function and are made in the same manner regardless of the location of the connectors or chassis configuration.

Rear Access Chassis Illustration

The Prisma II Chassis may be configured as front access or rear access depending on the system you have purchased. The rear access chassis is shown here.



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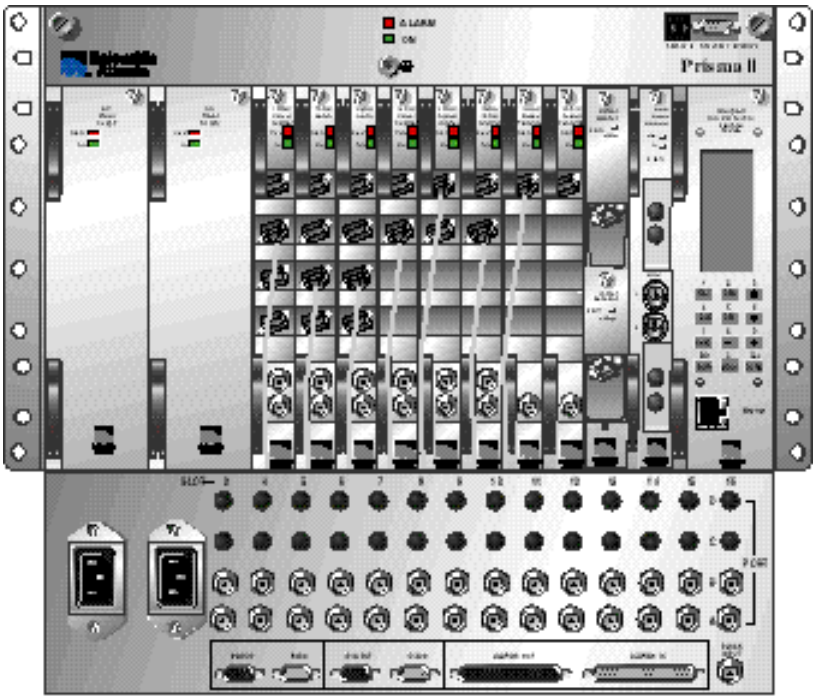
Front Access Chassis Illustration

The front access chassis is shown here.



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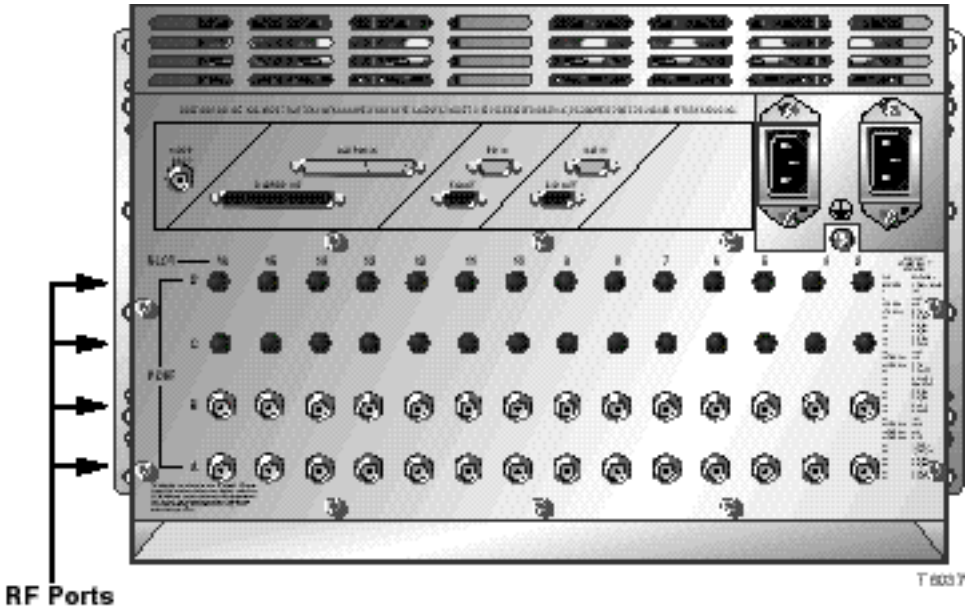
Connecting the RF Cables to the Chassis

RF Cable Connection Procedure

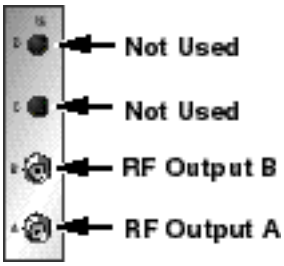
Follow this procedure to make the RF cable connections for the receive processor.

1. Locate the RF ports of the corresponding slot where the Prisma II bdr Receive Processor is to be installed.



2. Attach one 75 ohm RF cable to Port A connector (RF output A) of the corresponding slot where the module is to be installed. This is the channel A RF output connection. See the illustration below.

3. Attach the other 75 ohm RF cable to the Port B connector (RF output B) of the corresponding slot where the module is to be installed. This is the channel B RF output connection.



4. Route the two RF cables to the appropriate RF destinations.

5. If F-connectors are installed, use a 7/16-in. open-end wrench to secure both cables to the connectors at the chassis.

6. Proceed to the next section, **Installing the Receive Processor in the Chassis**.

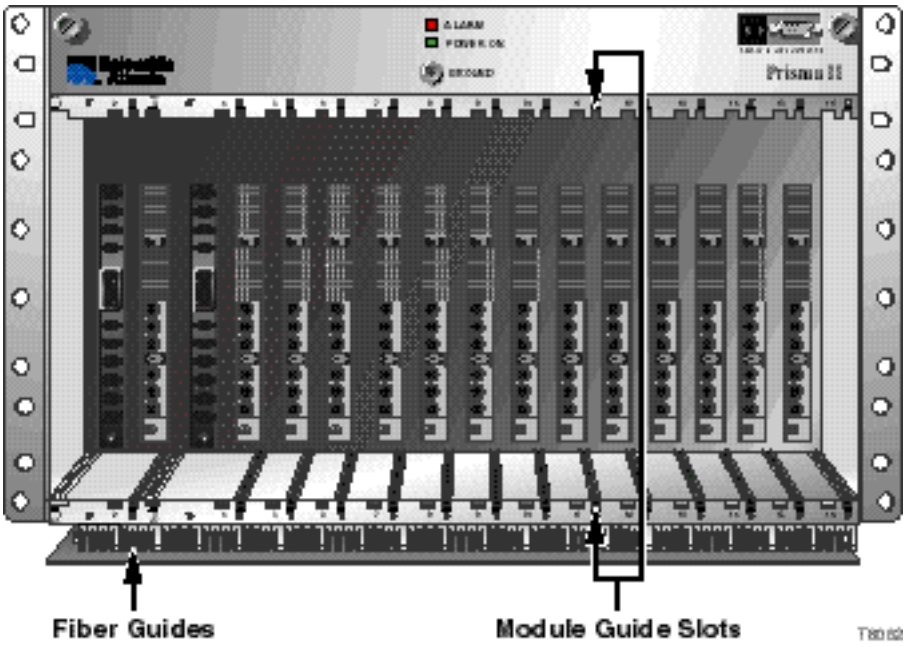
Installing the Receive Processor in the Chassis

Installing the Receive Processor

Important: For best results, install the Prisma II bdr Receive Processor into the Prisma II Chassis before installing the receiver sub-modules into the processor.

To install the receive processor in the chassis, follow these steps.

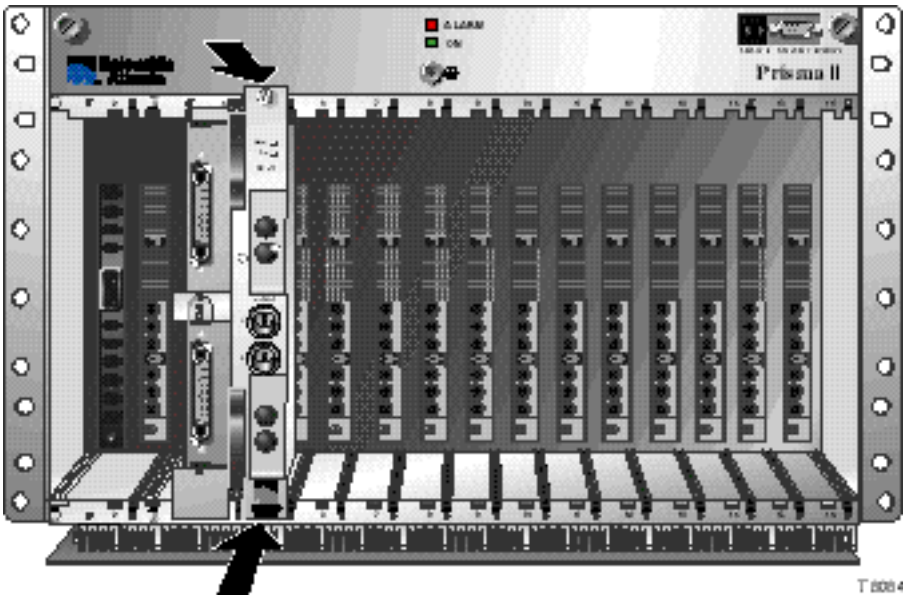
1. Locate the fiber guides at the bottom of the chassis and the module guide slots inside the chassis as shown in the following illustration.



2. Align the ridges on the top and bottom of the processor with the module guide slots located on the chassis. Module ejectors must be fully extended when inserting the processor.

3. Gently slide the processor into the chassis until you feel the power and communications connections on the back of the module join connectors on the backplane. Use the module ejectors on the left side of the processor to lock it in place.

   Note: Do not force or bang the module into the chassis. If properly aligned, it should slide in with minimal force.

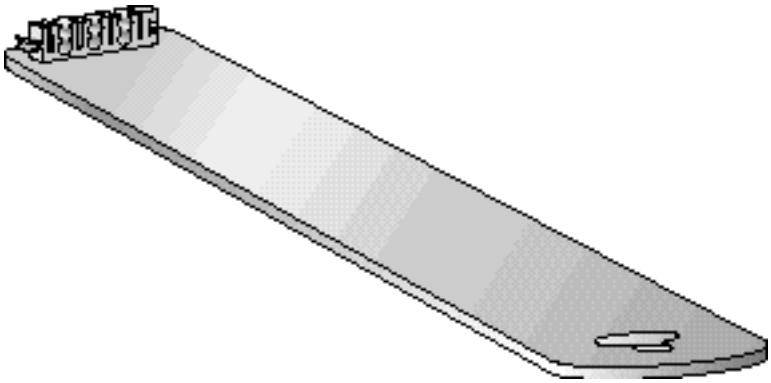


4. Hand-tighten the screw at the top of the processor, to secure it in the chassis. Use a 3/8-in. flat-blade screwdriver to secure. **Do not over tighten**.

Connecting Optical Cables

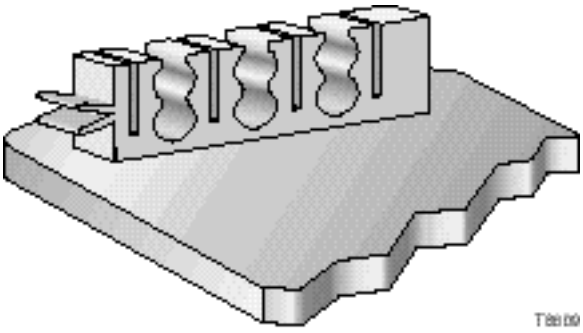
The Fiber Fish Tool

The Fiber Fish tool that was shipped along with the Prisma II Chassis is used to pull an optical cable from the rear of the chassis to the front of the chassis so the optical cables can be connected to optical connectors on the front panel of the Prisma II modules.



The Fiber Fish Tool Hook

At the end of the Fiber Fish tool is a small hook that allows you to hold an optical cable so that you can pull it through to the front panel of the Prisma II Chassis.

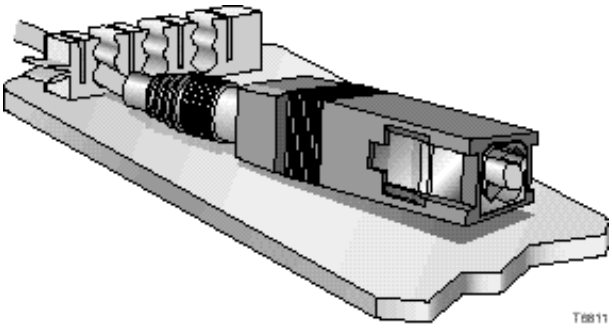


Using the Fiber Fish to Pull the Optical Cable to the Prisma II Module

Important: Use a protective cap to protect the end of the optical fiber while the cable is being fished (or handled in general).

To pull the optical cable to the module, follow these procedures.

1. Insert the Fiber Fish tool through the slot located just above the bottom of the chassis.
2. At the rear of the chassis, locate the appropriate optical cable.
3. Insert the optical cable into notched area of the Fiber Fish tool as shown.



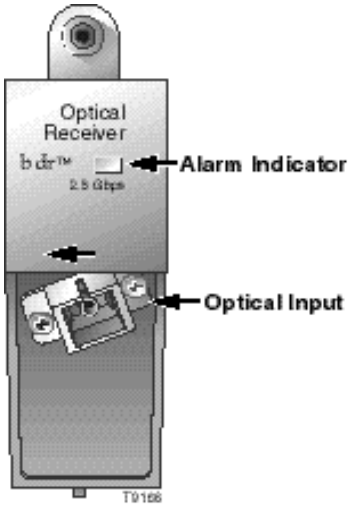
4. At the front of the chassis, pull the Fiber Fish tool (with cable attached) to the front of the chassis.
5. Disengage the optical cable from the Fiber Fish tool and remove the protective cap.
6. Attach the optical cable to the appropriate connector on the processor front panel. See **Cable Connection Procedure**.

Cable Connection Procedure

Important: This procedure assumes that the Prisma II bdr Optical Receiver sub-module has not been installed in the Prisma II bdr Receive Processor.

Follow this procedure to make the optical cable connections for each receiver to be installed.

1. Attach one end of the optical cable to the optical input connector located on the front of the receiver sub-module.



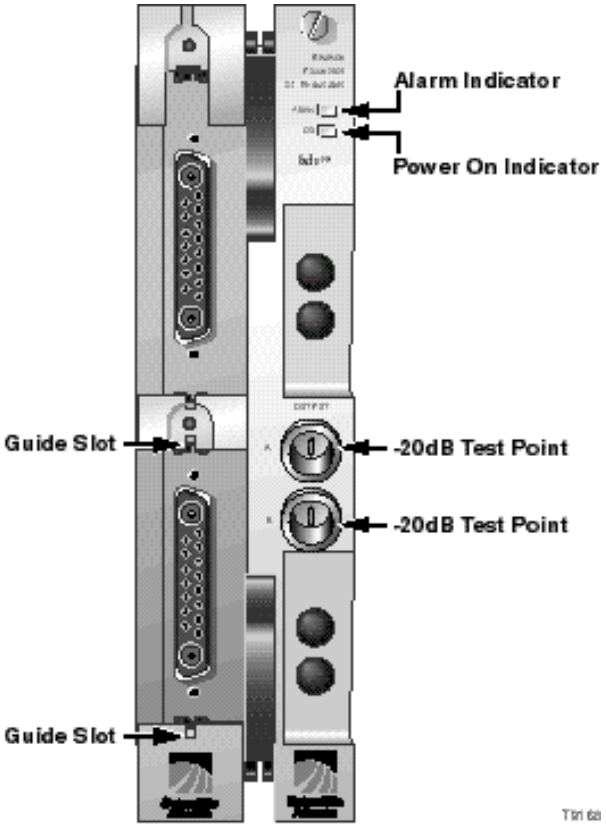
2. Route the other end of the optical cable to the appropriate optical source.
3. Repeat steps 1 and 2 for receiver sub-module 2.

Installing Sub-Modules in the Processor

Installing the Sub-Module

Important: For best results, install the Prisma II bdr Receive Processor into the Prisma II Chassis before installing the receiver sub-modules into the processor. To install the sub-module in the processor, follow these steps.

1. Align the ridges on the top and bottom of the receiver sub-module with the guide slots located on the processor.



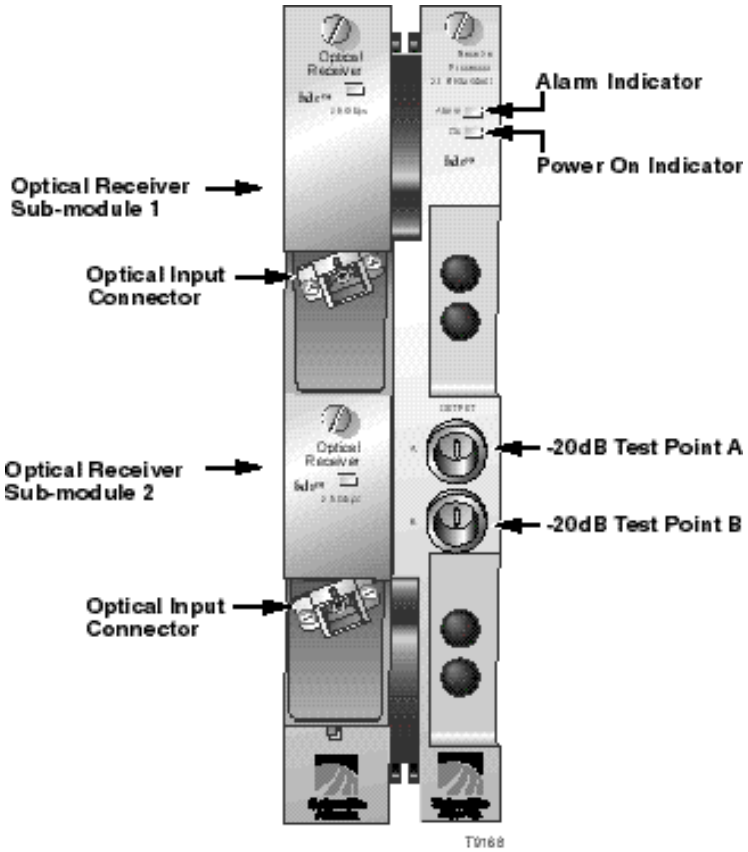
2. Gently slide the sub-module into the receive processor until you feel the power and communications connections on the back of the module join connectors on the processor. Use the thumbscrew on the top of the sub-module to lock the sub-module in place.

3. Repeat steps 1 and 2 for each receiver sub-module.

4. This completes installation of the Prisma II bdr Receive Processor and the Prisma II bdr Optical Receiver sub-module(s).

Sub-Modules Installed

After you have installed both Prisma II bdr Optical Receiver sub-modules into the bdr Receive Processor, the assembly will appear as shown below.



Communications Connections

ICIM IN/ICIM OUT and EM IN/EM OUT Cables

The Prisma II platform allows several chassis to be interconnected. These connections allow the modules to communicate with the ICIM and also allow an ICIM to communicate with TNCS software.

Chassis with an ICIM are connected in series to each other with an ICIM via EM IN/OUT connectors. All other chassis within each ICIM's domain are connected in series via the ICIM IN/OUT connector. For more information on chassis communications, see **Communications Connections** in Chapter 2 of *Prisma II Chassis Installation and Operation Guide*, part number 713375**.**

The cable required for the ICIM IN/ICIM OUT chassis connection is identical to the EM IN/EM OUT cable. This cable is a standard "off the shelf" serial extension cable, DB9 Female to DB9 Male. This cable can be purchased at your local computer store.

The Cisco part number for a 6-foot DB9 Female to DB9 Male extension cable is 180143.

The connectors are a Serial – 9 pin D-shell (EIA 574/232).

EM IN/EM OUT to TNCS Cable

The connection from the Prisma II Chassis to the TNCS connection requires a special cable kit available from Cisco. Prisma II Cable Kit, part number 738686, includes the following cables:

1ea Prisma II Cable Assembly

1ea DB9 to DB9 Cable Assembly, 10 foot

4ea DB9 to DB9 Cable Assembly, 3 ½ foot

ICIM IN/ICIM OUT Connections

The Prisma II platform allows multiple chassis to be connected for module to ICIM communications. This connection is required for all chassis intended to be controlled by a given ICIM.

Note: An ICIM can control a maximum of 82 modules. Depending on your application, this is typically 6 or 7 chassis to a rack. Do not exceed these limits.

The chassis has two DB9 connectors for the ICIM to module connections. ICIM OUT is a male connector and ICIM IN is a female connector.

ICIM IN/ICIM OUT Connection Procedure

To make ICIM IN/ICIM OUT connections, follow these steps.

1. Connect the DB9 to DB9 cable, part number 180143 or equivalent, from the ICIM OUT of the chassis containing the ICIM to the ICIM IN connector of the second chassis.
2. Connect a DB9 to DB9 cable from the ICIM OUT of the second chassis to the ICIM IN of the third chassis.
3. Continue this "daisy-chain" connection until all desired chassis are connected.

Notes:

- All chassis connected in this "daisy-chain" must be powered and have a fan tray installed. A chassis that is connected but is either not powered, or does not have a fan tray installed will cause faulty operation of the ICIM.
- All chassis connected in this "daisy-chain" must have a unique chassis I.D. number.

EM OUT / IN Connections

The Prisma II platform allows the interconnection of multiple ICIMs located in separate chassis. This connection is required for all ICIMs that you intend to monitor using TNCS and must be completed between each chassis containing an ICIM.

The back panel of the chassis has two DB9 connectors for the TNCS to ICIM connection. The EM OUT is a male connector and the EM IN is a female connector.

EM OUT / EM IN Connection Procedure

To make EM IN/EM OUT connections, follow these steps.

1. A connection is required from the first chassis containing an ICIM to the TNCS system. The Prisma II Cable Kit (738686) is required for this connection. Connect this cable to the EM IN of the first chassis containing an ICIM.
2. Utilizing a DB9 to DB9 cable (180143 or equivalent), connect the EM OUT of the first chassis to the EM IN of a second chassis containing an ICIM.
3. Continue this "daisy-chain" connection until all chassis containing an ICIM are connected.

Chapter 3
Operation Using the ICIM

Overview

Introduction

The procedures in this chapter apply if you are using the Prisma II Intelligent Communications Interface Module (ICIM) to configure and operate the Prisma II bdr 2:1 Redundant Receive Processor.

Scope of This Chapter

Included in this chapter are descriptions of the ICIM front panel and the ICIM LCD, and detailed procedures on how to use the software menus to configure the receive processor.

In This Chapter

This chapter contains the following topics.

Topic	See Page
ICIM Introduction	3-2
The ICIM Front Panel	3-3
The ICIM Password	3-6
Operating the ICIM	3-12
Monitoring Operating Status Using the ICIM	3-16
Configuring the Prisma II bdr Receive Processor Using the ICIM	3-19
Checking bdr Receive Processor Alarms Using the ICIM	3-22
Checking Manufacturing Data Using the ICIM	3-27
Using the ICIM to Save the Configuration	3-30

⚠ **WARNING:**

Avoid damage to your eyes! Do not look into any optical connector while the system is active. Even if the unit is off, there may still be hazardous optical levels present.

ICIM Introduction

ICIM Function

The ICIM functions as the module-user interface as well as the interface between the Prisma II modules and the Transmission Networks Control Systems (TNCS) software. The ICIM allows local module configuration and status monitoring for up to 82 modules located in multiple chassis. The ICIM features easy-to-use software that is navigated using the numeric keypad and the LCD display.

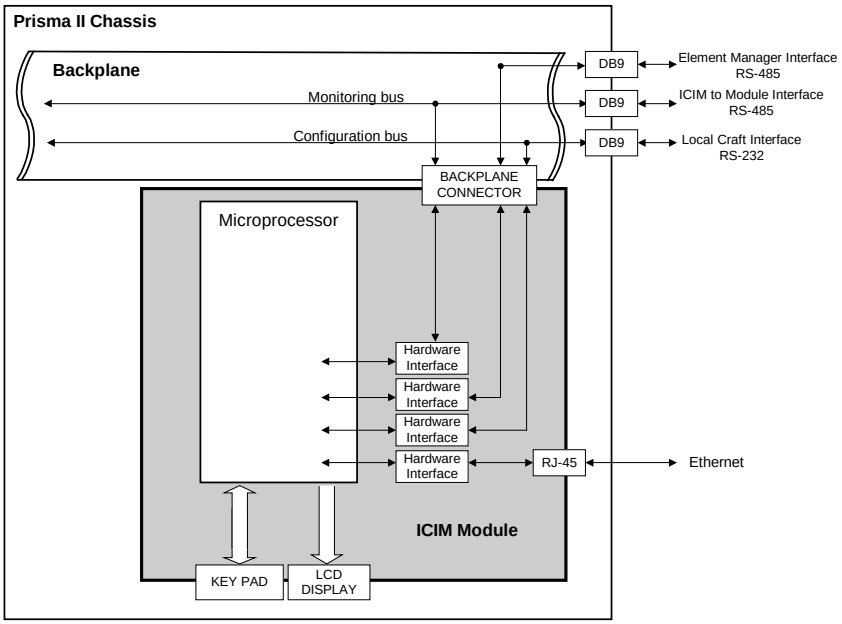
Important: Do not operate any Prisma II Chassis without a fan tray installed properly. If a fan tray is not installed in the Prisma II Chassis, the ICIM will not communicate with any of the modules in that chassis.

Important: All chassis connected in a "daisy-chain" must be powered and have a fan tray installed. A chassis that is connected but is either not powered, or does not have a fan tray installed will cause faulty operation of the ICIM.

Important: All chassis connected in this "daisy-chain" must have a unique chassis I.D. number.

ICIM Block Diagram

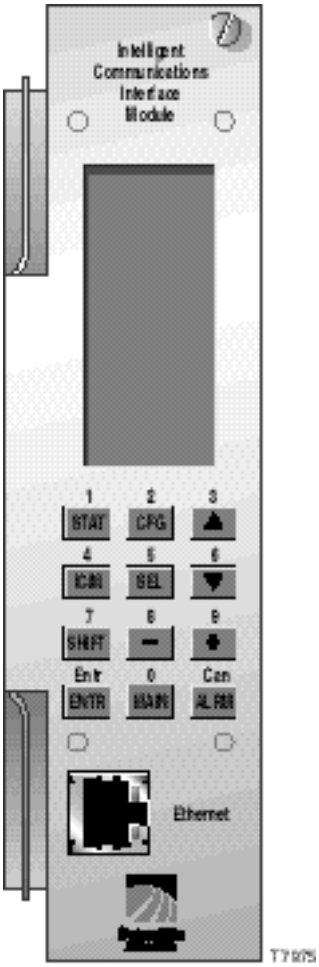
The ICIM is illustrated in the block diagram below.



The ICIM Front Panel

ICIM Front Panel Illustration

The following illustration shows the front panel of the ICIM.



ICIM Front Panel Features

Part	Function
LCD screen	Displays the ICIM menus, alarms, and status information.
12-key numeric keypad	Used to navigate the ICIM's menus and configure the application modules.
Ethernet Connector	Directly connects the ICIM to a network (future release).

The ICIM LCD

The ICIM LCD is the operator's visual link to the ICIM software. When the ICIM is installed and powered up, the **MAIN** menu is displayed on the LCD. The following illustration shows the ICIM's **MAIN** menu.

```
    MAIN
----------
   Offline
----------
 Modules
     15
----------
   Alarms
      0
----------
   Scroll
----------
   Module
Shelf
Slot
```

The ICIM Key Pad

The ICIM keypad has twelve keys that allow you to input and monitor operational parameters. The table below lists each key and a brief description of its function.

Button	Function
STAT	Displays status information for the selected module
CFG	Displays configuration information for the selected module
ALRM	Displays all of the parameters in alarm for a selected module
▲	Moves the menu selection area up
▼	Moves the menu selection area down
SEL	Selects the highlighted parameter
ICIM	Displays ICIM module information such as firmware version, serial number, and baud rate
SHIFT	Shifts function of a keypad button to the function or number label just above that button
−	Decreases numerical readings of selected configuration parameters
+	Increases numerical readings of selected configuration parameters
ENTER	Enters input data (if valid)
MAIN	Exits the current menu and displays the MAIN menu

The ICIM Password

Using the ICIM Password

The ICIM allows you to send configuration commands, to change alarm thresholds, and restore factory default settings in Prisma II modules. In order to ensure that no unauthorized changing of these parameters occurs, you have the option of using a password protection system. Password authorization only applies to the configurable parameters. Status and alarm information is always available on the ICIM regardless of password implementation.

The password system consists of:

- The User password **– User Psw.** A user-settable password. The User password is created, entered, and changed by the system operator(s). The password must be exactly eight digits using only the 0-9 number keys.
- The ability to change an existing User password - **Change Psw**.
- The ability to disable the User password function - **Disable Psw**.
- A service password - **SA Psw.** Used only by Cisco personnel.

Important: If you only want to monitor status and alarm data, simply skip the password function when it appears on the ICIM menu. You can access all module status and alarm information without a password. However, once a user password is entered, you are required to enter it every time you want to set configurable parameters to any module controlled by that ICIM. See **Expired Password or Inactive Password Messages** and **Entering the User Password** that follow**.**

Accessing the Password Function

The Password menu allows you to create, enter, change, or disable the user password. It also allows service personnel to use the Cisco password. To access the Password menu, follow the steps below.

1. Press the [ICIM] key.
2. Use the [▼] key to scroll down until **Password** is highlighted.
3. Press the [SEL] key. The Password menu is displayed. **User Psw** is highlighted.

```
   MAIN
----------
  Offline
----------
 Modules
     0
  Alarms
     0
----------
  Scroll
----------
  Module
Shelf
 Slot
```

```
   ICIM
----------
Shelf    7
Slot    15
----------
 Mfg Data
----------

 Password

----------
Update Adr
```

```
   ICIM
----------
Shelf    7
Slot    15
----------
 Mfg Data
----------

 Password

----------
Update Adr
```

```
   ICIM
----------
Shelf    7
Slot    15
----------
 User Psw
----------
  SA Psw
----------
Change Psw
----------
 Disable
   Psw
```

Expired Password or Inactive Password Messages

The entry of a valid User or SA password allows changes to system parameters for a period of 10 minutes. If more than 10 minutes has passed since your last keystroke, and you attempt to make any changes to system parameters, the menu displays **Psw Expired.** If, after more than 10 minutes, you attempt to disable the password the menu displays **Failed, Password Not Active**. If either of these messages is displayed, you are required to re-enter the password. To re-enter the password, follow the procedure in the section **Entering or Enabling the User Password**.

Using Your Password for the First Time

Important: To enter a User password in an ICIM that has never had the User password function implemented, follow the steps in the procedure below.

1. Access the password function as shown in **Accessing the ICIM Password Function**.
2. Use the [▼] key to scroll down until **Change Psw** is highlighted.
3. Press the [SEL] key. **Change Psw/Shift Off** is displayed.
4. Press the [SHIFT] key to display **Shift On -** then enter 8 digits as your User password, using the 0-9 number keys. If at any time you input a digit that is incorrect or you wish to change a digit, use the **CAN** (Cancel) function by pressing the [ALRM] key to delete that digit.
5. Press the [ENTER] key. The ICIM updates the display to show if your password entry was accepted or rejected. If the entry was accepted, you are able to return to the MAIN menu.
6. If the password you entered is rejected, press the [SHIFT] key to return to the password function, then re-enter an 8-digit password using only the 0-9 number keys. Press the [ENTER] key.

   Reasons for a User password to be rejected include:
   - Entering more than 8 digits for the password
   - Pressing keys other than the 0-9 number keys
   - Entering an incorrect password if a valid password has been entered

Re-Entering a User Password

If more than 10 minutes has passed since your last keystroke, and you attempt to make any changes to system parameters, the menu displays **Psw Expired.** If you attempt to disable the password, the menu displays **Failed, Password Not Active**. When either of these messages is displayed, you must re-enter the User password as outlined in the steps below.

1. Access the password as described in **Accessing the Password Function**.
2. Press the SEL key. **User Psw/Shift Off** is displayed.
3. Press the SHIFT key to display **Shift On** - then enter the 8 digits of the User password, using the 0-9 number keys. If at any time you input a digit that is incorrect or you wish to change a digit, use the **CAN** (Cancel) function by pressing the ALRM key to delete that digit.
4. Press the ENTER key. The ICIM updates the display to show if your password entry was accepted or rejected. If the entry was accepted, you are able to return to the MAIN menu.
5. If the password you entered is rejected, press the SHIFT key to return to the password function, then re-enter your password. Press the ENTER key.

   Reasons for a User password to be rejected include:
   - Entering more than 8 digits for the password
   - Pressing keys other than the 0-9 number keys
   - Entering an incorrect password if a valid password has been entered

```
ICIM
----------
Shelf     7
Slot     15
----------

User Psw

----------

Shift Off
```

```
ICIM
----------
Shelf     7
Slot     15
----------

User Psw
********
----------

Shift On
```

```
ICIM
----------
Shelf     7
Slot     15
----------

User Psw
1234****
----------

Rejected

Shift Off
```

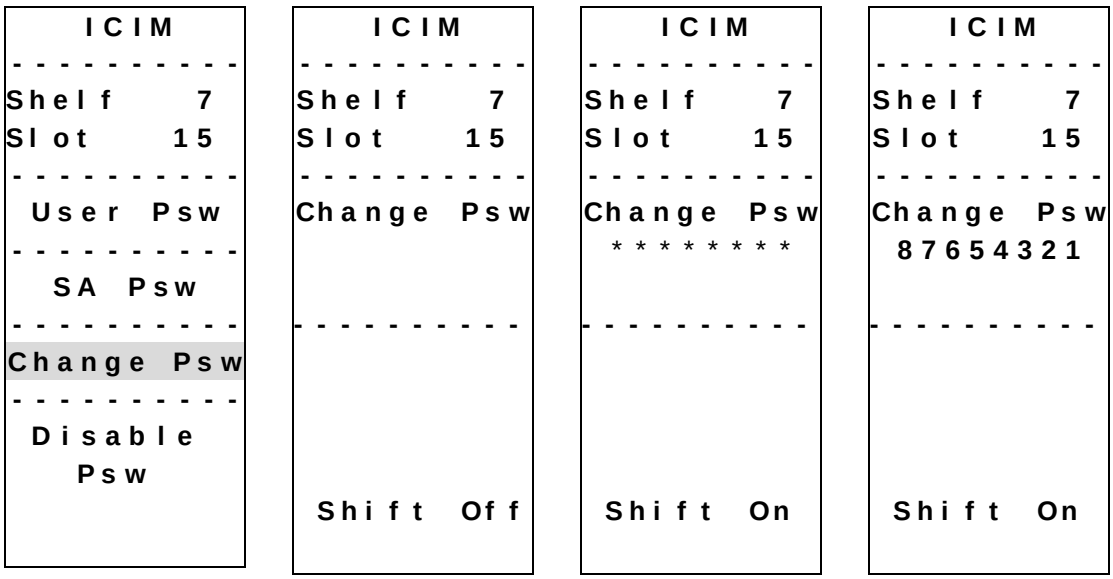
```
ICIM
----------
Shelf     7
Slot     15
----------

User Psw
12345678
----------

Accepted

Shift Off
```

Changing the User Password

Important: The current User password must be active prior to changing it. If the current password has expired (more than 10 minutes have passed since your last keystroke), you must re-enter the current password before changing to a new one.

Follow the steps below to change the User password.

1. Access the password function as shown in the procedure **Accessing the Password Function**.
2. Use the [▼] key to scroll down until **Change Psw** is highlighted.
3. Press the [SEL] key to select **Change Psw**.
4. When **Change Psw /Shift Off** is displayed, press the [SHIFT] key to display **Shift On** - then enter the 8 digits of your new password, using the 0-9 number keys. If you input a digit that is incorrect or wish to change a digit, use the **CAN** (Cancel) function by pressing the [ALRM] key to delete that digit.
5. Press the [ENTER] key to. The ICIM updates the display to show if your password entry was accepted or rejected. If the entry was accepted, you are able to return to the MAIN menu.
6. If the new password you entered is rejected, press the [SHIFT] key to return to the password function, then re-enter the new 8-digit password. Press the [ENTER] key.



Disabling the User Password

If a User password has been entered, you may disable it at any time. However, the current password must be active prior to disabling it. If the current password has expired (more than 10 minutes have passed since your last keystroke), you must re-enter the current password before disabling it.

1. Press the [ICIM] key.
2. Use the [▼] key to scroll down until **Password** is highlighted.
3. Press the [SEL] key.
4. Use the [▼] key to scroll down until **Disable Psw** is highlighted.
5. Press the [SEL] key to select **Disable Psw**.
6. If the current password is active, the menu displays **Password Is Now Disabled**. You can now make changes to parameters without any password.
7. If the current password has expired (more than 10 minutes have passed since your last keystroke), the menu displays **Failed, Password Not Active**. You must re-enter the current password and then repeat this procedure.

```
    ICIM
----------
Shelf     7
Slot     15
----------
 User Psw
----------
  SA Psw
----------
Change Psw
----------
 Disable
   Psw
```

```
    ICIM
----------
Shelf     7
Slot     15
----------

----------

 Password
 Is Now
 Disabled

 Shift Off
```

```
    ICIM
----------
Shelf     7
Slot     15
----------

----------

  Failed,
 Password
Not Active

 Shift Off
```

Operating the ICIM

Using the ICIM

Once the module is installed as described in Chapter 2, it runs without the aid of an operator. Unless alarms are generated or your system configuration changes, you should not need to make any adjustments to the module beyond the initial setup.

Accessing the ICIM LCD Contrast

To access the ICIM LCD contrast control from the MAIN menu, press the [ICIM] key. Use the [+] key to increase or the [−] key to decrease ICIM display contrast.

The MAIN Menu

A few seconds after power-up, the MAIN menu (shown below) is displayed. Press the [SEL] key to select the specific option.

Display	Description
Offline	Indicates TNCS communication status with the ICIM
Modules	Indicates the number of modules in the ICIM domain.
Alarms	Displays the number of modules that are in alarm. Selecting this option allows scrolling through all modules in alarm condition.
Scroll	Allows scrolling through all modules in the ICIM domain.
Module **Shelf** **Slot**	Allows selection of any specific module in the ICIM domain.

```
     MAIN
----------
   Offline
----------
 Modules
      15
----------
   Alarms
        0
----------
   Scroll
----------
   Module
Shelf
Slot
```

Prisma II ICIM Menu

To display the ICIM menu, press the ICIM key. The ICIM menu (shown below) is displayed. Press the SEL key to select the specific option.

Display	Description
Shelf **Slot**	Displays the location of the ICIM module.
Mfg Data	Displays manufacturing data about the ICIM.
Password	Allows you to enter, change, or disable a system password. See **The ICIM Password** earlier in this chapter.
Update Adr	If the Chassis ID number switch has been changed, you must highlighted the **Update Adr** menu and press the SEL key for the ICIM to recognize the change.

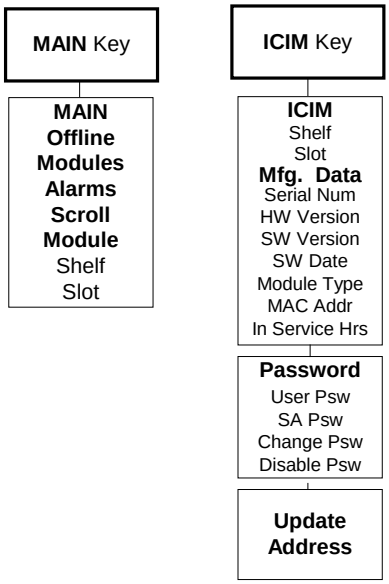
```
    ICIM
----------
Shelf     7
Slot     15
----------
 Mfg Data
----------

 Password

----------
Update Adr
```

```
    ICIM
----------
Shelf     7
Slot     15
----------
 Mfg Data
----------

 Password
----------
Update Adr
```

```
    ICIM
----------
Shelf     7
Slot     15
----------
 Mfg Data
----------

 Password

----------
Update Adr
```

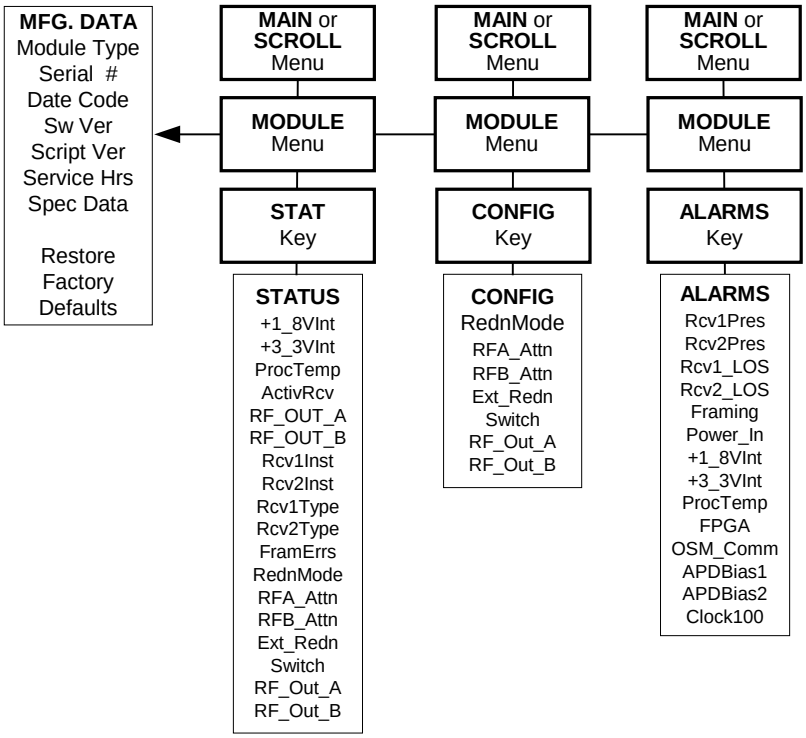
Prisma II MAIN Menu and ICIM Menu Structure

Pressing the MAIN key initiates the MAIN software menu. Pressing the ICIM key initiates the ICIM software menu. The MAIN and ICIM software structures are shown below.



Prisma II bdr Receive Processor Software Menu Structure

From the MAIN or SCROLL menus, you can navigate to the Prisma II bdr Receive Processor MODULE menu. From the MODULE menu, press the STAT, CFG, or ALRM key to display the desired parameter menu.



Monitored Parameters

You can monitor the status of operating parameters. The table below describes the monitored parameters for this module.

Parameter	Units	Function
+1_8VInt	V	1.8 voltage level internal to the receiver.
+3_3VInt	V	3.3 voltage level internal to the receiver.
ProcTemp	°C	Module temperature.
ActivRcv	1 or 2	Which receiver sub-module is in use.
RF_OUT_A RF_OUT_B	On Off	Indicates whether the actual output of RF channels A and B are **On** or **Off.**
Rcv1Inst Rcv2Inst	Inst	Indicates if receiver sub-module is installed.
Rcv1Type Rcv2Type	1 or 2	Indicates what type receiver sub-module is installed. **1** = standard range receiver - PIN **2** = extended range receiver - APD
FramErrs	Count	The number of frame alignment word errors.
RednMode	Yes or No	Indicates the redundancy mode for a second receiver in the same processor. If **Yes,** the receiver acts as a backup to the primary receiver. If **No**, redundancy is off.
RFA_Attn RFB_Attn	dB	Indicates amount of attenuation has been configured for the RF outputs of each channel.
ExtRedn	Yes or No	External Redundancy Mode. If **Yes,** this processor acts as a backup to another processor until an external line indicates the primary processor has failed. If **No**, external redundancy is off.
Switch	Deflt_1 Deflt_2 Force_1 Force_2	**Deflt_1** or **Deflt_2** describes default receiver. **Force_1** or **Force_2** forces switch to either receiver 1 or receiver 2.
RF_Out_A RF_Out_B	Auto, On or Off	Indicates how the RF outputs are actually configured. If **On,** the output is not muted. If **Off**, the output is configured to be mute. If **Auto,** the processor has muted the output.

Checking Operating Status

Using the ICIM, you can check the status of all operating parameters of this module. To monitor the module operating parameters, follow these steps.

1. From the MAIN menu, press the [▼] key to highlight **Shelf** and **Slot** fields**.**
2. Press the [SEL] key to address the **Shelf** number. Then press the [+] key or the [−] key to scroll to the number of the desired shelf.
3. Press the [ENTER] key. The **Slot** field is highlighted.
4. Press the [+] key or the [−] key to scroll to the number of the desired slot.
5. Press the [ENTER] key. The information for the module of interest is now displayed on the ICIM menu.
6. Press the [STAT] key.
7. Press the [▲] key or the [▼] key to scroll through the monitored parameters until you find the parameter of interest.
8. Check the status of the desired parameter or select other parameters to monitor. When finished, press the [MAIN] key to return to the MAIN menu.

STATUS Menus

Press [STAT] to select the **STATUS** menu. Some typical **STATUS** menus are shown below.

```
   STATUS
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
 +1_8VInt
1.814  V

 +3_3VInt
3.296  V
   ▲  ▼
```

```
   STATUS
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
 ProcTemp
46.25  C

 ActivRcv
 1
   ▲  ▼
```

```
   STATUS
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
 RF_OUT_A
     Off

 RF_OUT_B
     Off
   ▲  ▼
```

```
   STATUS
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
 Rcv1Inst
    Inst

 Rcv2Inst
    Inst
   ▲  ▼
```

```
  STATUS
----------
Shelf    0
Slot     8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 Rcv1Type
 1

 Rcv2Type
 1
   ▲ ▼
```

```
  STATUS
----------
Shelf    0
Slot     8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 FramErrS
     0 d

 Red_Mode
    Yes
   ▲ ▼
```

```
  STATUS
----------
Shelf    0
Slot     8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 RFA_Attn
0       dB

 RFB_Attn
0       dB
   ▲ ▼
```

```
  STATUS
----------
Shelf    0
Slot     8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 ExtRedn
    No

  Switch
 Deflt_1
   ▲ ▼
```

```
  STATUS
----------
Shelf    0
Slot     8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 RF_Out_A
   Auto

 RF_Out_B
   Auto
```

Configuring Parameters

Using the ICIM, you can configure the parameters listed above. To configure the parameters, follow these steps. CONFIG parameters are listed after these procedures.

1. From the MAIN menu, press the [▼] key to highlight the **Shelf** and **Slot** fields**.**
2. Press the [SEL] key to address the **Shelf** number. Then press the [+] key or the [−] key to scroll to the number of the desired shelf.
3. Press the [ENTER] key. The **Slot** field is highlighted.
4. Press the [+] key or the [−] keys to scroll to the number of the desired slot.
5. Press the [ENTER] key. The initial information for the module of interest is now displayed on the ICIM menu.
6. To configure the module, press the [CFG] key.
7. Press the [▲] key or the [▼] key to scroll through the configurable controls until you find the parameter of interest.
8. Press the [SEL] key to select the highlighted control.
9. Press the [+] key or the [−] key to activate or change the value of the selected control.
10. Press the [ENTER] key to save the changes and return to the MAIN menu.

Configurable Parameters

Configurable parameters for this module include the following.

Parameter	Function	Values	Default
RednMode	Redundancy Mode.	Yes or No	Yes
RFA_Attn RFB_Attn	Attenuates the RF output channels A and B.	0 dB to 10 dB	0 dB
Ext_Redn	External Redundancy Mode. If **Yes** the unit acts as a backup unit to another unit until an external line indicates the other unit has failed.	Yes or No	No
Switch	Determines how the channels are switched. **Deflt_1** and **Deflt_2** will select which is the default receiver. **Force_1** and **Force_2** will force switch to either receiver 1 or receiver 2, regardless of any errors.	Deflt_1 Deflt_2 Force_1 Force_2	Deflt_1
RF_Out_A RF_Out_B	Controls the muting of RF channels A and B. If **Auto,** the CCB determines if the output should be muted (only if in full redundancy mode). If **On,** the output is not muted. If **Off**, the output is muted.	Auto, On, Off	Auto

CONFIG Menus

Some typical Prisma II bdr Receive Processor **CONFIG** menus are shown below.

```
CONFIG
----------
Shelf     0
Slot      8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 RednMode
 RFA_Attn
 RFB_Attn
 Ext_Redn
  Switch
   ▲ ▼
```

```
CONFIG
----------
Shelf     0
Slot      8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 RF_Out_A
 RF_Out_B
```

```
CONFIG
----------
Shelf     0
Slot      8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 RednMode
    Yes
```

```
CONFIG
----------
Shelf     0
Slot      8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 RFA_Attn
0      dB
```

```
CONFIG
----------
Shelf     0
Slot      8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 RFB_Attn
0      dB
```

```
CONFIG
----------
Shelf     0
Slot      8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 Ext_Redn
    No
```

```
CONFIG
----------
Shelf     0
Slot      8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
  Switch
 Deflt_1
```

```
CONFIG
----------
Shelf     0
Slot      8
----------
 bdr 2:1R
 RECEIVE
PROCESSOR
----------
 RF_Out_A
    Auto

 RF_Out_B
    Auto
```

Checking bdr Receive Processor Alarms Using the ICIM

Checking Alarms

If the red ALARM LED on the front panel is blinking a minor alarm condition is indicated. If the red ALARM LED on the front panel is illuminated, a critical alarm conditions is indicated.

Alarms fall into one of the following categories.

- Major low
- Minor low
- Minor high
- Major high

To check alarm conditions follow these steps.

1. From the MAIN menu, press the [▼] key to highlight the **Shelf** and **Slot** fields**.**
2. Press the [SEL] key to address the **Shelf** number. Then press the [+] key or the [−] keys to scroll to the number of the desired shelf.
3. Press the [ENTER] key. The **Slot** field is highlighted.
4. Press the [+] key or the [−] key to scroll to the number of the desired slot.
5. Press the [ENTER] key. The **MODULE** menu is displayed on the ICIM.
6. Press the [ALRM] key. The module alarm conditions are displayed here.
7. Use the [▲] key or the [▼] key to scroll through alarm conditions until the desired alarm is displayed.
8. Monitor the alarm condition(s). Take appropriate action. Verify that all settings and thresholds relating to the alarm indication are set correctly to rule out an unintended alarm.
9. When finished, press the [MAIN] key. The display returns to the MAIN menu.

Alarm Data Display

The alarm data for this module is shown below.

Alarm	Alarm Condition	Indication	Possible Cause
Rcv1Pres	Receiver sub-module 1 not present	Fault	Receiver 1 not present.
Rcv2Pres	Receiver sub-module 2 not present	Fault	Receiver 2 not present.
Rcv1_LOS	Receiver sub-module 1 loss of signal	Fault	Check fiber line and data into receiver sub-module 1.
Rcv2_LOS	Receiver sub-module 2 loss of signal	Fault	Check fiber line and data into receiver sub-module 2.
Framing	The signal cannot be framed	Fault	Check fiber connection path and bdr transmitter.
Power_In	Power supply indicates a fault	Fault	Check power cord. Make sure power supply is fully seated.
+1_8VInt	Internal 1.8 Voltage	Fault	Check power supply module(s).
+3_3VInt	Internal 3.3 Voltage	Fault	Check power supply module(s).
ProcTemp	Module Temperature	Fault	Check fan tray operation.
FPGA	FPGA operation	Fault	Indicates the internal FPGA has stopped working. Unit needs repair.
OSM_Comm	Cannot communicate with the optical receiver sub-module	Fault	Cannot communicate with the receiver. Reseat or replace the receiver sub-module.
APDBias1	APD1 bias incorrect	Fault	Re-seat receiver sub-module 1. Replace if necessary.
APDBias2	APD2 bias incorrect	Fault	Re-seat receiver sub-module 2. Replace if necessary.
Clock100	Internal clock generator	Fault	Unit needs repair.

User Alarm Thresholds

User alarms are shown below. User alarms are not adjustable on this module.

Alarm	Function	Major Low Thhold	Minor Low Thhold	Minor High Thhold	Major High Thhold	Unit	Typical range
+1_8VInt	Internal 1.8 voltage	1.620	1.67	1.93	1.980	VDC	1.77 – 1.83
+3_3VInt	Internal 3.3 voltage	2.970	3.070	3.530	3.630	VDC	3.2 – 3.4
ProcTemp	Module temperature	-40	-10	80	85	°C	40-50

Module Alarms

Module alarms are shown below.

Alarm	Alarm Condition	Indication	Comments
Rcv1Pres	Receiver sub-module 1 presence	Fault	Receiver sub-module 1 not present but should be.
Rcv2Pres	Receiver sub-module 2 presence	Fault	Receiver sub-module 2 not present but should be.
Rcv1_LOS	Receiver sub-module 1 loss of signal	Fault	Check fiber line and data into receiver sub-module 1.
Rcv2_LOS	Receiver sub-module 2 loss of signal	Fault	Check fiber line and data into receiver sub-module 2.
Framing	Signal cannot be framed	Fault	Check fiber connection path and bdr transmitter.

bdr Receive Processor ALARM Menus

When a module's **ALARM** menu is selected, press the ▲ key or the ▼ key to scroll through alarms. Some typical **ALARMS** menus are shown below.

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------

Rcv1Pres
Fault
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------

Rcv2Pres
Fault

▲   ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------

Rcv1_LOS
Fault

▲   ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------

Rcv2_LOS
Fault

▲   ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------

Framing
Fault

▲   ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------

Power_In
Fault

▲   ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------

+1_8VInt
Fault

▲   ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------

+3_3VInt
Fault

▲   ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------
ProcTemp
Fault
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------
FPGA
Fault
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------
OSM_Comm
Fault
▲  ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------
APDBias1
Fault
▲  ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------
APDBias2
Fault
▲  ▼
```

```
ALARMS
----------
Shelf    0
Slot     8
----------
bdr 2:1R
RECEIVE
PROCESSOR
----------
Clock100
Fault
▲  ▼
```

Checking Manufacturing Data Using the ICIM

Checking Manufacturing Data

The manufacturing data (MFG Data) information listed above may be displayed on the ICIM menu. To access the module's manufacturing data, follow these steps.

1. From the MAIN menu, press the [▼] key to highlight the **Shelf** and **Slot** fields**.**
2. Press the [SEL] key to address the **Shelf** number. Then press the [+] key or the [−] keys to scroll to the number of the desired shelf.
3. Press the [ENTER] key. The **Slot** field is highlighted.
4. Press the [+] key or the [−] key to scroll to the number of the desired slot.
5. Press the [ENTER] key. The MODULE menu for this module will be selected, as shown on the left below. Press the [▼] key to enter the start of the manufacturing data screens, as shown on the right below.

```
   MODULE
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
   Alarms
      1
----------
Mfg.  Data

    ▲  ▼
```

```
 MFG. DATA
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
Module
 Type

    2004

    ▲  ▼
```

6. The [▲] or [▼] key allows you to scroll through the manufacturing data.

Manufacturing Data Display

The table below describes the manufacturing data available for this module.

Manufacturing Data	Expanation
Module Type	(2004) Cisco module type number
Serial #	The alphanumeric device serial number
Date Code	Code describing year and month of module manufacture
Sw Ver (Software Version)	Core code software version
Script Ver (Script Version)	Module software script version
In Service Hours	Number of hours that the module has been used
Spec Data	No special data for this module
Restore Factory Defaults	Restores all factory default configuration settings

MFG. DATA Menus

When the **MFG. DATA** menu is selected, the ▲ key or the ▼ key allows you to scroll through the manufacturing parameters specific to this module. Typical **MFG. DATA** menus are shown below.

```
 MFG. DATA
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
Module
 Type

    2004

    ▲ ▼
```

```
 MFG. DATA
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
Serial #
 !AAYCUAZ
Date Code
    F00

    ▲ ▼
```

```
 MFG. DATA
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
SW Ver
 BDR1002
Script Ver
    24

    ▲ ▼
```

```
 MFG. DATA
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------

In Service
  Hours
   100

    ▲ ▼
```

```
 MFG. DATA
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
Spec  Data

 Prismall


    ▲  ▼
```

```
 MFG. DATA
----------
Shelf     0
Slot      8
----------
 bdr  2:1R
 RECEIVE
PROCESSOR
----------
 Restore
 Factory
 Defaults
```

Using the ICIM to Save the Configuration

Saving the Current Configuration

To save the current module configuration, follow these steps after every change.

1. After you have changed a parameter or entered data, press the ENTER key to save the changes and return to the MAIN menu.
2. If you do not save your changes for two minutes, or if you press the SHIFT CAN keys at the same time, changes are aborted and the display returns to the MAIN menu.

Configuration Complete

Once you have configured this module to your system's specifications using the ICIM and no alarms are indicated, no further action is necessary. The module operates without further input. Alarms, changes in operating parameters, electrical power fluctuations, or changes in system design may be cause for additional action.

Chapter 4
Operation Using LCI

Overview

Introduction

The procedures in this chapter apply if you are using the Local Craft Interface (LCI) software to configure and operate the Prisma II bdr 2:1 Redundant Receive Processor.

Scope of This Chapter

Included in this chapter are LCI software installation instructions and detailed descriptions of how to use the LCI software to view and modify information for the receive processor.

In This Chapter

This chapter contains the following topics.

Topic	See Page
LCI Introduction	4-3
System Requirements	4-4
Installing LCI	4-5
Connecting Your Computer to the Chassis	4-9
Starting LCI	4-10
LCI Device Tree Overview	4-12
Accessing the Device Details Window	4-13

Topic	See Page
Checking the Operating Status	4-16
Configuring the bdr Receive Processor	4-18
Checking bdr Receive Processor Alarms	4-20
Checking Device Properties	4-22

⚠ **WARNING:**

Avoid damage to your eyes! Do not look into any optical connector while the system is active. Even if the unit is off, there may still be hazardous optical levels present.

LCI Introduction

The LCI Software Function

The LCI software functions as a user interface for the Prisma II platform. The LCI software is installed on a PC computer, which is then connected to a Prisma II Chassis. Using the LCI software, you can configure and monitor the modules in the chassis the computer is connected to.

Important: Do not operate any Prisma II Chassis without a Fan Tray installed. If a Fan Tray is not installed in the Prisma II Chassis, the LCI software will not communicate with the power supplies in that chassis.

System Requirements

Introduction

You will need the following computer software and hardware to run the LCI software. Typically a laptop PC is used for portability.

Computer Requirements

- Pentium II® 300 MHz processor or equivalent
- 128 MB RAM
- 10 MB available hard drive space
- 1.44 MB floppy drive
- CD-ROM Drive
- Windows® 95 or later operating system software

Connecting the PC to the Prisma II Chassis

The required cable is a standard "off the shelf" DB9 Female to DB9 Male serial extension cable. The connectors are a serial 9-pin D-shell (EIA 574/232).

The Cisco part number for a six-foot DB9 Female to DB9 Male extension cable is 180143.

Installing LCI

Introduction

This section describes how to install your LCI software.

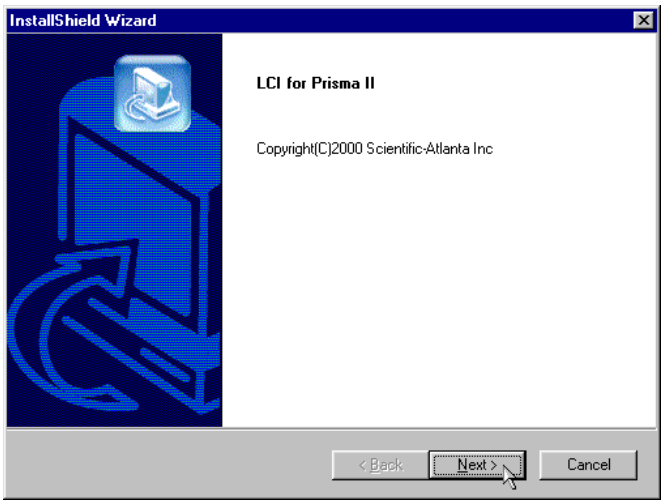
Installing the LCI Software

To install the LCI software, follow these steps.

1. Close all programs that are running on your computer.
2. Insert the LCI CD-ROM into your CD-ROM drive.

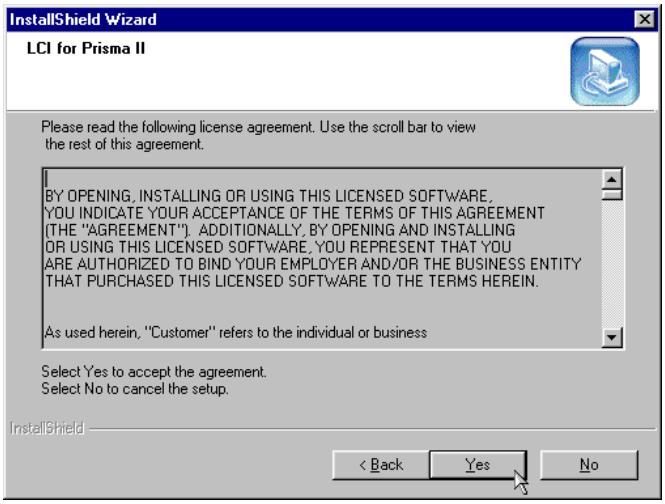
   Result: The LCI software installation program starts automatically. If the installation program does not start automatically, double-click the file **setup.exe** on the LCI CD-ROM.

3. Click **Next.**



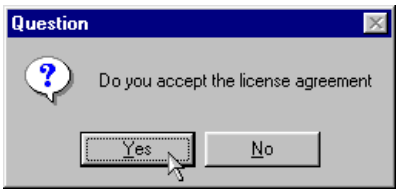
Result: The License Agreement screen displays.

4. Click **Yes** to accept the license agreement.



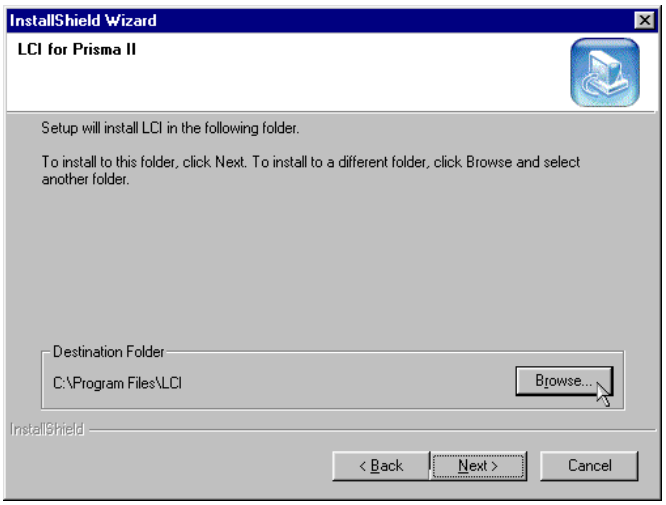
Result: The License Agreement Confirmation dialog box displays.

5. Click **Yes.**

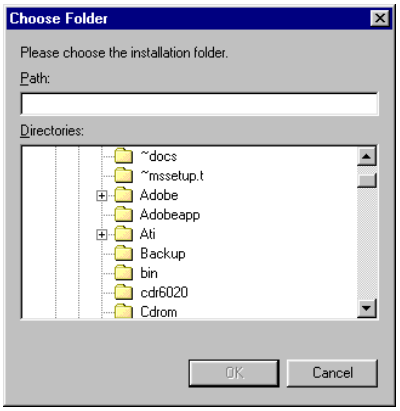


Result: The Destination Folder screen displays.

6. Do you want to install the LCI software in the specified **Destination Folder**?
   - If **yes,** click **Next** to begin the installation, and go to step 10.
   - If **no,** click **Browse,** and go to step 7.



7. To specify where you want the LCI software to be installed, type the path in the **Path** box of the **Choose Folder** screen, or select it in the **Directories** box.



8. Click **OK.**

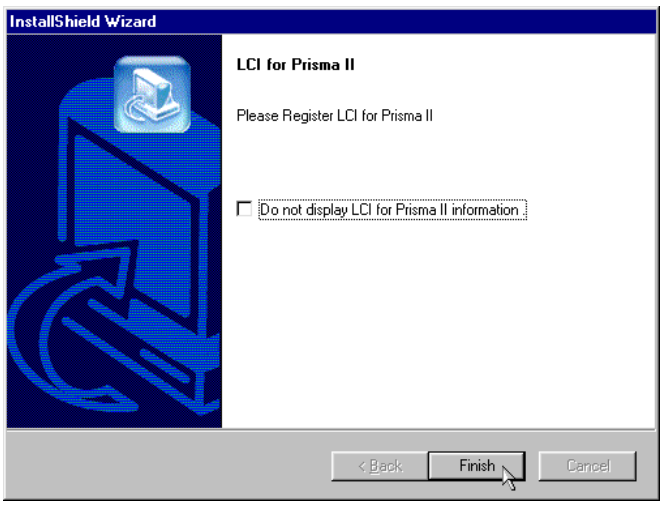
   Result: The new Destination Folder displays the desired path.

9. Click **Next** to begin the installation.

   Result: The last installation wizard screen displays after the installation is complete.

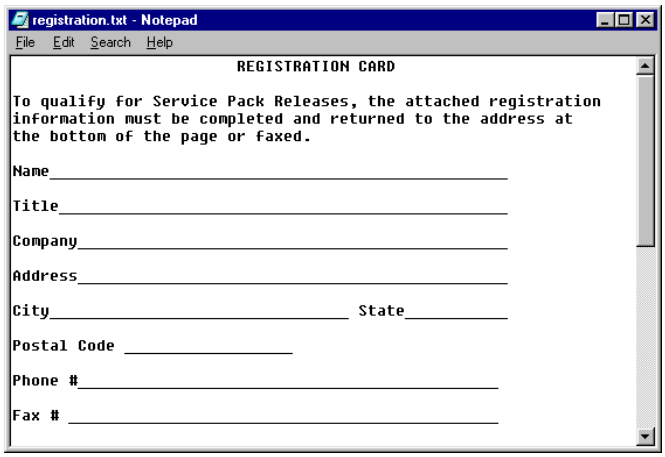
10. Click **Finish.**

Note: You have the option to select the **Do not display LCI for Prisma II information** check box. This bypasses the registration card that you can fill out to receive product updates.



Result: The LCI software is installed in the specified location on your system, and the Registration Information file displays.

11. Follow the instructions in the file.



Connecting Your Computer to the Chassis

Introduction

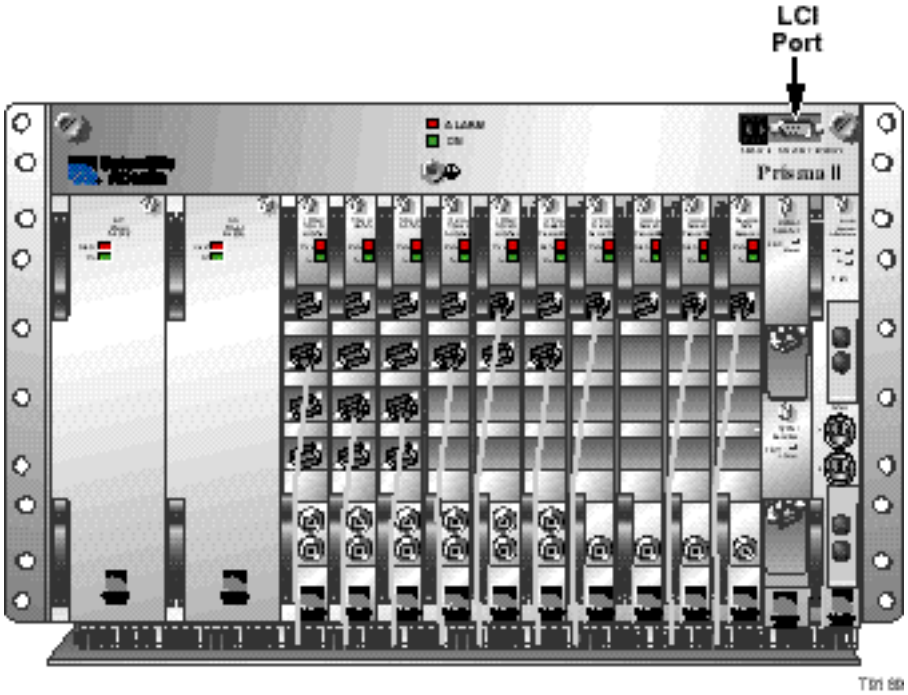
Before you start the LCI software, you must first connect your computer to the chassis that contains the module(s) you want to check.

Important: The LCI software communicates only with those modules located in the chassis your computer is attached to. To check other modules, you must connect your computer to the chassis they are located in.

Connecting to the Chassis

To connect your PC to the chassis, follow these steps.

1. Plug the female end of a 9-pin serial extension cable into your computer.
2. Plug the male end of the cable into the LCI port. This port is labeled "Local Craft Interface".



Starting LCI

Introduction

When you start the LCI software, it queries the devices (modules) located in the chassis that is connected to your computer. After this query process (referred to as the learn mode), the LCI software does the following for each device it finds.

- Represents the device in the device tree of the main LCI window
- Makes the polling information available so you can check and configure various parameters.

Important: Your computer must be connected to the chassis before you start the LCI software. For instructions, refer to **Connecting Your Computer to the Chassis** earlier in this chapter.

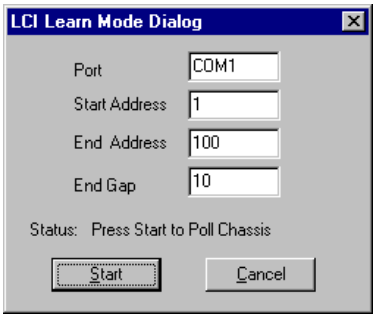
Starting the LCI Software

To start the software, perform these steps.

1. Double-click the LCI icon on your Windows desktop.

LCI

Result: The LCI Learn Mode Dialog box displays.



2. Verify the communication port displayed in the **Port** box. This is the port on your computer that the chassis is connected to.

   To change the com port, type the word "com" and then the port number.

   Example: To specify com port 2, type **COM2.**

3. Verify the number displayed in the **Start Address** box. This is the slot number of the first device in the chassis including the chassis ID.

   During the query process, this is the first device the LCI software queries.

4. Verify the number displayed in the **End Address** box. This is the slot number of the last device in the chassis.

   During the query process, this is the last device the LCI software queries.

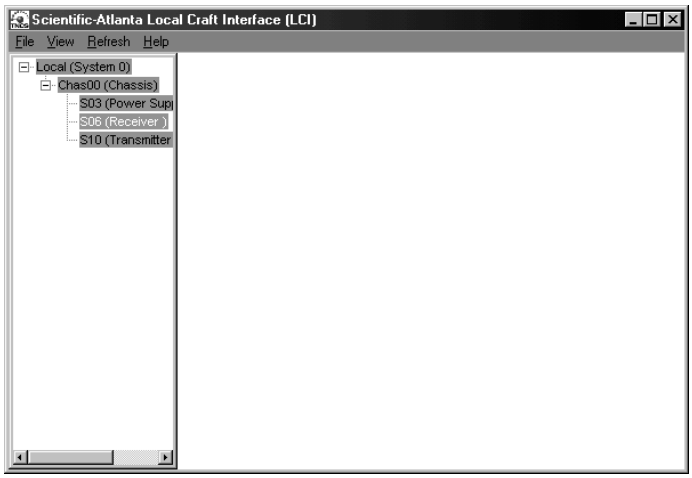
5. Verify the number displayed in the **End Gap** box. This is the number of consecutive empty slots, if any, which exist after the first device in the chassis.

6. Click **Start.**

   Result: The LCI software polls the modules in the chassis.

7. Click **OK** when the LCI software finishes the query process.

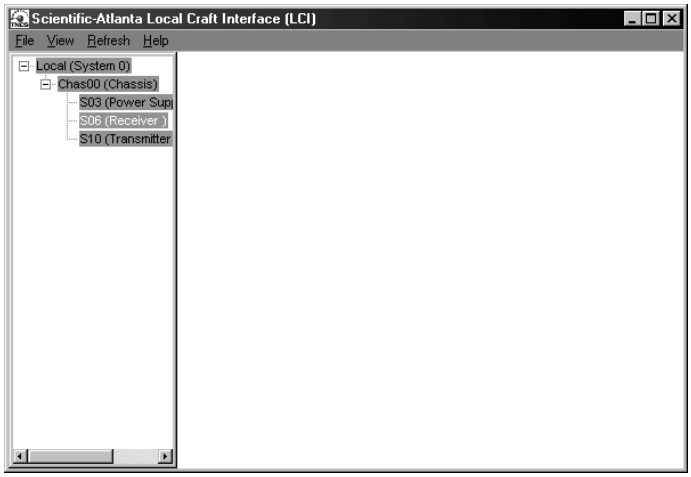
Result: The modules appear in the device tree of the main LCI window.



LCI Device Tree Overview

Introduction

The main window of the LCI software contains a tree that represents your system in a hierarchical manner.



Device Tree

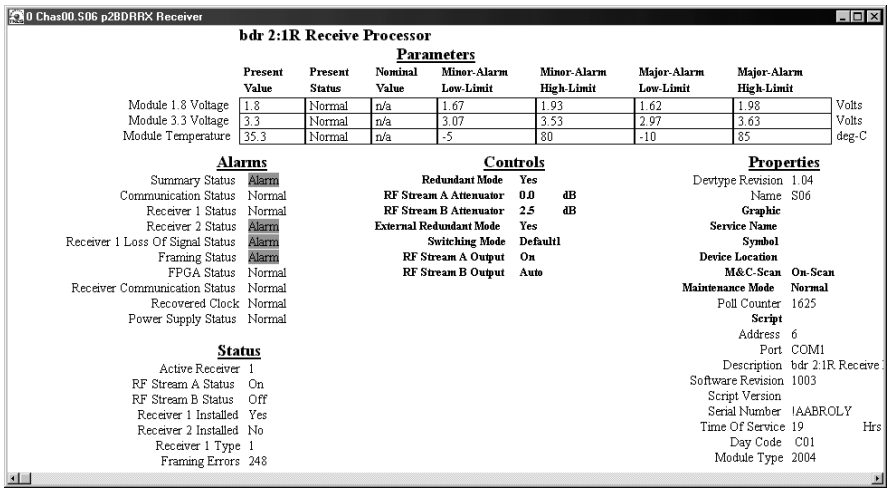
In the graphic above, the device tree represents a PC connected to a chassis that contains ten modules. The three tree levels are described in the following table.

Device Tree Level	Description
Local (System 0)	PC computer being used
Chass00 (Chassis)	Chassis the computer is connected to
Sxx (Device name)	Module(s) located within the chassis. Each device is of the format *chassis slot location (device name).* **Example:** In the graphic above, **S06 (Receiver)** represents a bdr Receive Processor that is located in slot 6 of the chassis.

Accessing the Device Details Window

Introduction

Information about a device (its parameters, alarms, and status) is located in the Device Details window. The graphic below shows the Device Details window for a Prisma II bdr Receive Processor.



0 Chas00.S06 p2BDRRX Receiver

bdr 2:1R Receive Processor

Parameters

	Present Value	Present Status	Nominal Value	Minor-Alarm Low-Limit	Minor-Alarm High-Limit	Major-Alarm Low-Limit	Major-Alarm High-Limit	
Module 1.8 Voltage	1.8	Normal	n/a	1.67	1.93	1.62	1.98	Volts
Module 3.3 Voltage	3.3	Normal	n/a	3.07	3.53	2.97	3.63	Volts
Module Temperature	35.3	Normal	n/a	-5	80	-10	85	deg-C

Alarms

Summary Status	Alarm
Communication Status	Normal
Receiver 1 Status	Normal
Receiver 2 Status	Alarm
Receiver 1 Loss Of Signal Status	Alarm
Framing Status	Alarm
FPGA Status	Normal
Receiver Communication Status	Normal
Recovered Clock	Normal
Power Supply Status	Normal

Status

Active Receiver	1
RF Stream A Status	On
RF Stream B Status	Off
Receiver 1 Installed	Yes
Receiver 2 Installed	No
Receiver 1 Type	1
Framing Errors	248

Controls

Redundant Mode	**Yes**	
RF Stream A Attenuator	**0.0**	**dB**
RF Stream B Attenuator	**2.5**	**dB**
External Redundant Mode	**Yes**	
Switching Mode	**Default1**	
RF Stream A Output	**On**	
RF Stream B Output	**Auto**	

Properties

Devtype Revision	1.04	
Name	S06	
Graphic		
Service Name		
Symbol		
Device Location		
M&C-Scan	**On-Scan**	
Maintenance Mode	**Normal**	
Poll Counter	1625	
Script		
Address	6	
Port	COM1	
Description	bdr 2:1R Receive	
Software Revision	1003	
Script Version		
Serial Number	!AABROLY	
Time Of Service	19	Hrs
Day Code	C01	
Module Type	2004	

Within the LCI device tree, you can access this window using one of the following four methods:

- Double-click the chassis and select the device in the graphic that displays
- Right-click the chassis and select **Open** from the menu that displays
- Double-click the module
- Right-click the device and select **Details** from the menu that displays

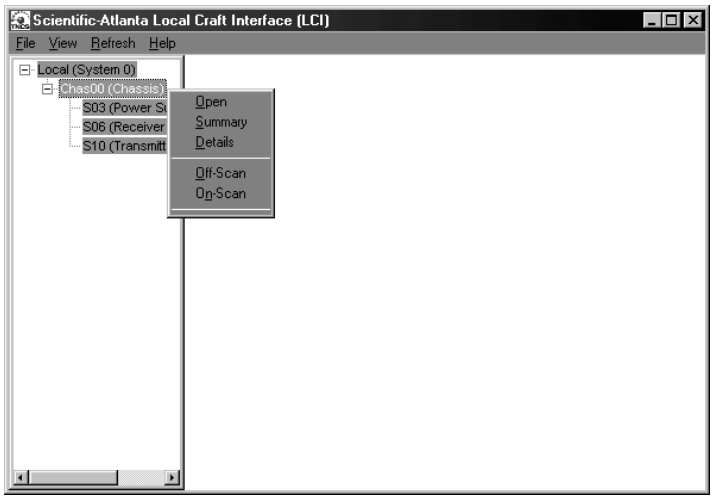
Note: Although you can use the method that is most convenient for you, the procedures throughout this chapter are described using the right-click device technique.

For more information about the device tree, refer to **LCI Device Tree Overview** earlier in this chapter.

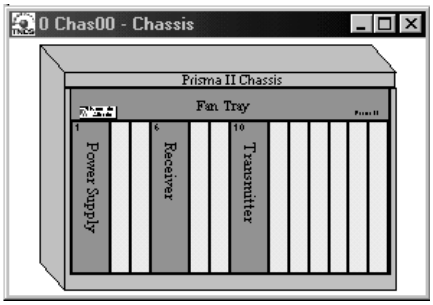
Right-Click the Chassis

To access the Device Details window, perform these steps.

1. Right-click the chassis, and click **Open.**

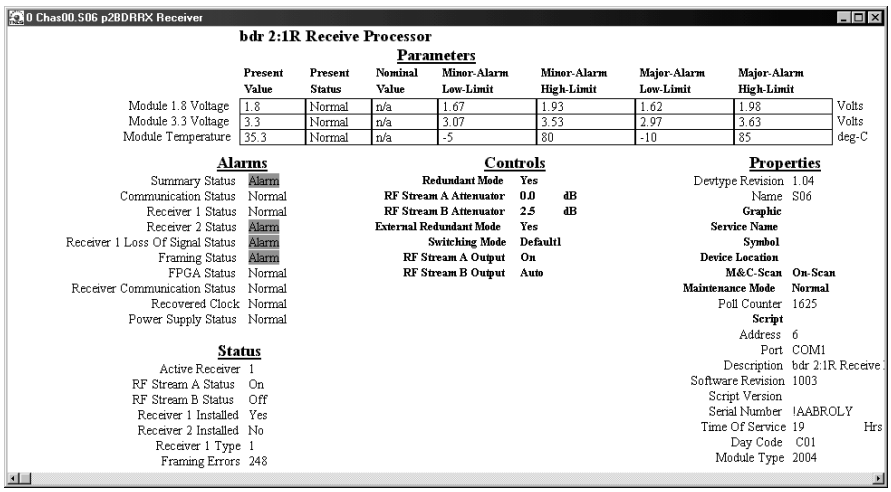


Result: A graphic representation of the chassis displays.



2. Double-click the device whose information you want to view and/or configure.

   Result: The Device Details window displays.



3. Proceed with viewing and/or configuring information.

Checking the Operating Status

Introduction

Using LCI, you can check the status of all operating parameters of the Prisma II bdr Receive Processor.

Monitored Parameters

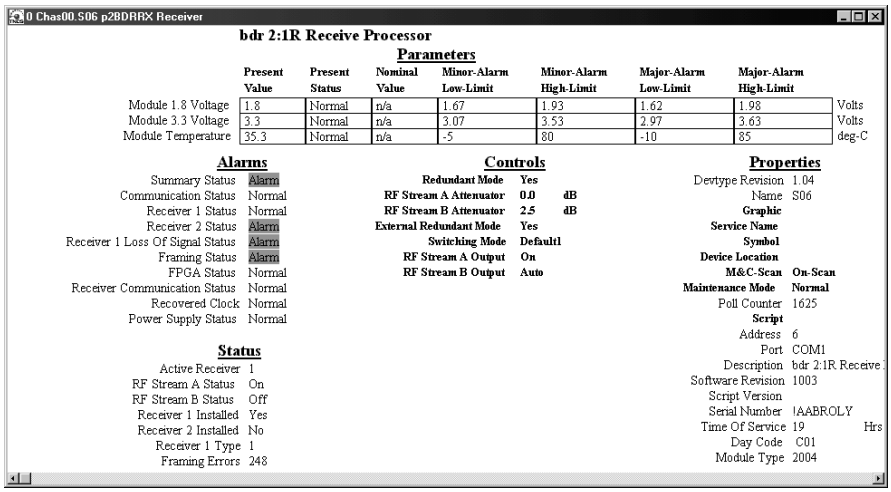
The table below describes the monitored parameters for the Prisma II bdr Receive Processor.

Parameter	**Units**	**Function**
Module 1.8 Voltage	V	1.8 Voltage level internal to the receiver.
Module 3.3 Voltage	V	3.3 Voltage level internal to the receiver.
Module Temperature	°C	Module temperature
Active Receiver	1 or 2	Which receiver sub-module is currently in use
RF Stream A Status RF Stream B Status	On Off	Indicates if the output of RF channel's A and B are **On** or **Off.**
Receiver 1 Installed Receiver 2 Installed	Yes/No	Indicates whether the receiver sub-module is installed.
Receiver 1 Type Receiver 2 Type	1 or 2	Indicates what type receiver is installed. 1 = standard range receiver / PIN 2 = extended range receiver / APD
Framing Errors	Count	A count of the number of Frame Alignment Word Errors.

Checking the Operating Status

To monitor the Prisma II bdr Receive Processor operating parameters, follow these steps.

1. Access the Device Details window. The monitored parameters are displayed under **Parameters** and **Status**.



2. Proceed with checking the operating parameters.

Configuring the bdr Receive Processor

Introduction

Using LCI, you can configure several parameters.

Configurable Parameters

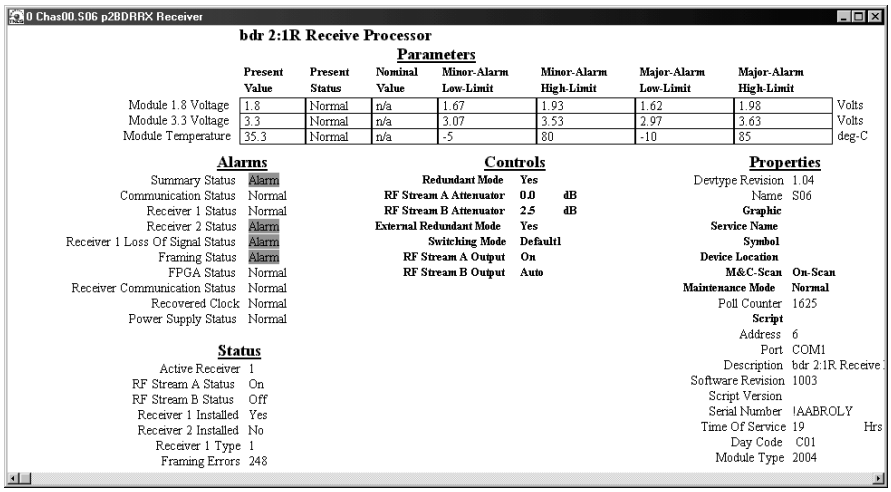
Configurable parameters for the Prisma II bdr Receive Processor are listed below.

Parameter	Function	Values	Default
Redundant Mode	Redundant means a second receiver is a back-up to a primary receiver. **Yes** if there are typically 2 receivers. **No** if there is typically only 1 receiver. If set to **No**, no alarm is generated when the second receiver is removed.	Yes or No	Yes
RF Stream A Attenuator RF Stream B Attenuator	Attenuates the RF outputs of channels A and B in 0.1 dB steps.	0 to 10 dB	0 dB
External Redundant Mode	External (or Full) Redundancy Mode. **No** is normal, not externally redundant. **Yes** is externally redundant. Externally redundant means that the unit is redundant to another unit. As such, it mutes the RF Output until an external line indicates the other unit has failed.		No
Switching Mode	Determines how the receivers are switched. **Default1** and **Default2** will select which receiver is the default receiver. **Force_1** and **Force_2** will force switch to either receiver 1 or receiver 2, regardless of any errors.	Default1 Default2 Force_1 Force_2	Default1
RF Stream A Output RF Stream B Output	Controls the muting of RF channels A and B. If **Auto,** the CCB determines if the output should be muted (only if in full redundancy mode). If **On,** the output is not muted. If **Off**, the output is muted.	Auto, On, Off	Auto

Configuring Parameters

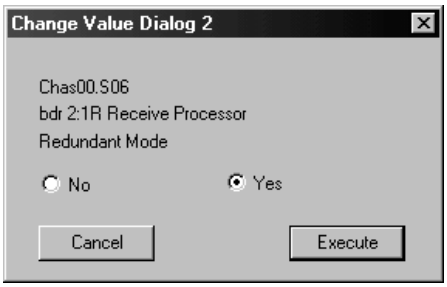
To configure the parameters, follow these steps.

1. Access the Device Details window.



2. Under **Controls,** double-click the parameter you want to configure.

   Result: The Change Value dialog box displays. The graphic below shows the dialog box for the Redundant Mode parameter of the bdr Receive Processor.



3. Depending on the parameter you chose, select or type a new value.

4. Click **Execute.**

   Result: The new value displays next to the parameter.

Checking bdr Receive Processor Alarms

Introduction

Using LCI, you can check the alarm status of various parameters. Alarms that you can check are listed below.

Alarm Parameter	Alarm Condition	Alarm Indication	Possible Cause or Remedy
Module 1.8 Voltage	1.8 Voltage fault	Alarm	1.8 Voltage level internal to the receiver too high or low.
Module 3.3 Voltage	3.3 Voltage fault	Alarm	3.3 Voltage level internal to the receiver too high or low.
Module Temperature	Temperature too high or low	Alarm	Module temperature too high or low.
Summary Status	Normal or Alarm	Alarm	Any alarm in the device.
Communication Status	Communication fault	Alarm	Communication alarm.
Receiver 1 Status	Receiver 1 not present	Alarm	Receiver 1 not installed.
Receiver 2 Status	Receiver 2 not present	Alarm	Receiver 2 not installed.
Receiver 1 Loss of Signal Status	Receiver 1 loss of signal	Alarm	Check fiber line and data into receiver 1.
Receiver 2 Loss of Signal Status	Receiver 2 loss of signal	Alarm	Check fiber line and data into receiver 2.
Framing Status	The signal cannot be framed	Alarm	Check fiber connection path and bdr transmitter.
FPGA Status	FPGA fault	Alarm	Indicates the internal FPGA has stopped working. Unit needs repair.
Receiver Communication Status	Cannot communicate with the receiver	Alarm	Cannot communicate with the receivers. Reseat or replace the receivers.
Recovered Clock	Internal clock generator fault	Alarm	Unit needs repair.
Power Supply Status	Power supply fault	Alarm	Chassis power supply. Make sure power supply is fully seated. Check power cord.

Alarms Limits

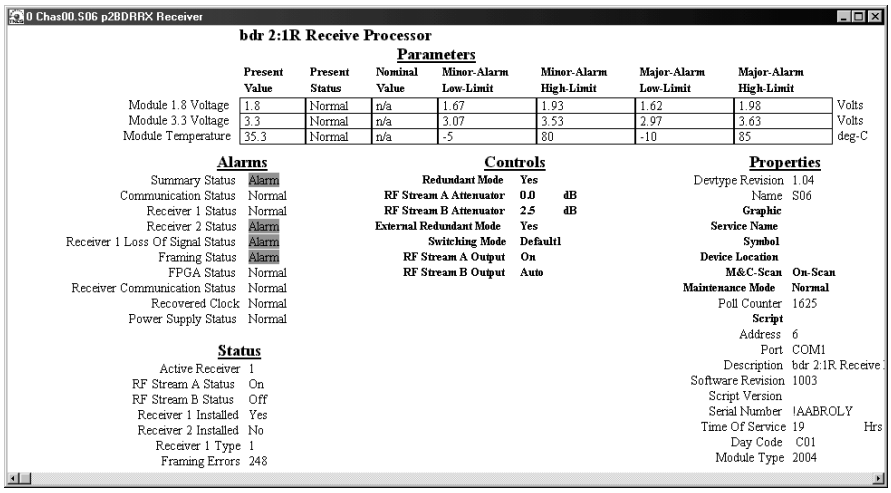
Alarms limits fall into one of the following categories.

- Major low
- Minor low
- Minor high
- Major high

Checking Alarms

To check a parameter's alarm status, perform these steps.

1. Access the Device Details window. Device alarms are shown under **Parameters** and **Alarms.**



	Present Value	Present Status	Nominal Value	Minor-Alarm Low-Limit	Minor-Alarm High-Limit	Major-Alarm Low-Limit	Major-Alarm High-Limit	
Module 1.8 Voltage	1.8	Normal	n/a	1.67	1.93	1.62	1.98	Volts
Module 3.3 Voltage	3.3	Normal	n/a	3.07	3.53	2.97	3.63	Volts
Module Temperature	35.3	Normal	n/a	-5	80	-10	85	deg-C

Alarms	
Summary Status	Alarm
Communication Status	Normal
Receiver 1 Status	Normal
Receiver 2 Status	Alarm
Receiver 1 Loss Of Signal Status	Alarm
Framing Status	Alarm
FPGA Status	Normal
Receiver Communication Status	Normal
Recovered Clock	Normal
Power Supply Status	Normal

Controls		
Redundant Mode	Yes	
RF Stream A Attenuator	0.0	dB
RF Stream B Attenuator	2.5	dB
External Redundant Mode	Yes	
Switching Mode	Default1	
RF Stream A Output	On	
RF Stream B Output	Auto	

Properties	
Devtype Revision	1.04
Name	S06
Graphic	
Service Name	
Symbol	
Device Location	
M&C-Scan	On-Scan
Maintenance Mode	Normal
Poll Counter	1625
Script	
Address	6
Port	COM1
Description	bdr 2:1R Receive
Software Revision	1003
Script Version	
Serial Number	IAABROLY
Time Of Service	19 Hrs
Day Code	C01
Module Type	2004

Status	
Active Receiver	1
RF Stream A Status	On
RF Stream B Status	Off
Receiver 1 Installed	Yes
Receiver 2 Installed	No
Receiver 1 Type	1
Framing Errors	248

2. If any of the parameters are in alarm, take the corrective action you deem necessary.

Checking Device Properties

Introduction

Using the LCI software, you can check the device properties of the receive processor.

Properties

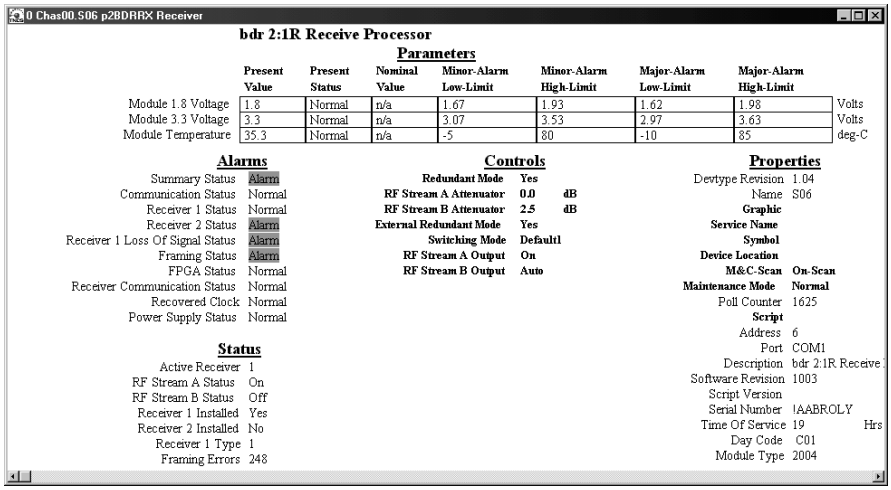
The table below describes the device properties available for this module.

Properties	**Expanation**
Description	Description of the device
Software Revision	Core code software revision
Script Version	Module software script version
Serial number	The alphanumeric device serial number
Time of Service	Number of hours that the device has been used
Day Code	Code describing year and month of manufacture
Device Type	Cisco device type number

Checking Manufacturing Data

To access the module's manufacturing data, perform these steps.

1. Access the Device Details window. The device properties are displayed under **Properties.**



2. Proceed with viewing the device **Properties**.

Chapter 5
Maintenance and Troubleshooting

Overview

Introduction

This chapter provides information to assist you in maintaining and troubleshooting the Prisma II bdr 2:1 Redundant Receive Processor.

Qualified Personnel

Only appropriately qualified and trained personnel should attempt to troubleshoot this product.

> ⚠ **WARNING:**
>
> **Allow only qualified personnel to install, operate, maintain, or service this product. Otherwise, personal injury or equipment damage may occur.**

In This Chapter

This chapter contains the following topics.

Topic	See Page
Module Maintenance	5-2
General Troubleshooting Information	5-3
Troubleshooting Alarm Conditions	5-4
Troubleshooting LCI	5-5

Module Maintenance

Maintaining the Prisma II Module

To extend the life of the module and ensure optimal performance, the following maintenance is recommended.

Frequency	**Maintenance Required**
Weekly	• Check all parameters and test points. • Record data. • Make repairs and adjustments as needed.
Quarterly	• Make sure all cables are mated properly. • Inspect cables for stress and chafing. • Make sure all retaining screws are tight.
When needed	Carefully clean the module with a soft cloth that is dampened with mild detergent.

General Troubleshooting Information

Introduction

This troubleshooting information describes the most common alarms and gives typical symptoms, causes, and items to check before consulting Cisco.

Equipment Needed

You may need the following equipment to troubleshoot the chassis.

- Digital voltmeter
- Fiber connector cleaning materials

Additional Assistance

If you need additional assistance, telephone one of our Technical Service Centers or your local sales subsidiary. The Customer Support section in Chapter 6 contains a list of telephone numbers.

Troubleshooting

⚠ **WARNING:**

Avoid electric shock and damage to this product! Do not open the enclosure of this product. There are no user-serviceable parts inside. Refer servicing to qualified service personnel.

Refer to the following section, **Troubleshooting Alarm Conditions**, to identify and correct module faults.

Troubleshooting Alarm Conditions

Alarm Conditions

If the red ALARM indicator is illuminated or is blinking, check the ICIM or LCI to determine the cause of the alarm.

Alarm	Alarm Condition	Indication	Possible Cause
Rcv1Pres	Receiver sub-module 1 not present	Fault	Receiver 1 not present.
Rcv2Pres	Receiver sub-module 2 not present	Fault	Receiver 2 not present.
Rcv1_LOS	Receiver sub-module 1 loss of signal	Fault	Check fiber line and data into receiver sub-module 1.
Rcv2_LOS	Receiver sub-module 2 loss of signal	Fault	Check fiber line and data into receiver sub-module 2.
Framing	The signal cannot be framed	Fault	Check fiber connection path, and bdr transmitter.
Power_In	Power supply indicates a fault	Fault	Check power cord. Make sure power supply is fully seated.
+1_8VInt	Internal 1.8 Voltage	Fault	Check power supply module(s).
+3_3VInt	Internal 3.3 Voltage	Fault	Check power supply module(s).
ProcTemp	Module Temperature	Fault	Check fan tray operation.
FPGA	FPGA operation	Fault	Indicates the internal FPGA has stopped working. Unit needs repair.
OSM_Comm	Cannot communicate with the optical receiver sub-module	Fault	Cannot communicate with the receiver. Reseat or replace the receiver sub-module.
APDBias1	APD1 bias incorrect	Fault	Re-seat receiver sub-module 1. Replace if necessary.
APDBias2	APD2 bias incorrect	Fault	Re-seat receiver sub-module 2. Replace if necessary.
Clock100	Internal clock generator	Fault	Unit needs repair.

Troubleshooting LCI

Introduction

When you start the LCI software, it queries the modules located in the chassis that is connected to your computer. After this query process (referred to as the learn mode), LCI displays the modules in its module tree.

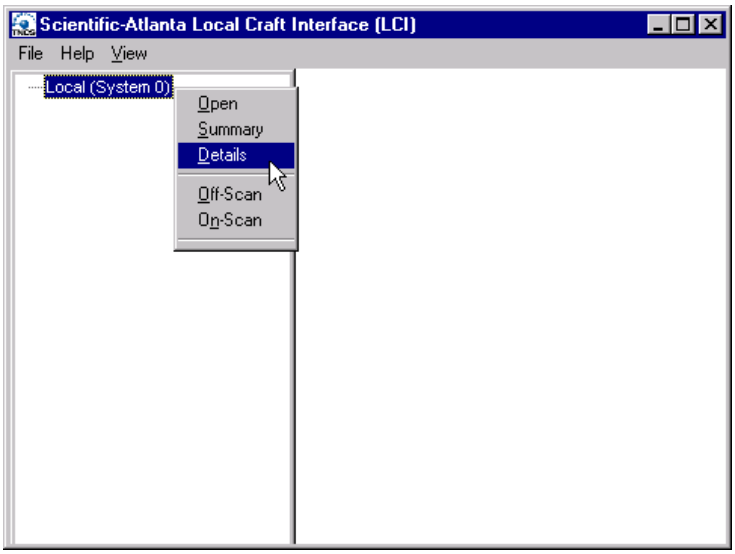
At times, you might notice that only some of the modules display, or maybe none at all. This section describes the steps to take if either of these situations occurs.

None of the Modules Display in the Module Tree

If none of your modules display in the module tree, the cause may be that the cable that connects the chassis to your computer is plugged in to a different communications port than the one specified in LCI. As a result, LCI cannot query any of the chassis' modules.

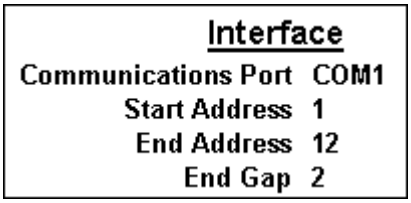
Follow these steps to specify the correct communications port.

1. In the module tree, right-click the system name, and click **Details.** By default, the system name is **Local (System 0).**



Result: The Local System Server Details window displays.

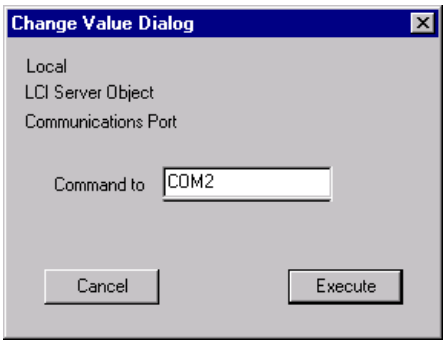
2. Under **Interface,** double-click **Communications Port.**



Result: The Change Value dialog box displays.

3. In the **Command to** box, specify the com port on your computer that the chassis is connected to.

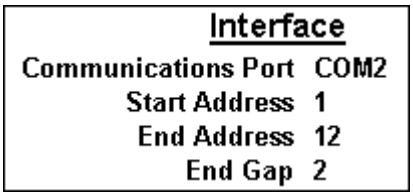
   Type the word "com" and then the port number.



Example: To specify com port 2, type **COM2.**

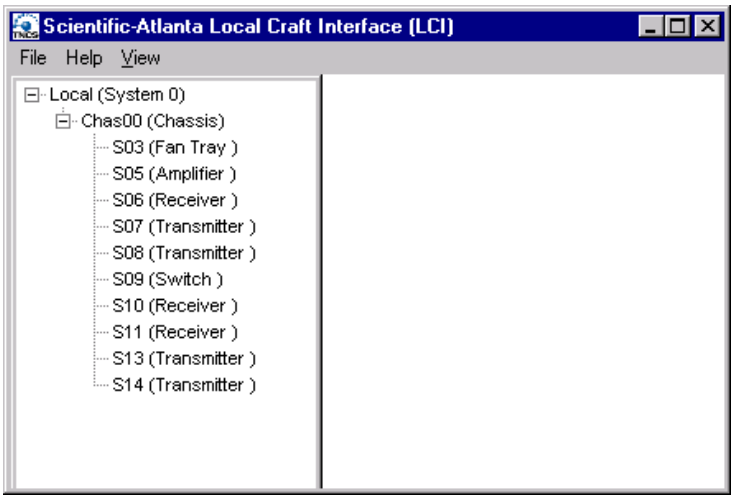
4. Click **Execute.**

   Result: The com port number displays in the **Communications Port** field.



5. Exit LCI and then restart it for the change to take effect.

   Result: Your modules now display in the module tree. If some of your modules are missing from the tree, proceed to **Only Some of the Modules Display in the Module Tree.**



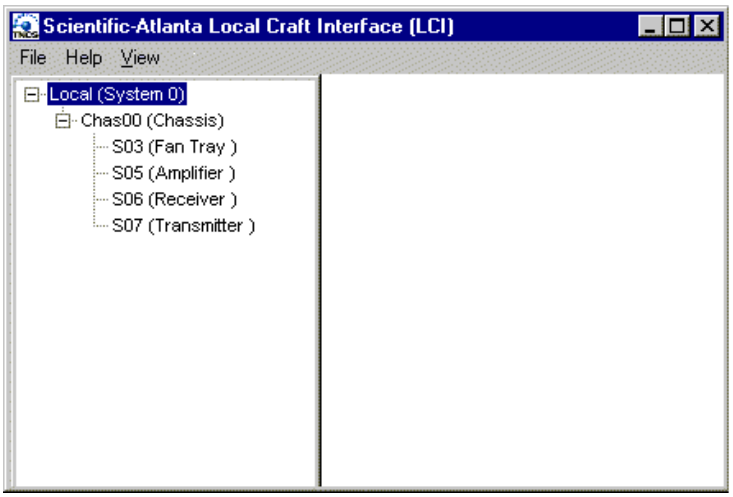
Only Some of the Modules Display in the Module Tree

If some, but not all, of your modules display in the module tree, the cause may be that one or more settings in LCI are incorrect. The following table describes each of these settings.

Setting	Description	Example of an Incorrect Setting
Start Address	The slot number of the first module in the chassis. During the query process, this is the first module LCI queries.	Assume the following: • Start Address setting = 6 • Actual address of first module = 3 **Result:** LCI will not query modules residing in slots 3 through 5.
End Address	The slot number of the last module in the chassis. During the query process, this is the last module LCI queries.	Assume the following: • End Address setting = 10 • Actual address of last module = 14 **Result:** LCI will not query modules residing in slots 11 through 14.
End Gap	After LCI queries the first module, the number of continuous empty slots allowed before LCI stops querying.	Assume the following: • End Gap setting = 4 • Actual number of continuous empty slots = 5 **Result:** LCI will not query modules located after the fourth empty slot.

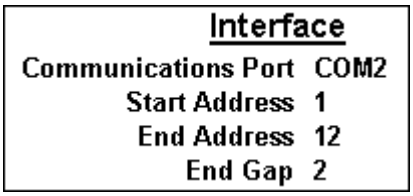
Follow these steps to specify the correct Start Address, End Address, and End Gap settings.

1. In the module tree, right-click the system name, and click **Details.** By default, the system name is **Local (System 0).**



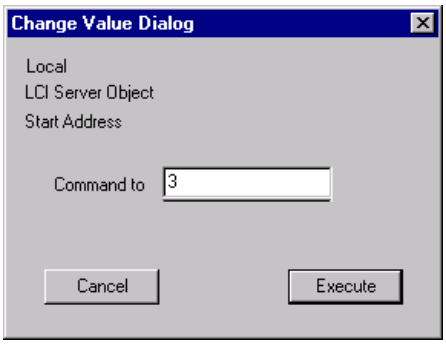
Result: The Local System Server Details window displays.

2. Under **Interface,** double-click **Start Address.**



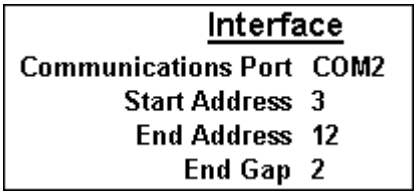
Result: The Change Value dialog box displays.

3. In the **Command to** box, type the first slot number in the chassis that contains a module, then click **Execute.**



Example: In this illustration, the first module in the chassis is located in slot three.

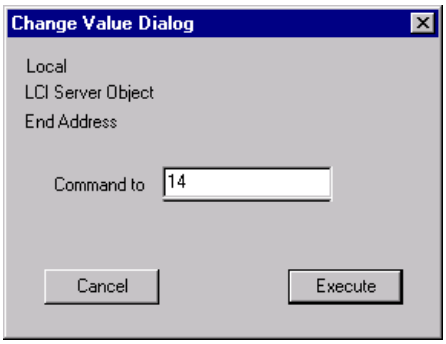
Result: The slot number displays in the **Start Address** field.



4. Double-click **End Address.**

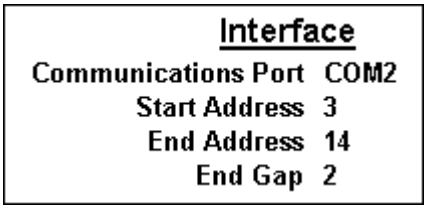
Result: The Change Value dialog box displays.

5. In the **Command to** box, type the last slot number in the chassis that contains a module, then click **Execute.**



Example: In this illustration, the last module in the chassis is located in slot 14.

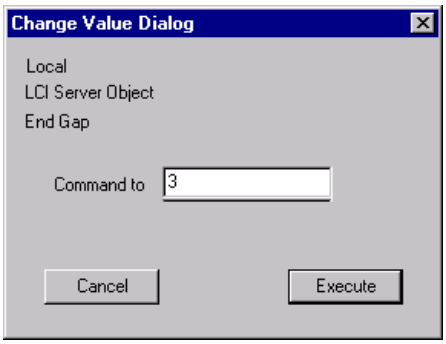
Result: The slot number displays in the **End Address** field.



6. Double-click **End Gap.**

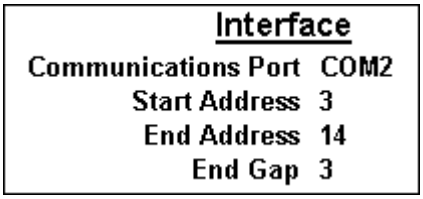
Result: The Change Value dialog box displays.

7. In the **Command to** box, type the number of continuous empty slots LCI should search before it stops the query process, then click **Execute.**



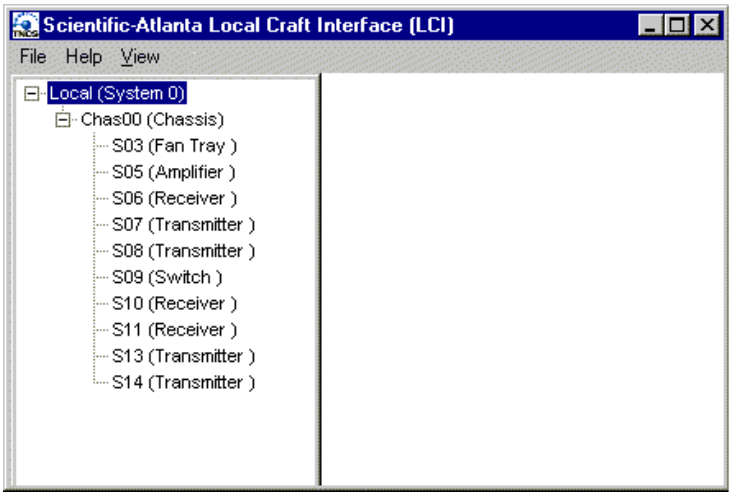
Example: In this illustration, the number of continuous empty slots specified is 3.

Result: The number of empty slots displays in the **End Gap** field.



8. Exit LCI and then restart it for your change(s) to take effect.

Result: All of your modules now display in the module tree.



Chapter 6
Customer Information

Overview

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

Access your company's extranet site to view or order additional technical publications. For accessing instructions, contact the representative who handles your account. Check your extranet site often as the information is updated frequently.

Optoelectronic Glossary

Term, Acronym, Abbreviation	Meaning
A	Ampere (amp) is the unit of measure for electrical current.
AC	Alternating current
ADC	Analog to digital
Addressable	The ability to control an individual unit in a system of many similar units.
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AM	Amplitude Modulation
Amplifier Cascade	Two or more amplifiers in a series, the output of one feeding the input of another.
APC	Automatic phase control
APD	Avalanche Photodiode. Avalanche refers to the gain mechanism internal to the photodiode, where 1 photon results in many electrons, as opposed to a PIN photodiode where 1 photon results in 1 electron.
ASIC	Application Specific Integrated Circuit
Attenuation	A decrease in signal magnitude occurring in transmission from one point to another or in passing through a loss medium.
Attenuator	A device designed to reduce signal strength by an amount specified in dB.
ATX	Addressable transmitter
AUX	Auxiliary
Baseband	The total signal before it is modified for transmission or otherwise manipulated.
Baud (Bd)	A measure of signaling rate based on the number of signaling events per unit of time.
bdr™	Baseband digital reverse
Beamwidth	The included angle between two rays (usually the half-power points) on the radiation pattern, which includes the maximum lobe, of an antenna.

BER	Bit error rate
BERT	Bit error rate test
BIG	Broadband Integrated Gateway
BIOS	Basic Input/Output System
BIST	Built-in self-test
Bit	Short for Binary Digit. Can be either a "one" or a "zero."
Blanking level	The amplitude of the front and back porches of the composite video signal.
BNC	A coaxial connector that uses a bayonet type attachment to secure the cable. It is also known as Baby N connector.
BPF	Bandpass filter
Bps	Bits per second - The total number of bits sent in a second of time.
BPSK	Binary Phase Shift Keying
BW	Bandwidth
Byte	A group of bits treated as a unit
CF	Continuous feed
Circuit switching	The type of signal switching traditionally used by telephone companies to create a physical connection between a caller and a called party.
CIRD	Commercial Integrated Receiver Decoder
CIM	Communications Interface Module
CISC	Complex Instruction Set Computer. A computer that uses many different types of instructions to conduct its operations, i.e., IBM PCs, Apple Macintosh's, IBM 370 mainframes.
CIU	Customer Interface Unit
C/N or CNR	Carrier-to-noise ratio

Compression	The non-linear change of gain at one level of a signal with respect to the change of gain at another level for the same signal. Also, the elimination of redundant information from an audio, data, or video signal to reduce transmission requirements.
CSO	Composite Second Order
CTB	Composite Triple Beat
C/T	Carrier-to-noise temperature ratio
CW	Continuous Wave
dB	Decibel
dBc	Decibels relative to a reference carrier
DBDS	Digital Broadband Delivery System
dBm	Decibels relative to 1 milliwatt
dBi	Decibels of gain relative to an isotropic radiator
dBuV	Decibels relative to 1 microvolt
dBW	Decibels relative to 1 watt
dBmV	Decibels relative to 1 millivolt
DC	Direct current
DC	Directional coupler
DES	Data Encryption Standard
Deviation	The peak difference between the instantaneous frequency of the modulated wave and the carrier frequency, in an FM system.
DFB	Distributed feed back laser
Differential gain	The difference in amplification of a signal (superimposed on a carrier) between two different levels of carrier.
Diplex filter	A filter which divides the frequency spectrum into a high frequency segment and a low frequency segment so that two different signals can be sent down the same transmission path.

Distribution System	Part of a cable system consisting of trunk and feeder cables used to carry signals from headend to subscriber terminals.
Downconverter	A device that converts an input signal to a lower frequency output signal.
Down link	A transmission path carrying information from a satellite or spacecraft to earth.
DP	Data processing
DPU	Digital processing unit
DSP	Digital signal processor
DSR	Digital Storage and Retrieval System
D to U	Desired to undesired signal ratio
DTMF	Dual Tone Multiple Frequency
Duplexer	A device which permits the connection of both a receiver and a transmitter to a common antenna.
DVM	Digital voltmeter
DWDM	Dense Wave Division Multiplexing
ECL	Emitter coupled logic
ECM	Entitlement Control Message
EDFA	Erbium Doped Fiber Amplifier
EEPROM	Electrically Erasable Programmable Read-Only Memory
EIA	Electronics Industry Association
EMI	Electromagnetic interference
Emission designer	An FCC or CCIR code that defines the format of radiation from a transmitter.
EPROM	Erasable Programmable Read-Only Memory
EQ	Equalizer

Equalization	The process of compensating for an undesired result. For example, equalizing tilt in a distribution system.
ERP	Effective radiated power
FAOC	Frequency agile output converters
FET	Field-effect transistor
FIFO	First in, first out
FM	Frequency modulation
Forward path	Signal direction from the headend to the set-top terminal.
FP	Fabry-Perot laser
FPGA	Field Programmable Gate Array. A flexible logic device with thousands of gates
Fiber	A single strand of glass used as an optical transmission medium; or a bundle of glass strands in a CATV system.
Frequency	The number of similar shapes in a unit of time. For example, the number of sine waves moving past a fixed point in a second.
Frequency Agile	The ability to change from one frequency to another without changing components.
Frequency Modulation	A system of modulation where the instantaneous radio frequency of the carrier varies in proportion to the instantaneous amplitude of the modulating signal while the amplitude of the radio frequency carrier is independent of the amplitude of the modulating signal.
Frequency Response	The effect that changing the frequency has on the magnitude of a signal.
Frequency Stability	A measure of the departure from nominal frequency value of a signal, with respect to time, temperature, or other influence.
FSM	Field strength meter
FSK	Frequency-shift keying

ft-lb	Foot-pound
FTP	File Transfer Protocol
Gain	An increase in signal relative to a reference
Gbps	Gigabits per second
Headend	Location and equipment that receives data from a satellite (or other) source and reformats that data for input to a broadband distribution network.
HEDA	Headend Driver Amplifier
HGD	High Gain Dual
Hertz	A unit of frequency equal to one cycle per second.
Hetrodyne	Changing the frequency of a signal by mixing it with another signal to get the sum and difference of the two.
I/O	Input/output
IC	Integrated circuit
ICIM	Intelligent Communications Interface Module
ICP	Internal Control Program. A series of policies to protect company sensitive and export controlled information.
IDR	Intermediate Data Rate
IEC	International Electro-technical Commission
IF	Intermediate frequency
IFL	Interfacility link
IP	Internet protocol
ITU	International Telecommunications Union
Kbps	Kilobits per second
in-lb	Inch-pound
LCD	Liquid crystal display

LCI	Local craft interface
LED	Light-emitting diode
LIFO	Last-in, first-out
LNA	Low-noise amplifier
LNB	Low-noise block converter
LNC	Low-noise converter
Mbps	Megabits per second
MCU	Master Control Unit
Multipath (multipath transmission)	The phenomenon which results from a signal traveling from point to point by more than one path so that several copies of the signal arrive at the destination at different times or at different angles.
mux	multiplexed
Nanosecond	1 thousandth of a microsecond
Nm	Newton meter
NIU	Network Interface Unit
Node	A branching or exchange point.
OEM	Original equipment manufacturer
OOB	Out of band
OIM	Optical interface module
OSM	Optical-Sub module
PCB	Printed circuit board
PCM	Pulse code modulation
PDI	Pressure differential indicator
PDU	Power distribution unit
PIN	PIN Photodiode - A standard photodiode. (PIN stands for Positive doped - Intrinsic region - Negative doped and has to do with the chip architecture)

PLL	Phase Lock Loop. An electronic servo system controlling an oscillator to maintain a constant phase angle relative to a reference signal.
PROM	Programmable Read Only Memory
PWB	Printed wiring board
QAM	Quadrature Amplitude Modulation
QPR	Quadrature Partial Response
QPSK	Quadrature Phase-Shift Keying
RC	Reverse conditioner
Reverse path	Signal flow direction toward the headend.
RF	Radio frequency
RF Bypass	A bypass feature that allows subscribers to view a clear analog channel while recording a digital or analog channel on a VCR.
RFI	Radio frequency interference
RMA	Return material authorization
RMS	Root Mean Square
Router	A data communications device which examines a packet and routes the packet to an output port appropriate to the packet destination.
RS	Remote Sensing
RX	Receive or receiver
SA	Spectrum analyzer
SAM	Signal analysis meter
SAT	Site acceptance test
S-band	The group of frequencies between 2 and 4 GHz.
SET	Secure electronic transaction

Scattering	Random directional change of a wave or part of a wave caused by an irregular reflecting surface or by passing through an inhomogeneous transmission medium.
SLM	Signal level meter
SM	Status monitor
SMC	Status monitoring and control
SMIU	Status Monitor Interface Unit
SMU	Server Management Unit
S/N or SNR	Signal-to-noise ratio
SNMP	Simple Network Management Protocol
SONET	Synchronous optical network
SP	Splitter. It is a device that divides power from an input to deliver multiple outputs or combines multiple input into one output.
Spread Spectrum	A modulation technique to spread a narrow band signal over a wide band of frequencies.
Spurious	Anything other than the desired result
SSPA	Solid-state power amplifier
Sweep generator	A signal source which can automatically vary its frequency continuously from one frequency to another.
Synchronous transmission	A method of sending information over a path and separating discrete characters and symbols by a precise separation in time.
TEC	Thermo-electric cooler
TCP/IP	Transmission control protocol/internet protocol
TDM	Time division multiplexing
TNCS	Transmission Network Control System
Torque	Force applied to bolt or screw to tighten the device.
TS	Transport Stream

TTCN	True tilt correction network
Tx	Transmit or transmitter
UBT	Unbalanced triple
UPS	Un-interruptible power supply
Upstream	Signal transmission toward the headend
UTP	Unshielded twisted pair
uV	One millionth of a volt (microvolt)
V	Volt
V AC	Volts alternating current
VBR	Variable bit rate
VCA	Voltage controlled attenuator
V DC	Volts direct current
VOD	Video-on-demand
VOM	Volt ohm meter
W	Watts
WDM	Wave Division Multiplexing
YEDFA	Ytterbium/erbium doped fiber amplifier

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