Prisma II 1310 nm Reverse Transmitter

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

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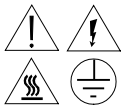
Copyright

Contents

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.

Continued on next page

Factory Service

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.

21 CFR: A sample of this equipment has been tested and found to meet the requirements of 21 CFR chapter 1, subchapter J.

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 contains an infrared laser that transmits intensity-modulated light and emits 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.**
- **Avoid personal injury! The laser light source on this product emits invisible laser radiation. Avoid direct exposure to the laser light source.**

- 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 Systems, Inc.

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.

Maximum Laser Power

The maximum laser power that can be passed through this product, due to misadjustment or component failure, is 30 mW.

Laser Warning Labels

The Prisma II 1310 nm Reverse Transmitter bears the following labels.

Chapter 1
Introduction

Overview

Introduction

This chapter describes the front and back panels, and gives configuration overview for the Prisma™ II 1310 nm Reverse Transmitter.

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.

Describing the Reverse Transmitter

Overview

The Prisma II 1310 nm Reverse Transmitter is part of a family of products in the Prisma II product line. These modules are plug-in modules for the Prisma II platform.

This product is intended for reverse transmission of signals over a fiber optic link from hub to headend. The Prisma II Reverse Transmitter is to be used in conjunction with the Prisma II Dual Reverse Receivers and together they comprise the reverse path section of the system.

Features

The Prisma II Reverse Transmitter has the following features:

- Front panel green LED to indicate operating status
- Front panel red LED to indicate alarm status
- -20 dB test point
- Optical output connectors
- Plug-and-play capability
- Compatible with Cisco LCI and TNCS Software
- Blind mate RF connections

Reverse Transmitter Operation

The Prisma II 1310 nm Reverse Transmitter receives an RF signal through a connector on the rear of the module. That RF signal is amplified, then converted to an optical signal. This module employs a high performance uncooled, doubly isolated DFB laser to generate the optical signal.

First, the incoming RF signal is amplified. The signal is routed through a coupler and is sent to an RF detector circuit. The detector circuit produces a DC voltage that is proportional to the incident RF power. This voltage level is used to monitor the input power level. The transmitter will generate an alarm condition if the input power is over or under a specified level.

If necessary, an attenuator is used to reduce RF power in an overdrive condition, or to compensate for gain variations of the transmitter. The signal is equalized, then impedance-matched, then sent to the laser. The optical output connector is located on the front panel of the module.

The user can turn the laser on or off, adjust the drive level to the laser, and set alarm levels. The module is controlled by an ICIM, the LCI software, or the TNCS software.

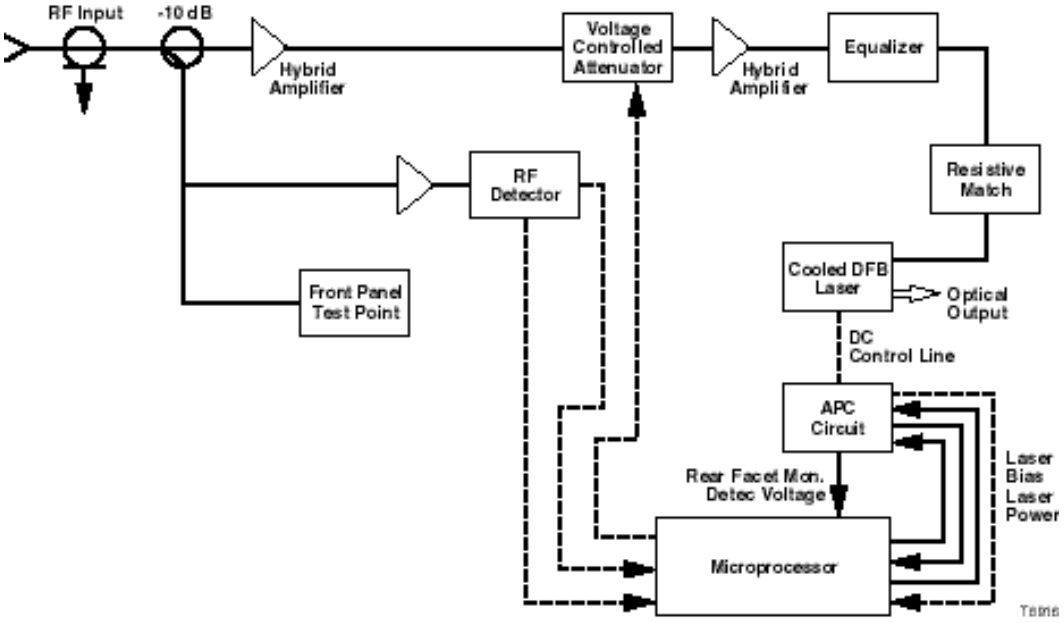
Optical Output

Depending on how you ordered your system, the optical output connectors may either be an SC/APC, SC/UPC, FC/UPC, or E2000/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.**

Block Diagram

A block diagram of the Prisma II 1310 nm Reverse Transmitter is shown below.



The Front Panel

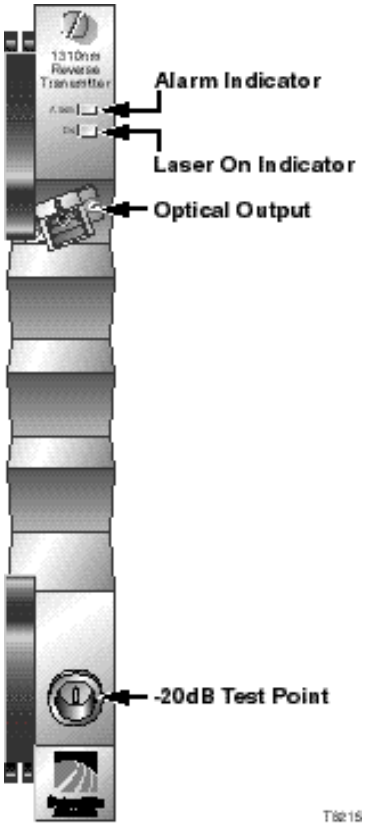
Overview

The features of the front panel of the Prisma II 1310 nm Reverse Transmitter are shown below.

Part	Function
Alarm Indicator	Illuminates or blinks when an alarm condition occurs.
Power Indicator	Illuminates when the laser is active.
Optical Output	Connects the output signal to the optical cable.
-20 dB Test Point	Provides a –20 dB sample of the RF input signal.

Illustration

The front panel of the Prisma II 1310 nm Reverse Transmitter is shown below.

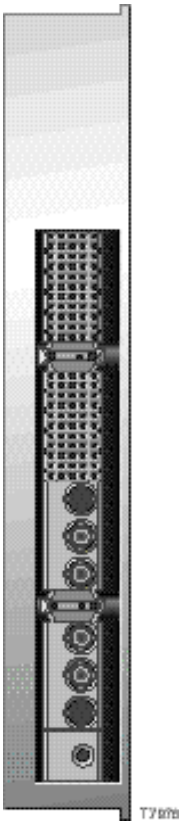


The Back Panel

Back Panel Connectors

Blind-mate connectors make it easy to install this module. The connector on the back of the module mates with a connector on the inside of the chassis. The 110-pin connector provides the following:

- RF signal input connection
- Electrical power input connection
- Alarm communications
- 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 transmitter. The 110-pin connector also routes alarm and status-monitoring information from the transmitter to the Prisma II Chassis.

Configuration Overview

Overview

The Prisma II Reverse Transmitter 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 1310 nm Reverse Transmitter 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.

- Enable or disable transmitter operation
- Normal or CwMode
- Enable or disable the "RF input low" alarm
- Configure the module as master or slave
- Set the relative RF drive level into the transmitter
- Return to the factory default settings

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 1310 nm Reverse Transmitter.

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 gives step-by-step instructions on installing the Prisma II Transmitter.

Preparing for Installation

Overview

Before you begin, make 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 contacting Cisco'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.
one RF cable with connectors	carry RF input signals.

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 the modules, your site should 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 the guide that was shipped with the chassis.

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

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

Space Requirements

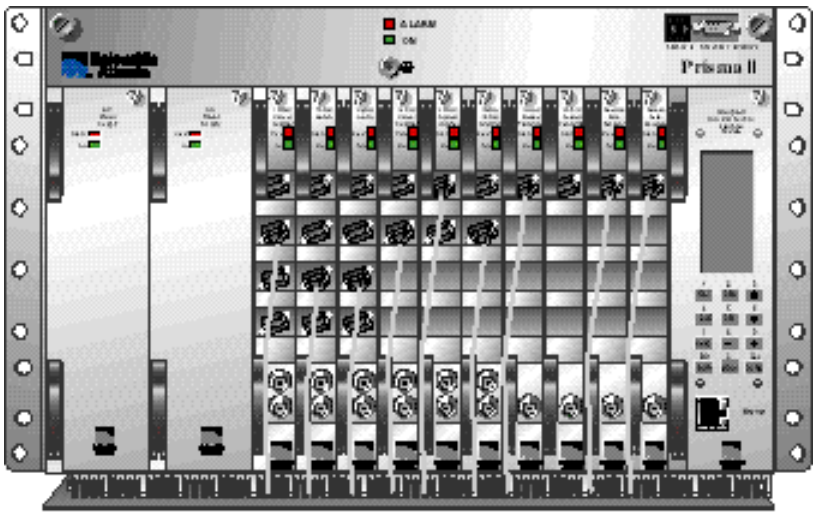
This module is a single-width module. It is usually installed in slots 5 through 16. Slots 1 through 4 are usually reserved for the power supplies. Slots 15 and 16 are reserved for the Intelligent Communications Interface Module (ICIM), if installed. If an ICIM is not installed, any other module could 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 module could be installed in these slots.

Chassis Style

The Prisma II Chassis may be configured with front or rear connectors depending on the system you have purchased. Power, RF input/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 with front or rear connectors depending on the system you have purchased. The rear access chassis is shown here.



Front Access Chassis Illustration

The front access chassis is shown here.

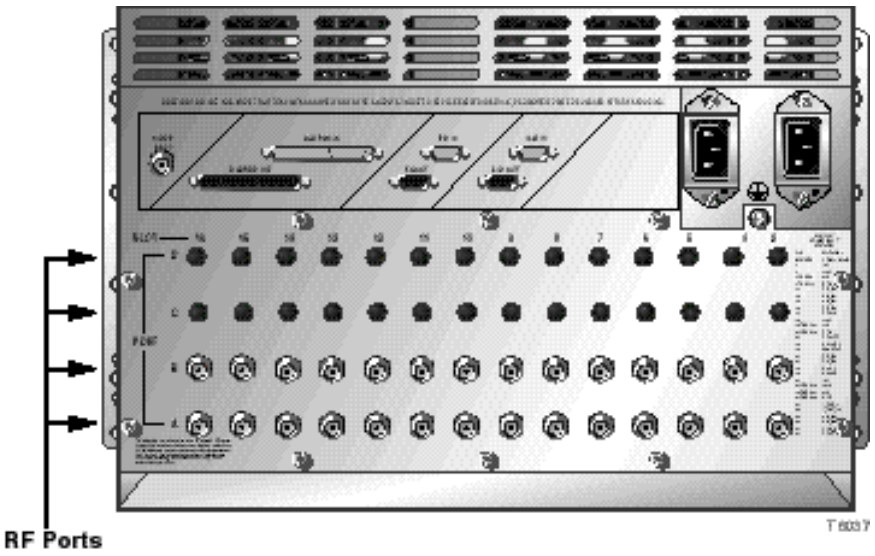
Connecting the RF Cables to the Chassis

RF Cable Connection Procedure

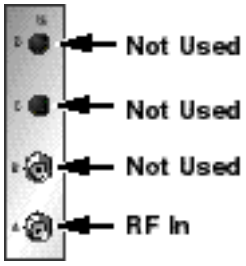
Important: This procedure assumes the Prisma II Chassis is mounted in a rack.

Follow this procedure to make the RF cable connections for each transmitter to be installed.

1. Attach a 75-ohm RF cable to the appropriate RF source.
2. At the front/rear of the Prisma II Chassis, locate the RF ports.



3. Attach the other end of the RF cable to Port A connector (RF IN) of the corresponding slot where the module is to be installed. This is the RF input connection.



4. If F-connectors are installed, use a 7/16-in. open-end wrench, secure both cables to the connectors at the chassis.
5. Proceed to the next section, **Installing the Module in the Chassis**.

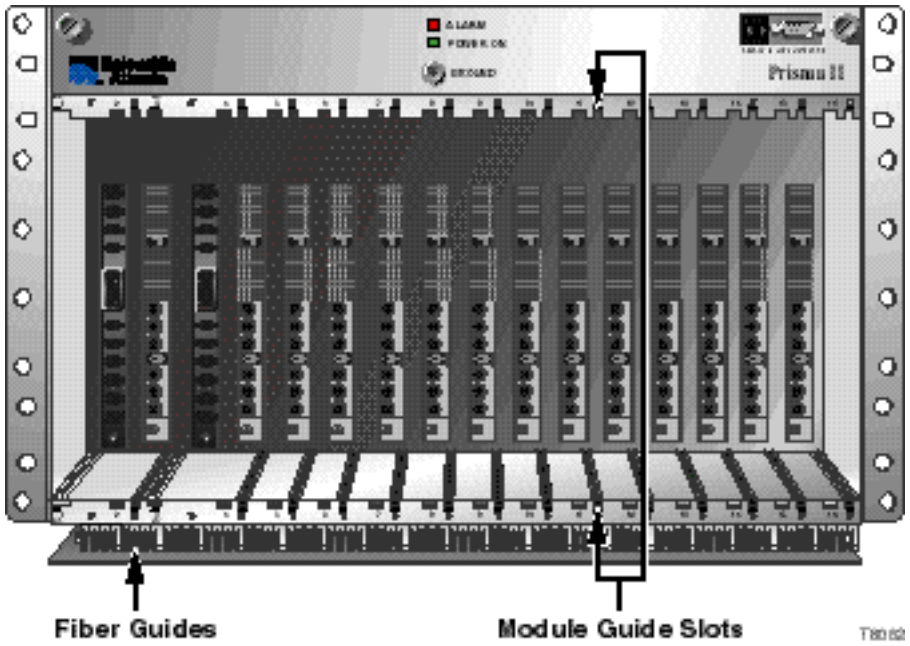
Installing the Module in the Chassis

Installing the Module

Important: The following procedure assumes the Prisma II Chassis is mounted in a rack. This procedure applies to both chassis styles.

This module is usually installed in slots five through sixteen. To install the module in the chassis, follow these steps.

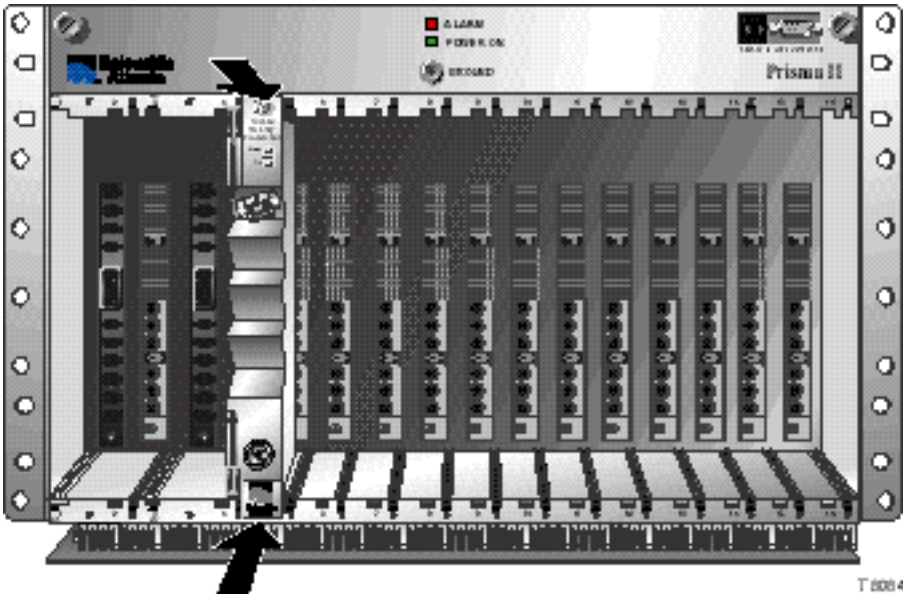
1. Locate the fiber guides at the bottom of the chassis and the module guide slots inside the chassis as shown in the following illustration.



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

3. Gently slide the module 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 module to lock the module in place.

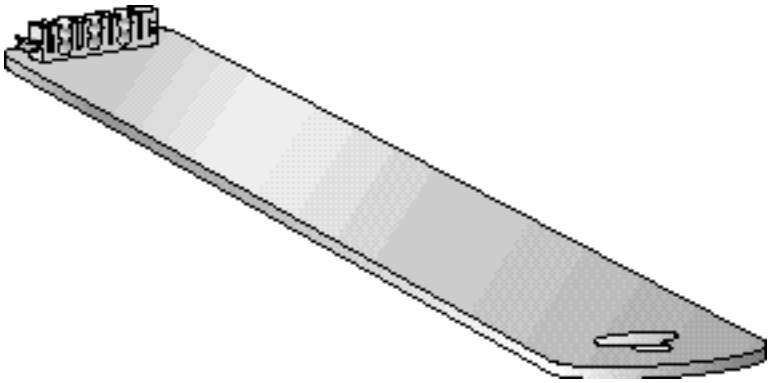
   Note: Do not force or bang the module into the chassis. If properly aligned, it should slide in with minimal force.



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

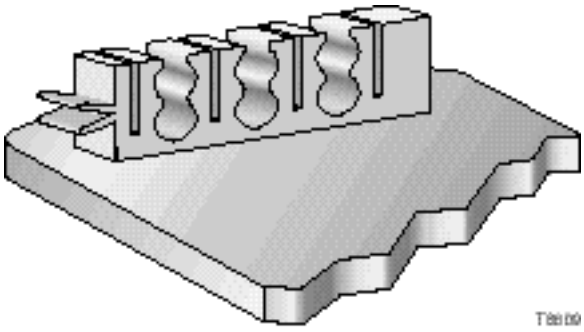
The Fiber Fish Tool

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 Prisma II modules.



The Fiber Fish Tool Hook

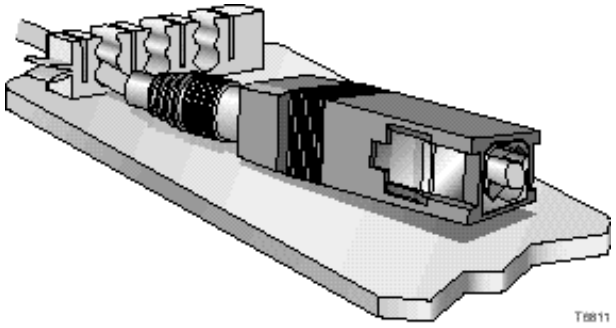
At the end of the Fiber Fish tool is a small hook that allows you to hold an optical cable so that you can pull it through to the front panel of Prisma II Chassis.



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

To pull the an optical cable to the Prisma II 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.



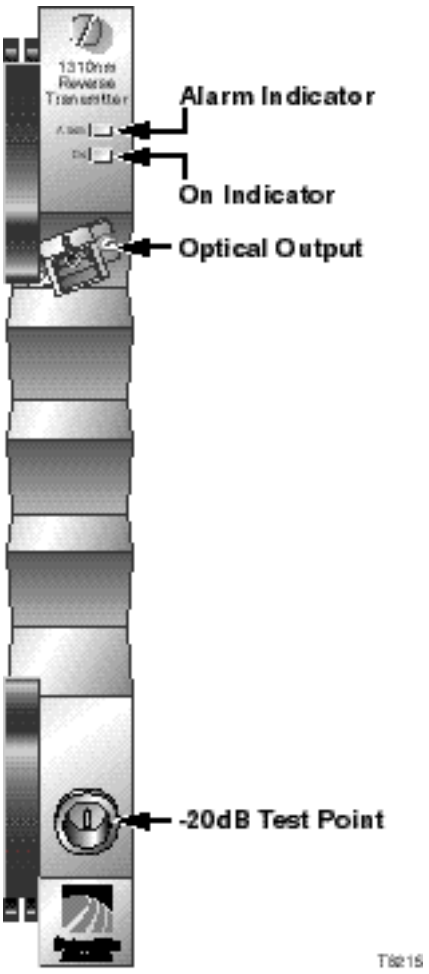
4. At the front of the chassis, pull the Fiber Fish tool (with cable attached) to the front of the chassis.
5. Disengage the optical cable from the Fiber Fish tool and attach to the appropriate connector on desired module. See **Cable Connection Procedure**.

Cable Connection Procedure

Important: This procedure assumes the Prisma II Chassis is mounted in a rack.

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

1. Attach one end of the optical cable to the optical output connector (connector 1), located on the front of the module.



2. Route the other end of the optical cable to the appropriate destination.

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 ICIM to communicate with TNCS.

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 an ICIM.

Note: An ICIM can control a maximum of 82 modules. Depending on your application this is typically 6 to 7 chassis. 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

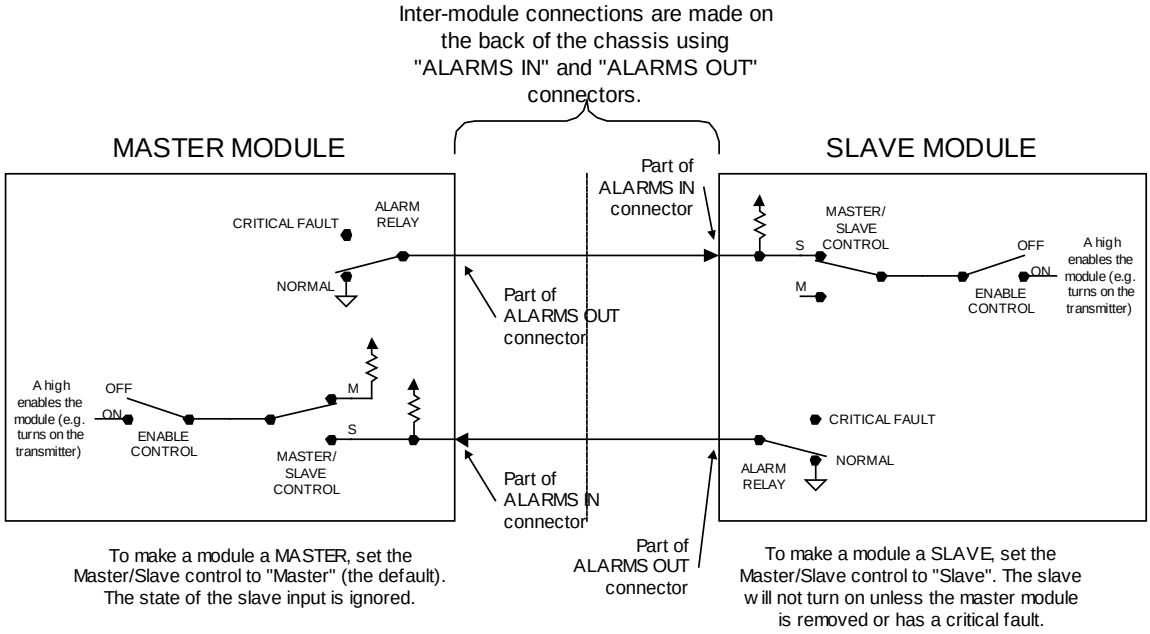
To make EM IN/EM OUT connections, follow these steps.

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.

Master/Slave Connections

Master/Slave Operation

The Prisma II 1310 nm Reverse Transmitter ships from the factory configured as a "Master". LCI, TNCS, or the ICIM can be used to reconfigure the module as a "Slave." The Prisma II Chassis allows for local hard-wired redundancy by using the ALARM IN and ALARM OUT connectors located on the chassis. You can configure a pair of modules so that if the master fails, the slave will take over.



Notes:

- The ALARM RELAYS are shown in their NORMAL (non-alarmed) state. When a CRITICAL FAULT occurs, the relay changes to the open state.
- Then ENABLE CONTROL is shown in its OFF position. LCI, TNCS, or the ICIM can be used to change its position.

Alarm In/Out Connector Reference

For ALARMS IN/OUT pin connector reference, see **Alarm I/O and Master/Slave Chassis Connections** in Chapter 2 of *Prisma II Chassis Installation and Operation Guide*, part number 713375**.**

A module configured as a slave normally has its output turned off or disabled. When a critical alarm occurs in the master module, the master turns off and the slave module turns on. To make that happen, the ALARM OUT contacts from the master's slot must be wired to the ALARM IN contacts on the slave 's slot. Once those contacts are wired, care must be taken to ensure that the master and slave modules don't change slots (otherwise the ALARM IN and ALARM OUT connectors will need to be rewired).

Note that any device configured as a master ignores its ALARM IN contacts.

One way to verify proper wiring and configuration is to simply unplug the master device and observe that the slave device turns on.

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 1310 nm Reverse Transmitter.

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 transmitter.

In This Chapter

This chapter contains the following topics.

⚠ 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). 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.

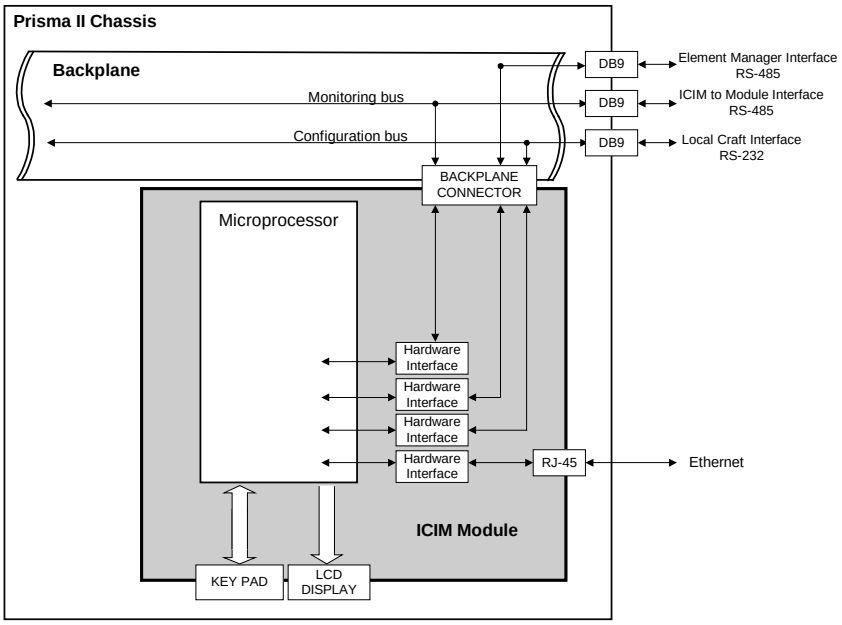
Important: Do not operate any Prisma II Chassis without a fan tray installed properly. If a fan tray is not installed in the Prisma II Chassis, the ICIM will not communicate with any of the modules in that chassis.

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.

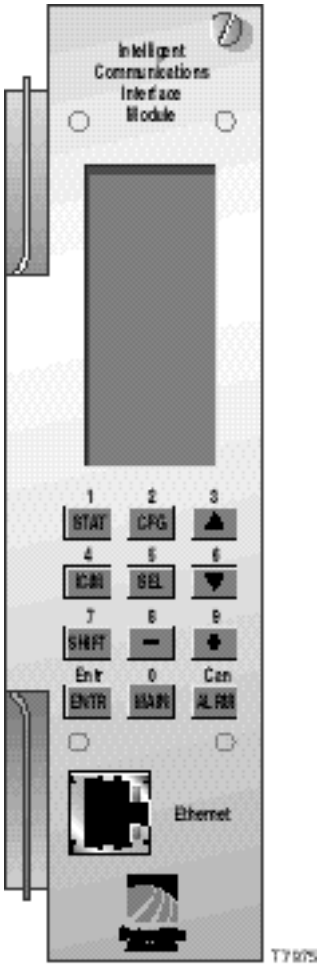
ICIM Block Diagram

The ICIM is illustrated in the block diagram below.



ICIM Front Panel Illustration

The following illustration shows the front panel of the ICIM.

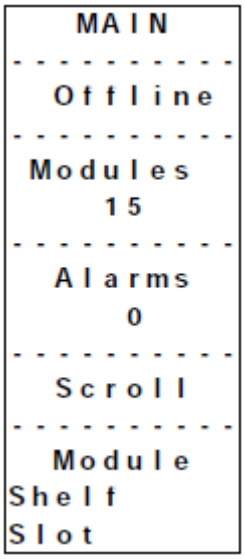


ICIM Front Panel Features

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.



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. Also increases numerical readings of selected configuration parameters
▼	Moves the menu selection area down. Also decreases numerical readings of selected configuration parameters
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 ICIM 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:

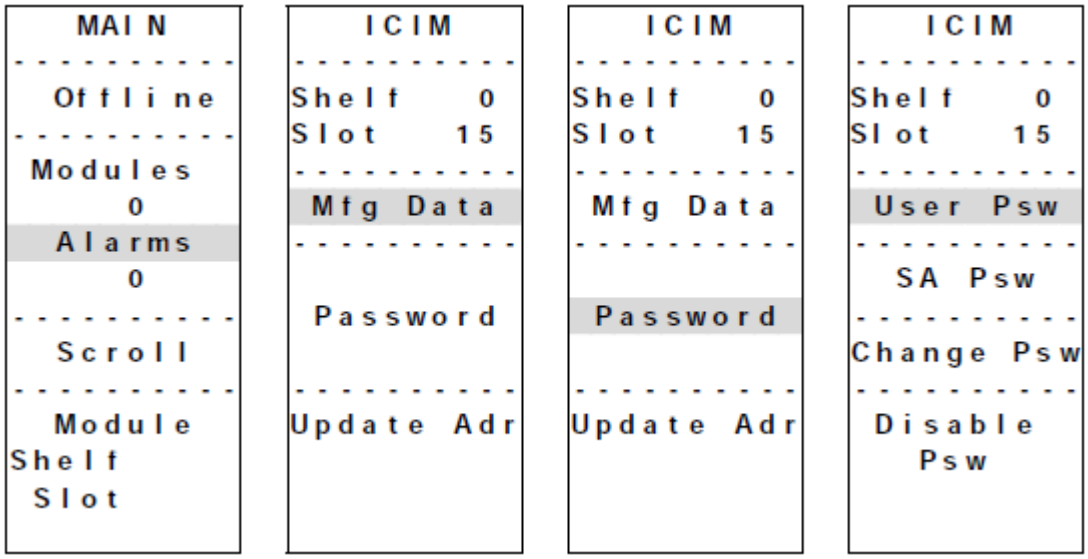
- A user-settable password – **User Psw.** The user password is created, entered, and changed through the ICIM keypad and displayed on the ICIM LCD. The password must be exactly eight digits using only the 0-9 number keys.
- A service password - **SA Psw.** Used only by Scientific-Atlanta personnel.
- The ability to change an existing user password - **Change Psw**.
- The ability to disable the user password function - **Disable Psw**.

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 Menu

The Password menu allows you to create, enter, change, or disable the user password. It also allows service personnel to use the Scientific-Atlanta (SA) 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.



Expired Password or Inactive Password Messages

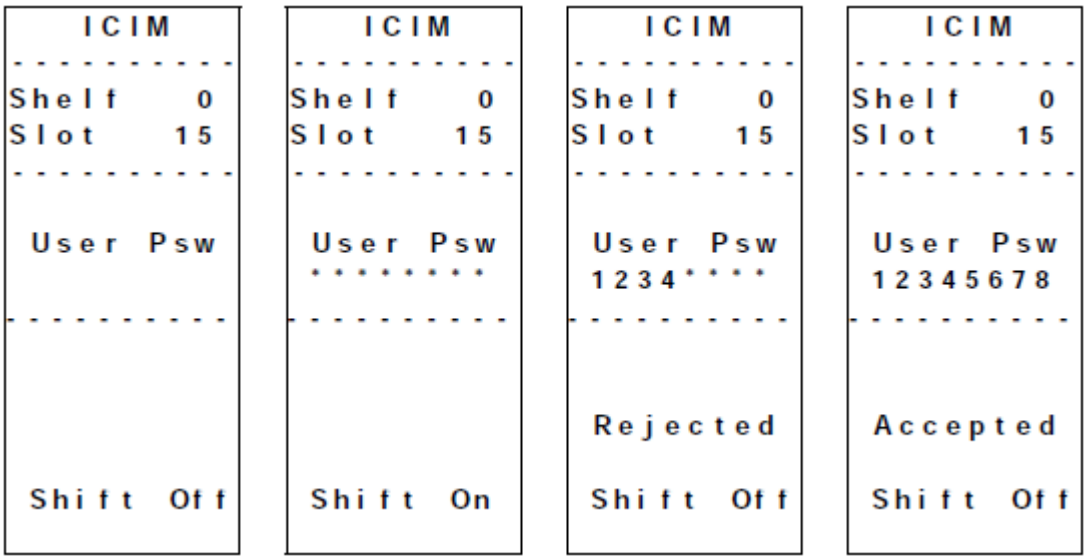
The entry of a valid password allows changes to system parameters for a period of 10 minutes. If more than 10 minutes has passed since your last keystroke, and you attempt to make any changes to system parameters, the menu displays **Psw Expired.** If, after more than 10 minutes, you attempt to disable 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 next section, **Entering the User Password**.

Entering the User Password

If you wish to use the user password feature, you must create and enter a password of exactly eight digits using only the 0-9 number keys. The password remains active for 10 minutes after your last keystroke. If you want to change configuration parameters after more than 10 minutes, you are required to re-enter your password. To enter a user password, follow the steps below.

1. Access the Password menu as shown earlier in **Accessing the Password Menu**.
2. Press the SEL key. The user password menu is displayed.
3. When **User Psw/Shift Off** is displayed, press the SHIFT key to display **Shift On** - then enter the eight digits of your 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 to enter the password. 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 menu, then re-enter an 8-digit password using only the 0-9 number keys. Press the ENTER key to input the password.

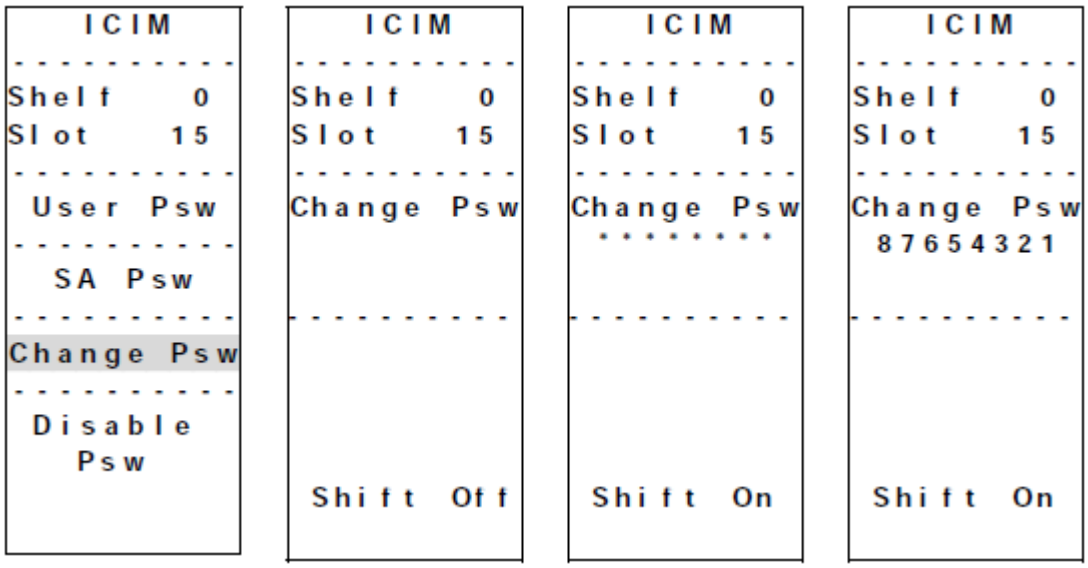
   Reasons for a password to be rejected include:
   - Entering more than eight digits for the password
   - Pressing keys other than the 0-9 number keys
   - Entering an incorrect password if a valid password has been entered



Changing the User Password

If a user password has been entered, it may be changed. However, the current 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.

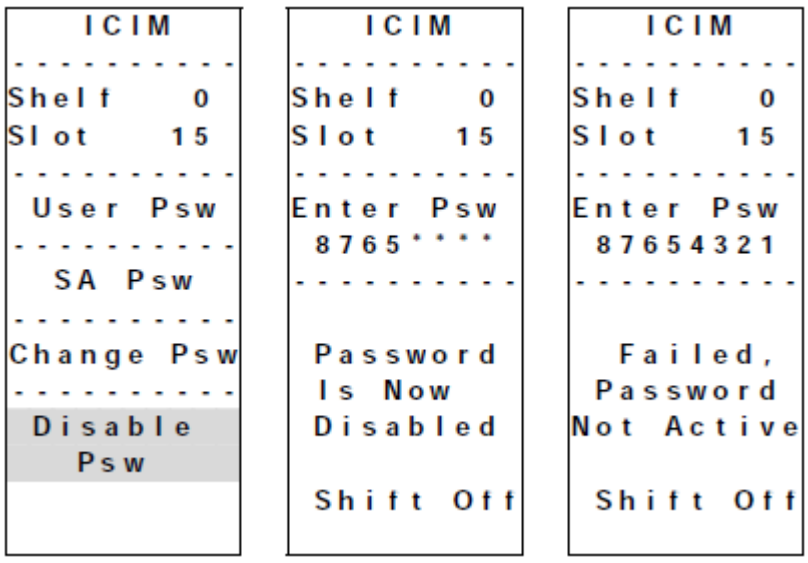
1. Access the Password menu as shown in the procedure **Accessing the Password Menu**.
2. Use the ▼ key to scroll down until **Change Psw** is highlighted.
3. Press the SEL key to select **Change Psw**.
4. When **Change Psw /Shift Off** is displayed, press the SHIFT key to display **Shift On** - then enter the eight digits of your new password, using the 0-9 number keys. If at any time 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 input the new password. 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 entry menu. Clear all digits using the **CAN** (Cancel) function, then re-enter an 8-digit password using only the 0-9 number keys. Press the ENTER key to input the password.



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 will display **Failed, Password Not Active**. You must re-enter the current password and then repeat this procedure.



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.

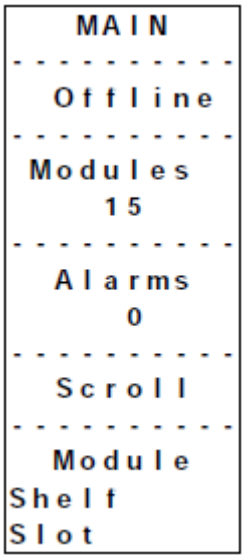
Accessing the ICIM LCD Contrast

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.

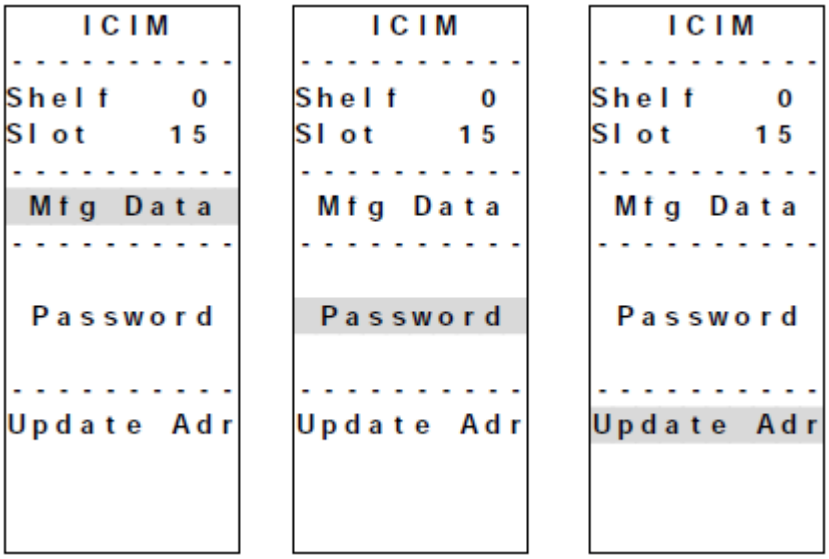
Display	Description
Offline	Indicates TNCS communication status with the ICIM.
Modules	Indicates the number of modules in the ICIM domain.
Alarms	Displays the number of modules that are in alarm. Selecting this option allows scrolling through all modules in alarm condition.
Scroll	Allows scrolling through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



Prisma II ICIM Menu

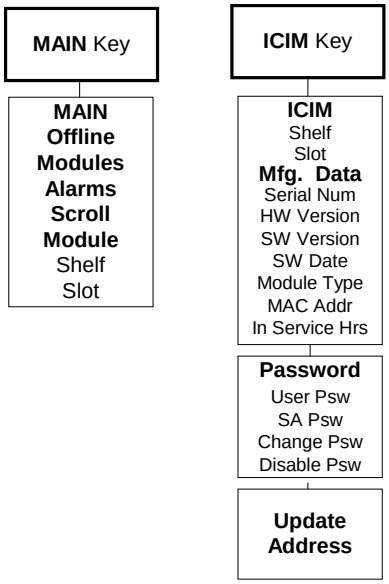
To display the ICIM menu, press the ICIM key. The ICIM menu (shown below) is displayed. Press the SEL key to select the specific option.

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 **Using 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.



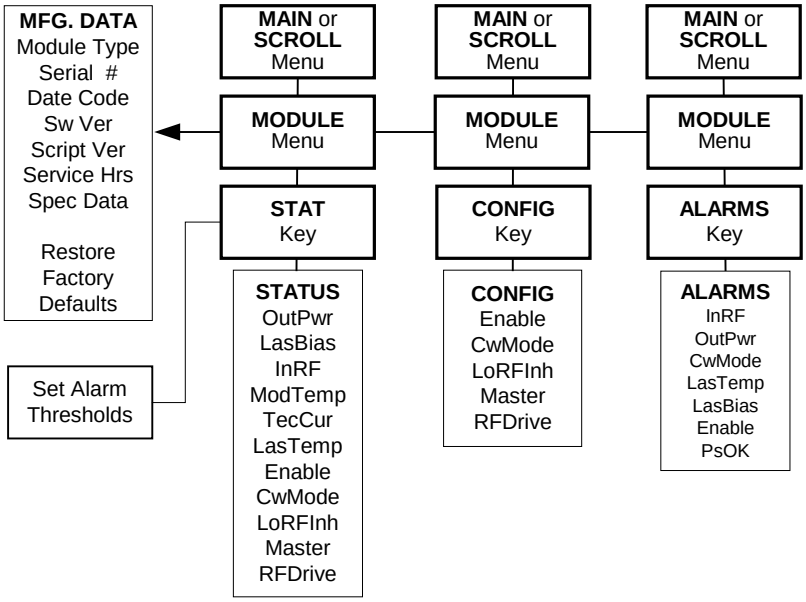
Prisma II MAIN Menu and ICIM Menu Structure

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



Prisma II 1310 nm Reverse Transmitter Software Menu Structure

From the MAIN or SCROLL menus, you can navigate to the Prisma II 1310 nm Reverse Transmitter 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
OutPwr	dBm	Displays optical output power
LasBias	mA	Displays laser bias current
InRF	dB	Displays RF input level
ModTemp	°C	Displays module temperature
TecCur	mA	Displays laser thermoelectric cooler current
LasTemp	°C	Displays laser temperature
Enable	N/A	Laser on/off
CwMode	N/A	Continuous wave mode operation
LoRFInh	N/A	Low RF alarm enabled/disabled
Master	N/A	Master or Slave operation
RFDrive	N/A	RF drive level

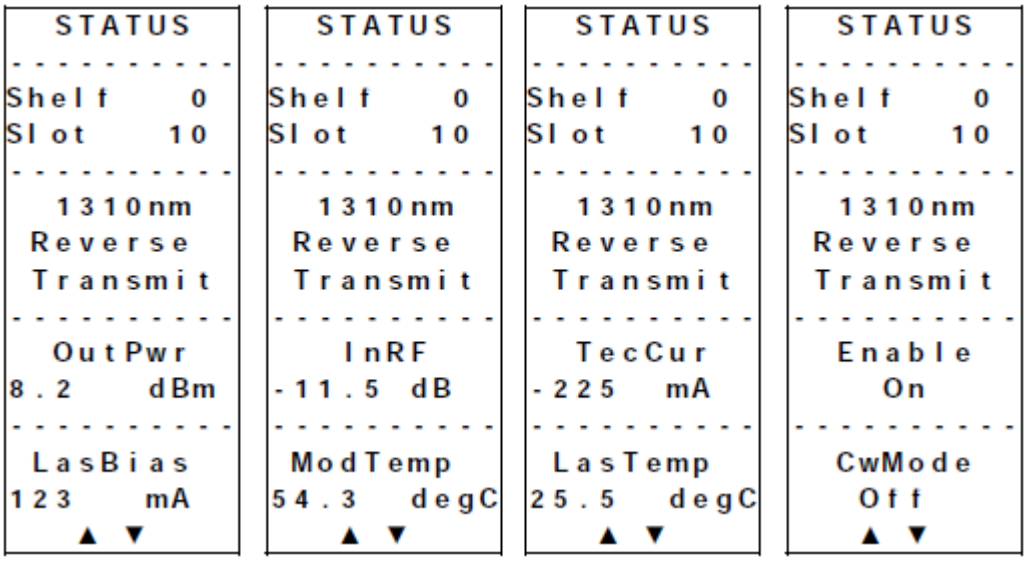
Checking Operating Status

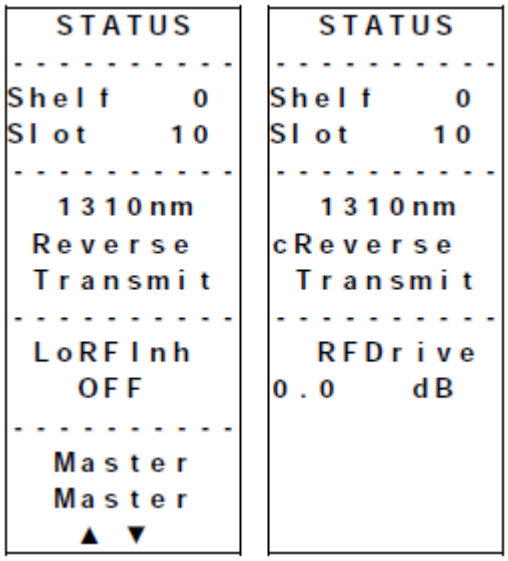
Using the ICIM LCD you can check the status of all operating parameters of this module. To monitor the module operating parameters, follow these steps.

1. At 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 information for the module of interest is now displayed on the ICIM screen.
6. When you have reached the desired module's location, 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 the STAT key to select the **STATUS** menu. Typical **STATUS** menus are shown below.




STATUS
Shelf 0
Slot 10
1310nm
Reverse
Transmit
LoRFInh
OFF
Master
Master
▲ ▼
STATUS
Shelf 0
Slot 10
1310nm
cReverse
Transmit
RFDrive
0.0 dB

Configuring Parameters

Using the ICIM, you can configure the parameters listed above. To configure the parameters, 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 − key to scroll to the number of the desired shelf.
3. When the desired shelf number is displayed, 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. When the desired slot number is displayed, press the ENTER key. The initial information for the module of interest is now displayed on the ICIM screen.
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.

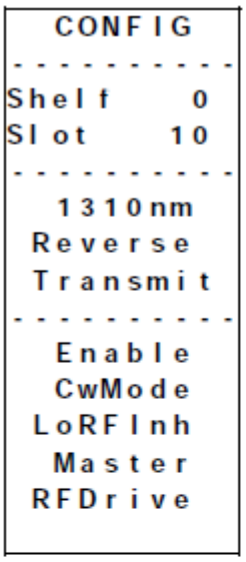
Configurable Parameters

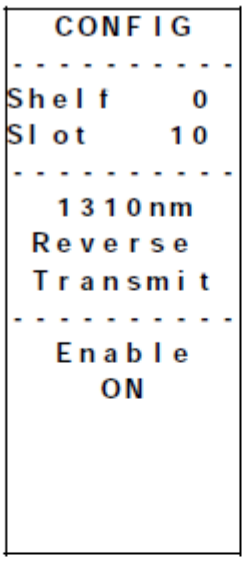
Configurable parameters for this module include the following.

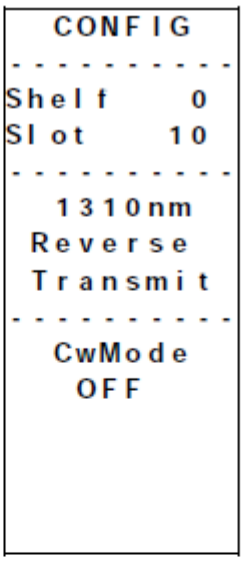
Parameter	Function	Values	Default
Enable	Enables or disables transmitter operation, i.e., turns the laser on or off.	ON or OFF	ON
CwMode	Automatically adjusts the displayed RF input level by subtracting 3 dB when CW mode is on. The RF high alarm is also disabled when CW mode is on.	ON or OFF	OFF
LoRFInh	Enables or disables the "RF input low" alarm.	ON or OFF	ON
Master	Configures the module as master or slave. If set to Master, the transmitter is controlled *only* by the Enable control above. If set to Slave, the transmitter is controlled by a combination of Enable and the external input CNT_IN_1.	Master or Slave	Master
RFDrive	Sets the relative RF drive level into the transmitter.	-1.5 dB to +1.5 dB in 0.5 dB steps	0.0 dB

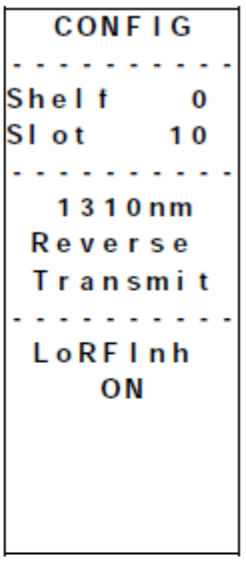
CONFIG Menus

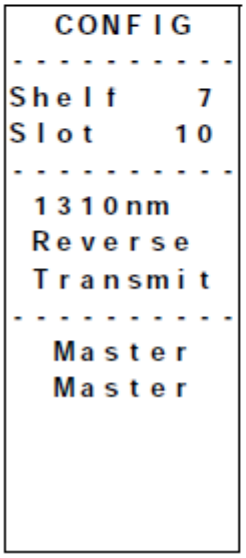
When the **CONFIG** menu is selected, the **Shelf** number field is highlighted. The shelf and slot number fields may only be incremented with the [+] key or the [-] key. The [▼] key highlights the **Slot** number field. Once you exit the slot field, the up/down arrows will scroll through the parameters that are specific to this module. Sample Prisma II 1310 nm Reverse Transmitter **CONFIG** menus are shown below.

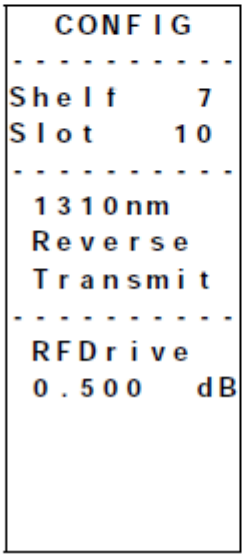












Checking 1310 nm Reverse Transmitter Alarms Using the ICIM

Checking Alarms

If the red ALARM LED on the front panel is blinking, a minor alarm condition is indicated. If the 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 information for the module of interest is now displayed on the ICIM menu.
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.

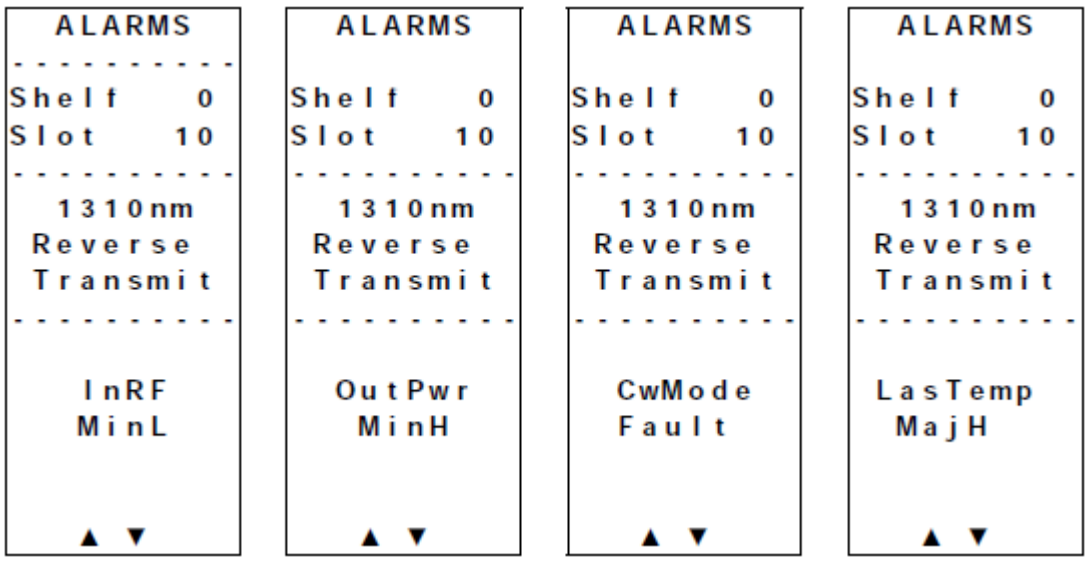
Alarm Data Display

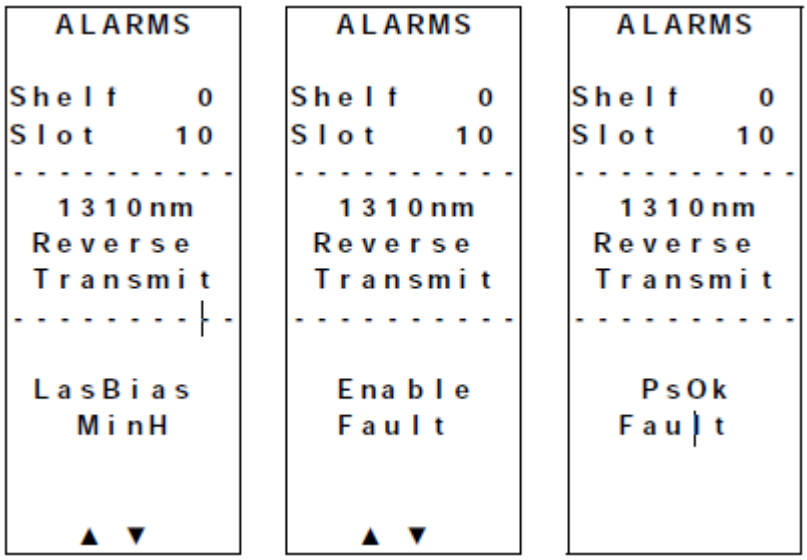
The alarm data for this module is shown below.

Alarm	Alarm Condition	Range	Possible Cause
InRF	RF Input level	-4.5 dB to +3.0 dB	RF source or cables
OutPwr	Optical output power	±0.5 dBm of nominal	Internal problem
CwMode	CW mode	Fault	CwMode set to ON
LasTemp	Laser temperature	20°C to 30°C	Internal problem
LasBias	Laser bias current	50 mA to 100 mA	Internal problem
Enable	Laser off	Fault	Check Enable and Master CONFIG settings
PsOK	Bus voltage status	Fault	Module not fully seated. Check power supply

1310 nm Reverse Transmitter 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 10
1310nm
Reverse
Transmit
LasBias
MinH
ALARMS
Shelf 0
Slot 10
1310nm
Reverse
Transmit
Enable
Fault
ALARMS
Shelf 0
Slot 10
1310nm
Reverse
Transmit
PsOk
Fault

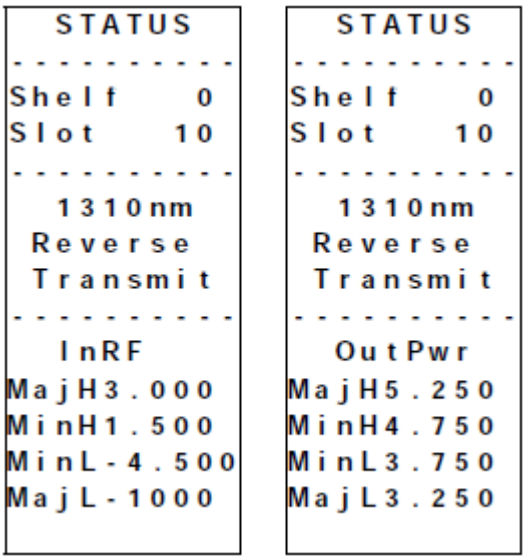
Setting User Alarm Thresholds

User alarms have adjustable thresholds. To change a user alarm threshold from the factory default, follow the steps below.

1. At the **MODULE** menu, press the STAT key. The **STATUS** menu is displayed on the ICIM.
2. Press the SEL key. The alarm thresholds previously set are displayed. If the label **n/a** is displayed, you cannot configure that alarm threshold. Press the ▼ key to highlight the next parameter's alarm threshold.
3. When the threshold that you wish to set is highlighted, press the ENTER key.
4. Press the + key or the − key to adjust the alarm threshold.
5. Press the ENTER key to save the changes. **Data Saved** is displayed.
6. When finished, press the MAIN key to return to the **MAIN** menu.

1310 nm Reverse Transmitter Alarm Threshold Menus

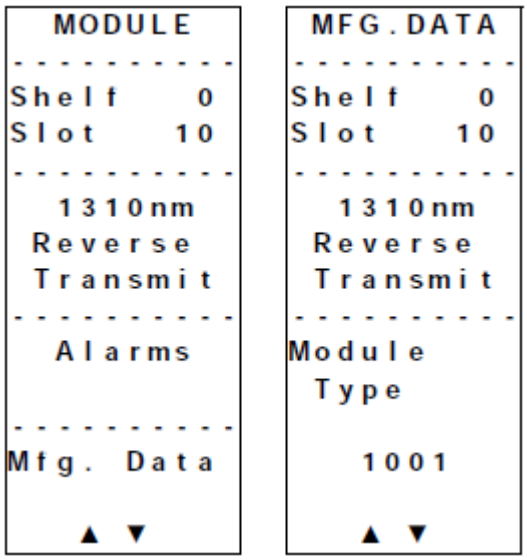
Some typical alarm threshold menus are shown below.



Checking Manufacturing Data

The Manufacturing 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 is 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.**



6. The [▲] or [▼] keys allow you to scroll through the manufacturing data.

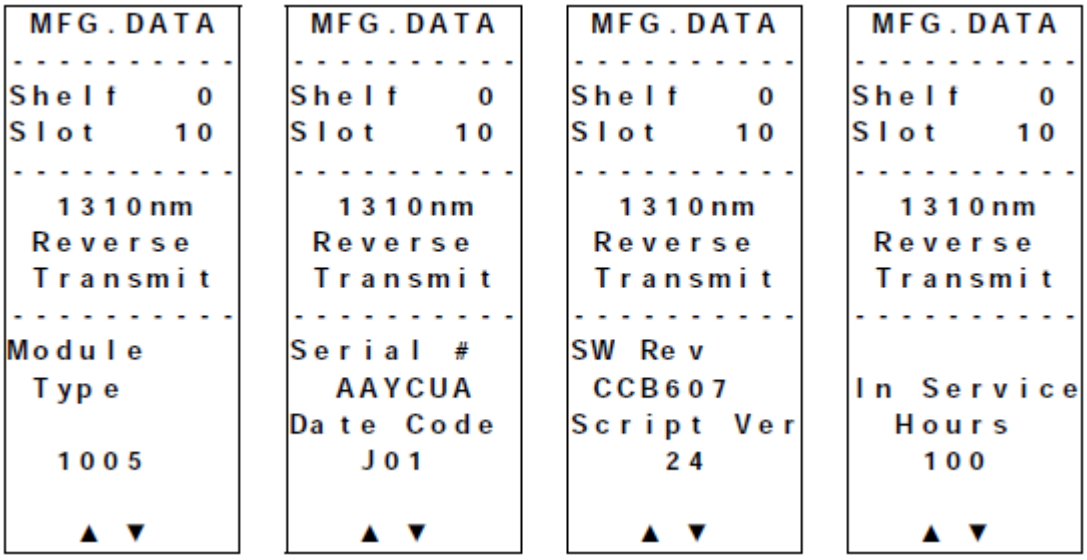
Manufacturing Data Display

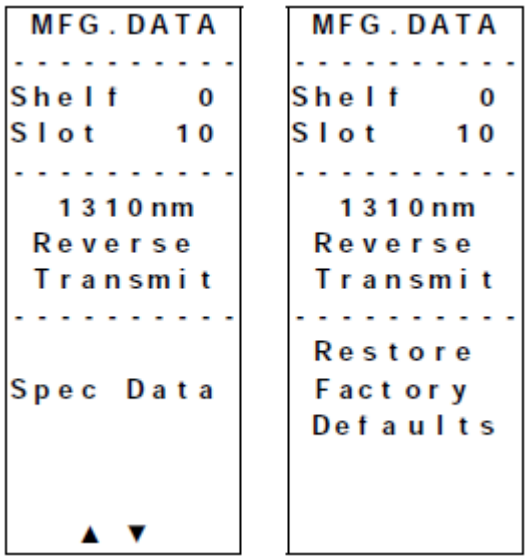
The table below describes the manufacturing data available for this module.

Manufacturing Data	Typical Values
Module	1310 nm Reverse Transmit
Module Type	1005
Serial #	!ABCDEFG
Date Code	J01
Sw Ver (Software Version)	CCB607
Scripr Ver (Script Version)	24
In Service Hours	100
Spec data	Special data
Restore Factory Defaults	Restores the module's 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. Sample **MFG. DATA** menus are shown below.




MFG.DATA
Shelf 0
Slot 10
1310nm
Reverse
Transmit
Spec Data
▲ ▼
MFG.DATA
Shelf 0
Slot 10
1310nm
Reverse
Transmit
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 the module using the ICIM to your system's specifications, 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 installation steps and procedures in this chapter apply if you are using the Local Craft Interface (LCI) to operate the Prisma II 1310 nm Reverse Transmitter.

Scope of this Chapter

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

In This Chapter

This chapter contains the following topics.

⚠ **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

LCI Function

LCI is software that functions as a user interface for the Prisma II platform. LCI is installed on a laptop computer, which is then connected to a Prisma II Chassis. Using LCI, 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 will not communicate with the power supplies in that chassis.

System Requirements

Introduction

You will need the following computer software and hardware to run LCI.

Laptop 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

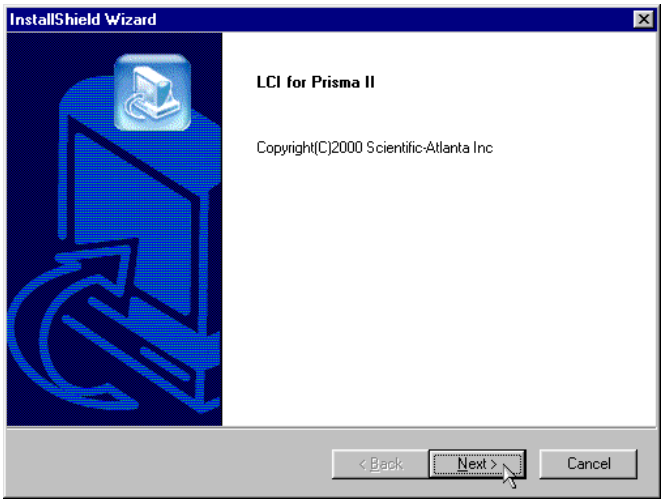
This section describes how to install your LCI software.

Installing the LCI Software

To install LCI, follow these steps.

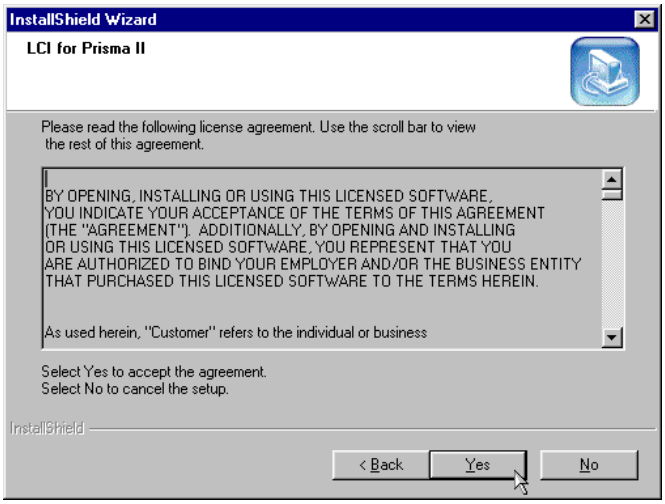
1. Close all programs that are running on your computer.
2. Insert the LCI CD-ROM into your CD-ROM drive.

   Result: The LCI Installation program starts automatically.
3. Click **Next.**



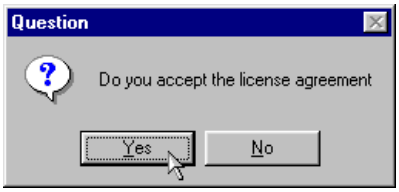
Result: The License Agreement screen displays.

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



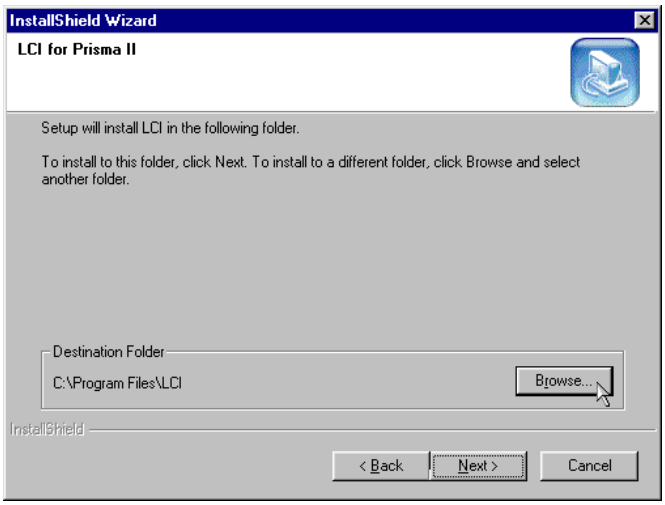
Result: The License Agreement Confirmation dialog box displays.

5. Click **Yes.**

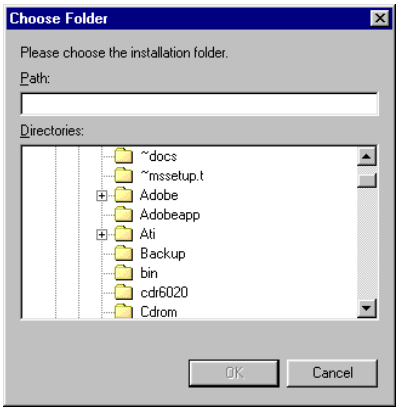


Result: The Destination Folder screen displays.

6. Do you want to install LCI in the specified 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 LCI to be installed, type the path in the **Path** box, or select it in the **Directories** box.



8. Click **OK.**

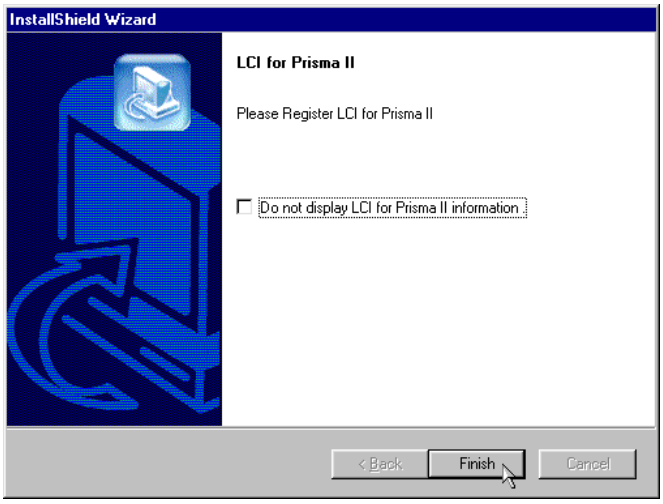
   Result: The Destination Folder screen displays.

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

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

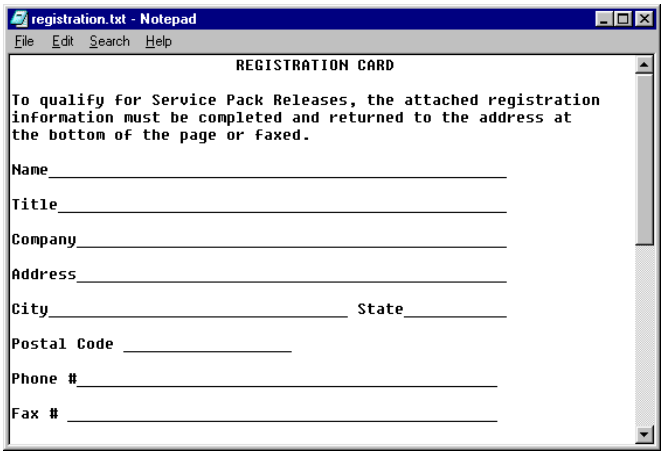
10. Click **Finish.**

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: LCI is installed, and the Registration Information file displays.

11. Follow the instructions in the file.



Connecting Your Laptop Computer to the Chassis

Introduction

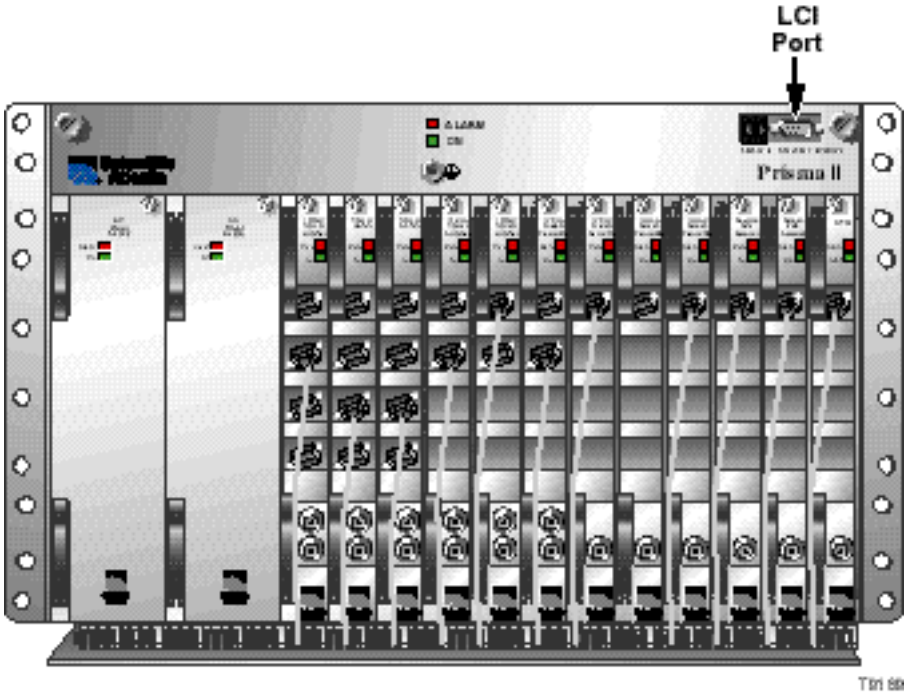
Before you start LCI, you must first connect your laptop computer to the chassis that contains the module(s) you want to check.

Important: LCI 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're located in.

Connecting to the Chassis

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

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



Starting LCI

Introduction

When LCI is started, it polls the module(s) located in the chassis your computer is attached to. For each module it finds, LCI does the following:

- Represents the module in the module 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 LCI. For instructions, refer to **Connecting Your Laptop Computer to the Chassis** earlier in this chapter.

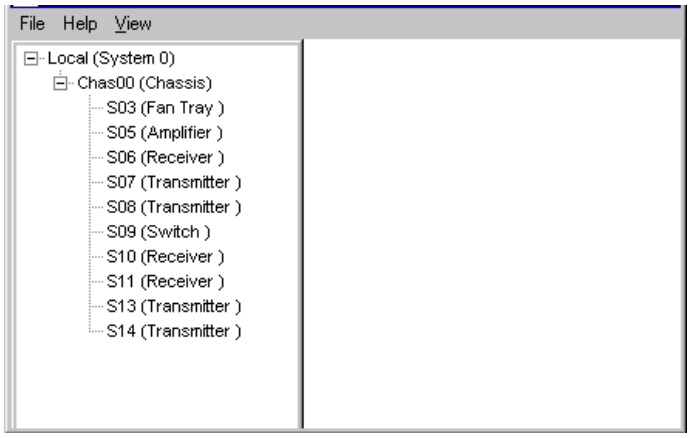
Starting LCI

To start the software, double-click the LCI icon on your Windows desktop.

LCI

Results:

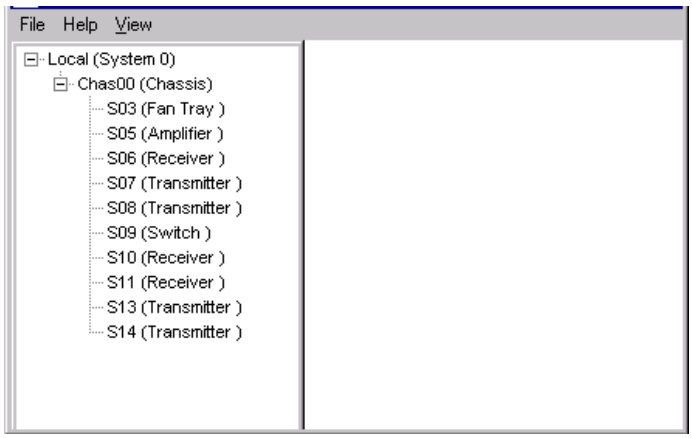
- LCI polls the modules in the chassis
- The main LCI window displays



LCI Module Tree Overview

Introduction

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



Module Tree

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

Module Tree Level	Description
Local (System 0)	Laptop computer being used
Chass00 (Chassis)	Chassis the computer is connected to
Sxx (Module name)	Module(s) located within the chassis. Each module is of the format *chassis slot location (module name).* **Example:** In the graphic above, **S08 (Transmitter)** represents a Prisma II 1310 nm Reverse Transmitter that's located in slot eight of the chassis.

Module Information

Information about a module (its parameters, alarms and statuses) is located in the Module Details window. Within the module tree, you can access this window using one of the following four methods:

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

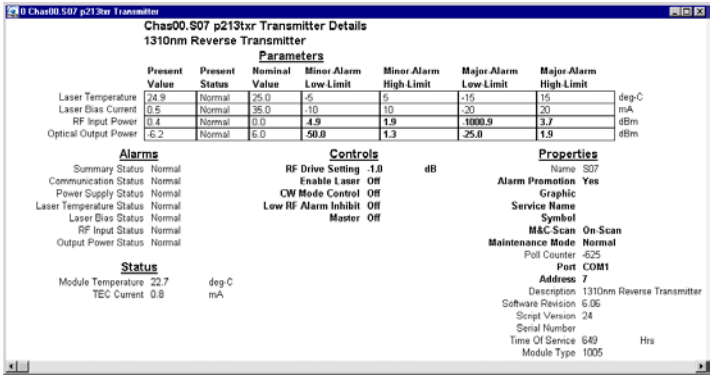
Note: Although you can use the method that's most convenient for you, the procedures throughout this chapter are described using the right-click module technique.

For more information about each of these methods, refer to the next section, **Accessing the Module Details Window.**

Accessing the Module Details Window

Introduction

Information about a module (its parameters, alarms and statuses) is located in the Module Details window. The graphic below shows the Module Details window for a Prisma II 1310 nm Reverse Transmitter.



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

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

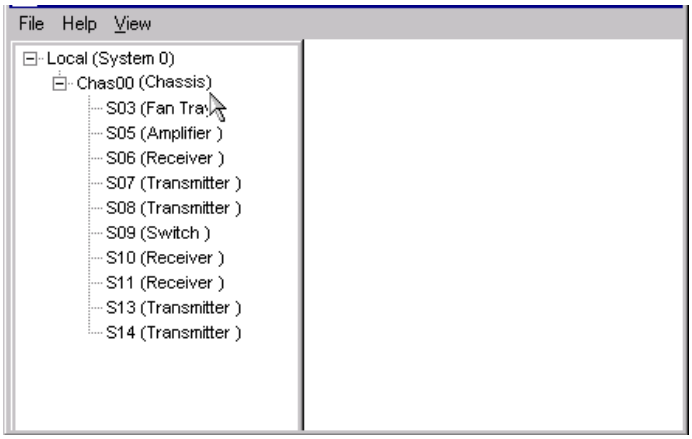
Note: Although you can use the method that's most convenient for you, the procedures throughout this chapter are described using the right-click module technique.

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

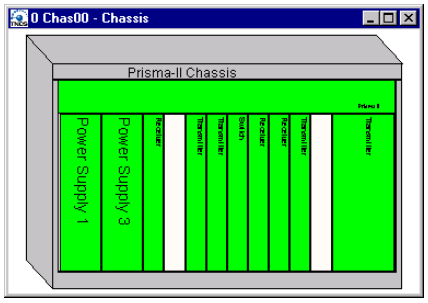
Double-Click the Chassis

To access the Module Details window, follow these steps.

1. Double-click the chassis.

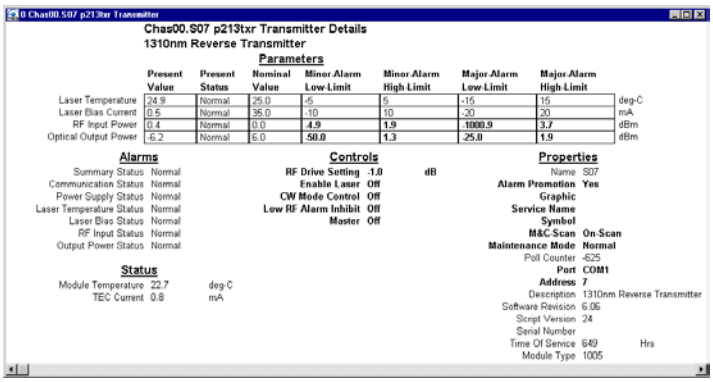


Result: A graphic representation of the chassis displays.



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

   Result: The Module Details window displays.

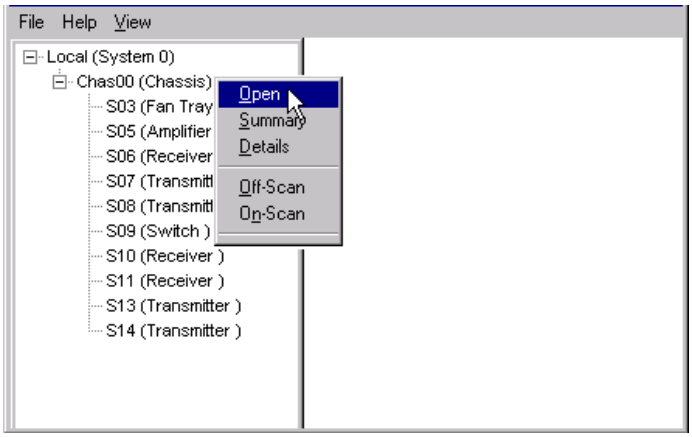


3. Proceed with viewing and/or configuring information.

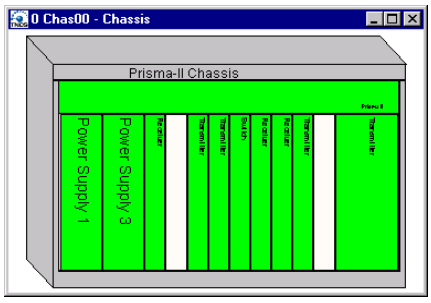
Right-Click the Chassis

To access the Module Details window, perform these steps.

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

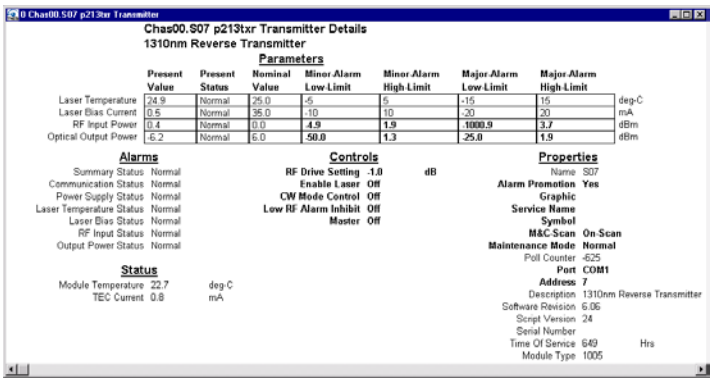


Result: A graphic representation of the chassis displays.



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

   Result: The Module Details window displays.

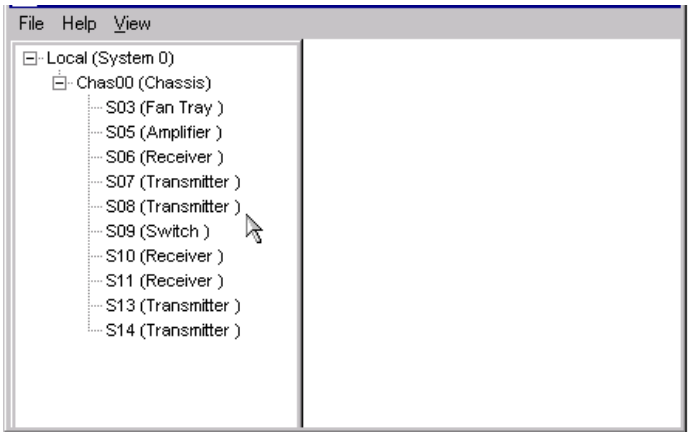


3. Proceed with viewing and/or configuring information.

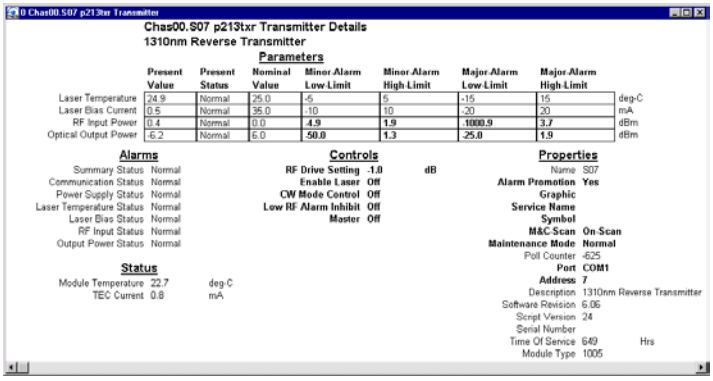
Double-Click the Module

To access the Module Details window, perform these steps.

1. Double-click the module.



Result: The Module Details window displays.

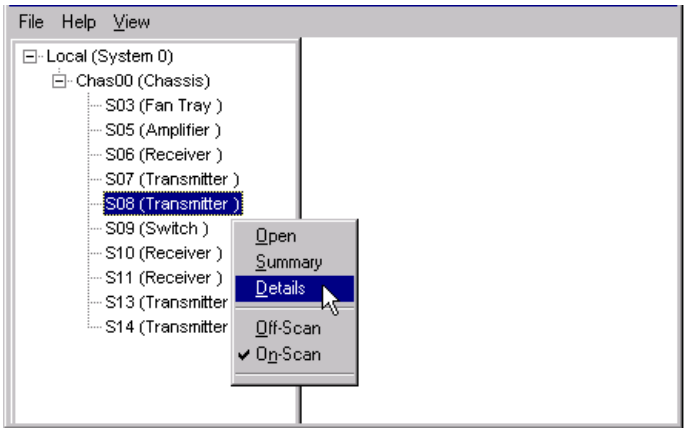


2. Proceed with viewing and/or configuring information.

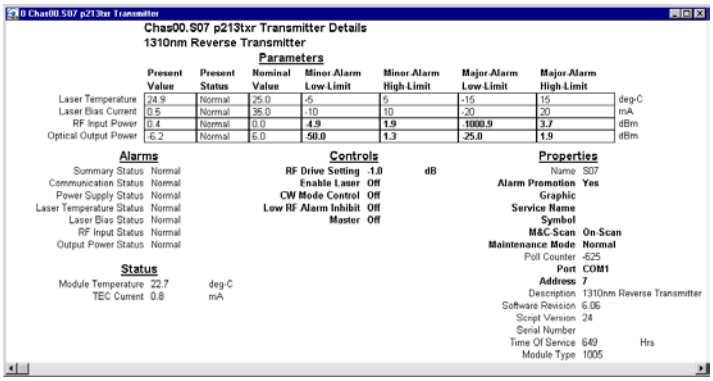
Right-Click the Module

To access the Module Details window, perform these steps.

1. Right-click the module, and click **Details.**



Result: The Module Details window displays.



2. 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 1310 nm Reverse Transmitter.

Monitored Parameters

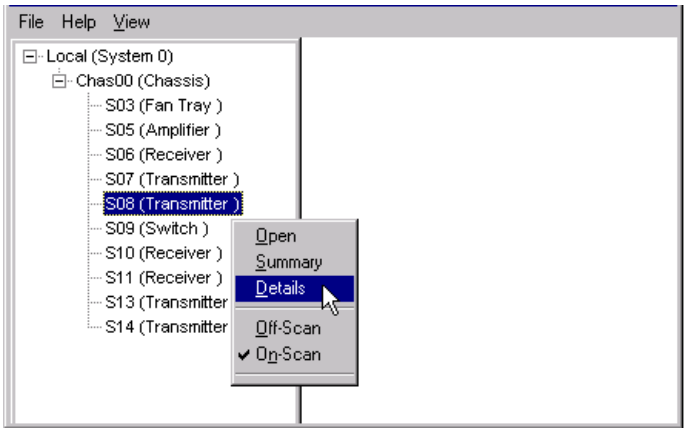
The table below describes the monitored parameters for the Prisma II 1310 nm Reverse Transmitter.

Displayed Parameter	**Units**	**Function**
Optical Output Power	dBm	Displays optical output power.
Laser Bias Current	mA	Displays laser bias current.
RF Input Power	dB	Displays RF input level.
Module Temperature	°C	Displays module temperature.
TEC Current	mA	Displays laser thermoelectric cooler current.
Laser Temperature	°C	Displays laser temperature.
RF Drive Setting	N/A	RF drive level
Enable Laser	N/A	Laser on/off
Cw Mode Control	N/A	Continuous wave mode operation
Low RF Alarm Inhibit	N/A	Low RF alarm enabled/disabled
Master	N/A	Master or Slave operation

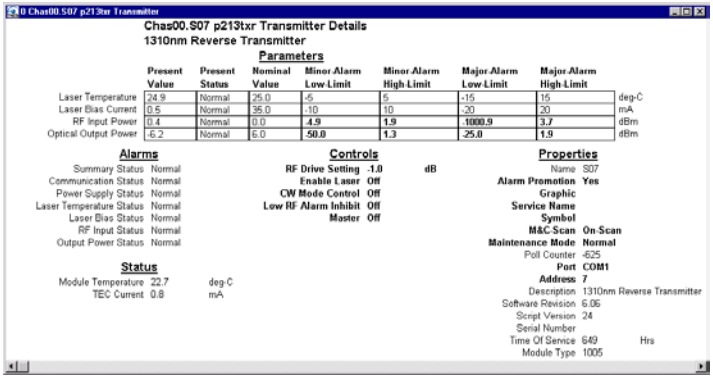
Checking the Operating Status

To monitor the Prisma II 1310 nm Reverse Transmitter operating parameters, follow these steps.

1. In the module tree, right-click the Prisma II 1310 nm Reverse Transmitter, and click **Details.**



Result: The Module Details window displays. The monitored parameters are displayed under **Parameters** and **Status**.



2. Proceed with checking the operating parameters.

Configuring the 1310 nm Reverse Transmitter

Introduction

Using LCI, you can configure the parameters listed below.

Configurable Parameters

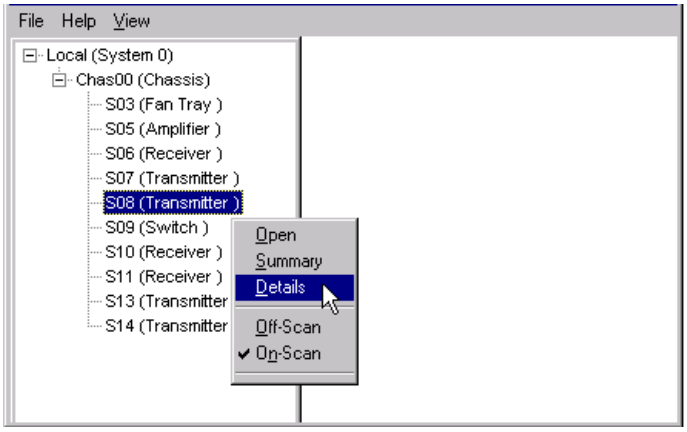
Configurable parameters for the Prisma II 1310 nm Reverse Transmitter are listed below.

Parameter	Function	Values	Default
RF Drive Setting	Sets the relative RF drive level into the transmitter.	-1.5 dB to +1.5 dB in 0.5 dB steps	0.0 dB
Enable Laser	Enables or disables transmitter operation, i.e. turns the laser on or off	On = Enabled Off = Disabled	Enabled
CwMode Control	Automatically adjusts the displayed RF input level by subtracting 3 dB when CW mode is on. The RF high alarm is also disabled when CW mode is on.	On Off	Off
Low RF Alarm Inhibit	Enables or disables the "RF input low" alarm.	On = Alarm enabled Off = Alarm disabled	Enabled
Master	Configures the module as master or slave. If set to Master, the transmitter is controlled *only* by the Enable control above. If set to Slave, the transmitter is controlled by a combination of Enable and the external input CNT_IN_1.	On = Master Off = Slave	Master

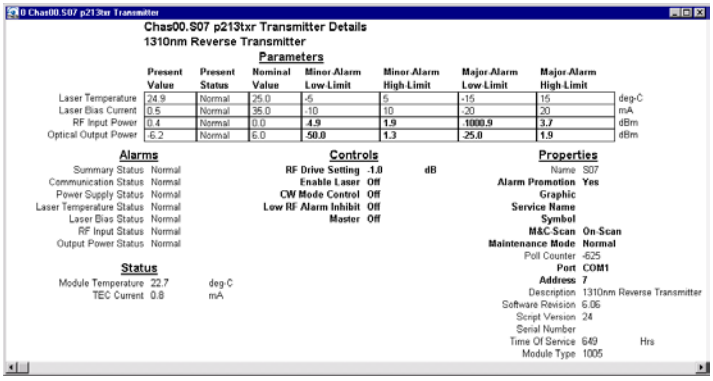
Configuring Parameters

To configure the parameters, follow these steps.

1. In the module tree, right-click the Prisma II 1310 nm Reverse Transmitter, and click **Details.**

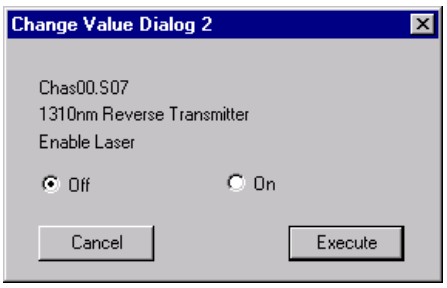


Result: The Module Details window displays.



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 Enable Laser parameter.



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 1310 nm Reverse Transmitter Alarms

Introduction

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

Alarm	Alarm Condition	Range	Possible Cause
Laser Temperature	Laser Temperature	20 to 30 °C	Internal problem
Laser Bias Current	Laser Bias	50 to 100 mA	Internal problem
RF Input Power	RF Input level	-4.5 to +3.0 dB	RF source or cables.
Optical Output Power	Optical Output Power	±0.5 dBm of nominal	Internal problem
Power Supply Status	Power Supply Status	Normal or Alarm	Module not fully seated. Check power supply.

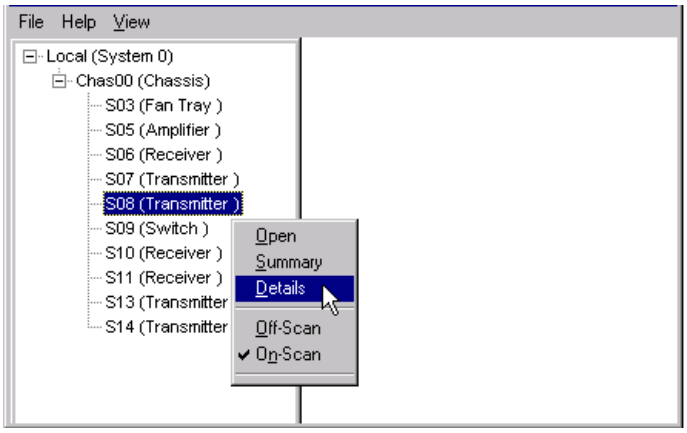
Alarms limits fall into one of the following categories.

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

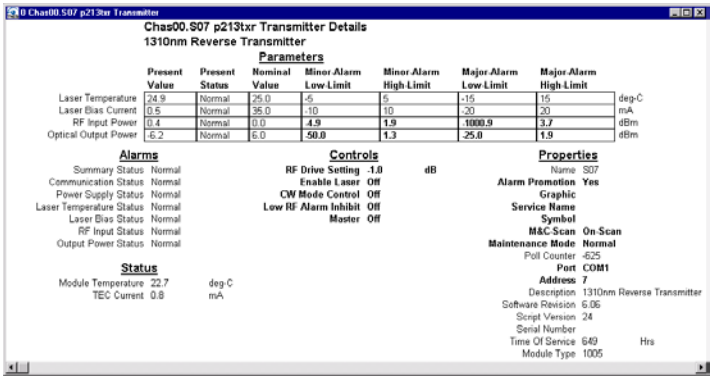
Checking Alarms

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

1. Right-click the Prisma II 1310 nm Reverse Transmitter, and click **Details.**



Result: The Module Details window displays. The alarms are shown under **Parameters** and **Alarms.**



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

Modifying 1310 nm Reverse Transmitter Alarm Limits

Introduction

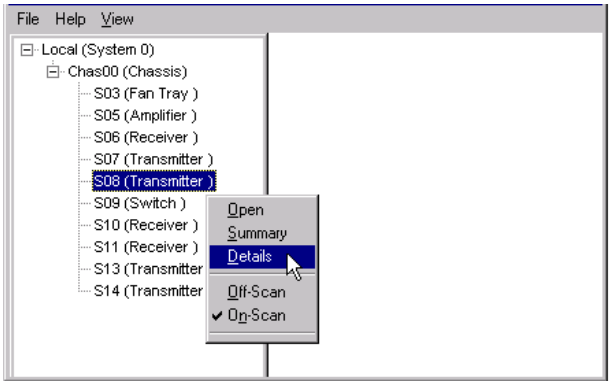
Using LCI, you can modify alarm limits for several parameters. Parameters whose alarm limits you can change are listed below.

Alarm	Alarm Condition	Range	Possible Cause
RF Input Power	RF Input level	-4.5 to +3.0 dB	RF source or cables.
Optical Output Power	Optical Output Power	±0.5 dBm of nominal	Internal problem

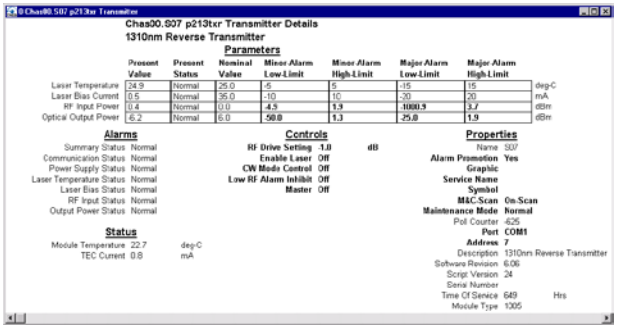
Modifying Alarm Limits

To modify a parameter's alarm limit, follow these steps.

1. In the module tree, right-click the Prisma II 1310 nm Reverse Transmitter, and click **Details.**

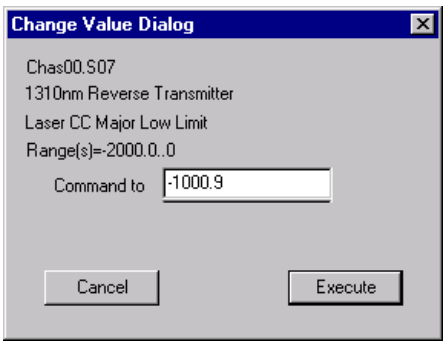


Result: The Module Details window displays. The alarm limits are shown under **Parameters.**



2. Double-click the limit you want to change.

   Result: The Change Value dialog box displays. The graphic below shows the dialog box for the major low limit of the RF Input Power parameter.



3. In the **Command to** box, type the value to use for the limit.
4. Click **Execute.**

   Result: The new value displays in the alarm limit column.

Checking Manufacturing Data

Introduction

Using LCI, you can check the manufacturing data of the 1310 nm Reverse Transmitter.

Manufacturing Data

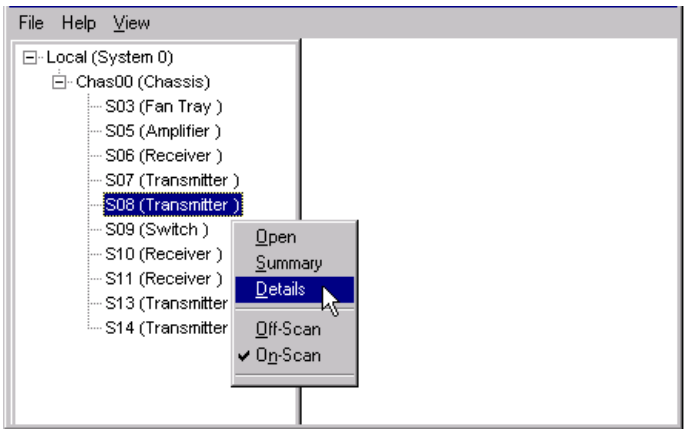
The table below describes the manufacturing data available for this module.

Manufacturing Data	**Typical Values**
Description	1310nm Reverse Transmitter
Serial number	!ABCDEFG
Software Revision	6.06
Script Version	24
Time of Service	1
Module Type	1005

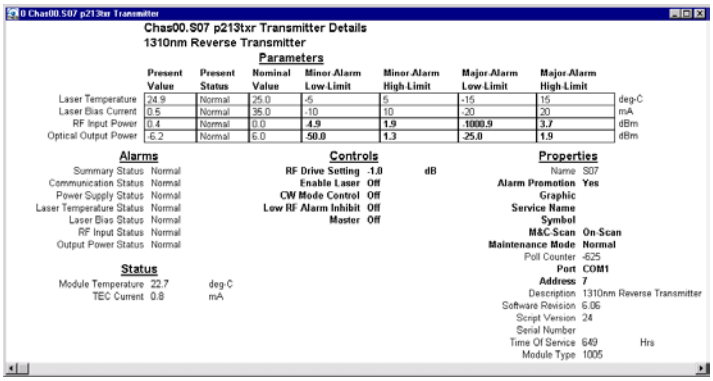
Checking Manufacturing Data

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

1. In the module tree, right-click the Prisma II 1310 nm Reverse Transmitter, and click **Details.**



Result: The Module Details window displays. The manufacturing data is displayed under **Properties.**



2. Proceed with viewing the manufacturing data.

Chapter 5
Maintenance and Troubleshooting

Overview

Introduction

This chapter describes the maintenance guidelines and troubleshooting procedures for the Prisma II Reverse Transmitter.

Qualified Personnel

Only appropriately qualified and trained personnel should attempt to maintain or troubleshoot these products.

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

In This Chapter

This chapter contains the following topics.

Prisma Module Maintenance

Maintaining the Prisma Module

To ensure optimal performance, the following maintenance is recommended.

Frequency	Maintenance Required
Weekly	• Check all parameters and test points • Record data • Make 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

Maintenance Record

It may be helpful to establish a maintenance record or log for this module. You may want to record laser power level, laser temperature readings, laser bias current, or power supply voltages.

Large variations in any of the parameters above should be investigated prior to failure.

General Troubleshooting Information

Introduction

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

Equipment Needed

You may need the following equipment to troubleshoot these modules.

- Digital voltmeter
- Fiber connector cleaning materials

Additional Assistance

If you need additional assistance contact Cisco Services.

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 Laser Module faults.

Reverse Transmitter Alarm Conditions

If the red ALARM indicator is illuminated or is blinking, refer to the chart below to determine the cause of the alarm. If you are unable to determine the cause of the alarm, telephone Cisco Services for help.

Alarm	Alarm Condition	Range	Possible Cause
InRF	RF Input level	-4.5 dB to +3.0 dB	RF source or cables
OutPwr	Optical output power	±0.5 dBm of nominal	Internal problem
CwMode	CW mode	Fault	CwMode set to ON
LasTemp	Laser temperature	20°C to 30°C	Internal problem
LasBias	Laser bias	50 mA to 100 mA	Internal problem
Enable	Enabled	Fault	Check Enable and Master CONFIG settings
PsOK	Bus voltage status	Fault	Module not fully seated. Check power supply

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.

Glossary

Term, Acronym, Abbreviation	Meaning
A	Ampere (amp) is the unit of measure for electrical current.
AC	Alternating current
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.
ATC	Automotive fuse
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
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
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 Reuse	A technique in which independent information is transmitted on orthogonal polarizations to "reuse" a given band of frequencies.
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 Electrotechnical Commission
IF	Intermediate frequency
IFL	Interfacility link
IP	Internet protocol
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
LOCATE(TM)	Systems for monitoring, analyzing, or reporting electric power outages
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
PCB	Printed circuit board
PCM	Pulse code modulation
PDI	Pressure differential indicator
PDU	Power distribution unit
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 reciever
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
SP	Splitter. It is a device which divides power from an input to deliver multiple outputs or combines multiple inputs 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.
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

Cisco Systems, Inc.
5030 Sugarloaf Parkway, Box 465447
Lawrenceville, GA 30042

678 277-1120
800 722-2009
www.cisco.com

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