



Prisma II Forward Receiver

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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Contents

Safety Precautions	v
Compliance	vi
Laser Safety	vii
Chapter 1	Introduction
Overview.....	1-1
Introduction.....	1-2
The Front Panel.....	1-4
The Back Panel	1-5
Configuration Summary.....	1-6
Chapter 2	Installation
Overview.....	2-1
Preparing for Installation	2-2
Site Requirements	2-3
Connecting RF Cables to the Chassis.....	2-6
Installing the Module in the Chassis.....	2-7
Connecting Optical Cables	2-9
Communications Connections.....	2-12
Master/SlaveConnections	2-14
Chapter 3	Operation Using the ICIM
Overview.....	3-1
ICIM Introduction	3-2
The ICIM Front Panel.....	3-3
The ICIM Password.....	3-6
Operating the ICIM	3-11
Monitoring Forward Receiver Operating Status Using the ICIM	3-14
Configuring the Forward Receiver Using the ICIM	3-16
Checking Forward Receiver Alarms Using the ICIM.....	3-18
Checking Manufacturing Data Using the ICIM	3-21
Using the ICIM to Save the Configuration.....	3-23

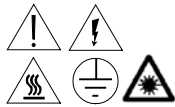
Contents, Continued

Chapter 4	Operation Using LCI	
	LCI Introduction	4-2
	System Requirements	4-3
	Installing LCI	4-4
	Connecting Your Laptop Computer to the Chassis	4-8
	Starting LCI	4-9
	LCI Module Tree Overview	4-10
	Accessing the Module Details Window	4-12
	Checking the Operating Status	4-19
	Configuring the Forward Receiver	4-21
	Checking Forward Receiver Alarms	4-24
	Modifying Forward Receiver Alarm Limits	4-26
	Checking Manufacturing Data	4-28
Chapter 5	Maintenance and Troubleshooting	
	Overview	5-1
	Module Maintenance	5-2
	General Troubleshooting Information	5-3
	Troubleshooting Alarm Conditions	5-4
Chapter 6	Customer Information	
Glossary		Glossary-1

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.



You may find this symbol affixed to this product. This symbol indicates an infrared laser that transmits intensity-modulated light and emits invisible laser radiation. This symbol can also indicate an LED that transmits intensity-modulated light.

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.

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.

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.

Avoid personal injury! 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 Scientific-Atlanta.

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.

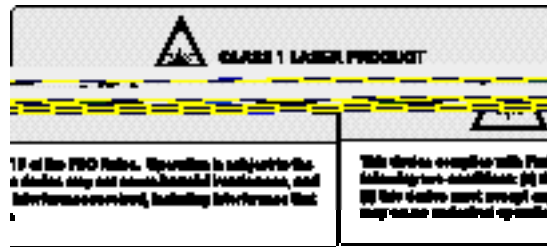
Laser Safety, Continued

Laser Warning Labels

This module bears the following labels.



T10149



Chapter 1

Introduction

Overview

Introduction

This chapter describes the front and back panels, and gives a setup summary for the Prisma II™ Forward Receiver.

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	1-2
The Front Panel	1-4
The Back Panel	1-5
Configuration Overview	1-6

Introduction

Overview

The Prisma II Forward Receiver is one of a family of products in the Prisma® Series II product line. This module is a plug-in module for the Prisma Series II platform.

This product is an indoor forward receiver capable of receiving reverse path optical signals from a reverse transmitter. The Prisma II Forward Receiver is designed to operate over an optical input range of -4 dBm to +5 dBm.

Two versions of the forward receiver are available, as follows:

- P2-RXRA-xx: Standard version with a manually-adjustable variable attenuator (xx denotes connector option). This unit is easily recognized by the removable protective plug directly above the front panel RF test point. Refer to data sheet part number 739203 for detailed specifications on this receiver.
- P2-RXF-SA-NA: No attenuator version used exclusively with the High-Performance Supertrunk Link application (NA denotes “no attenuator”). This unit does not have the removable plug. Refer to Supertrunk data sheet part number 748710 for detailed specifications on this receiver.

Note: Any references to the RF attenuator in this document apply only to the standard version of the receiver.

Features

The Prisma II Forward Receiver has the following features:

- Front panel green LED shows operating status
- Front panel red LED shows alarm status
- -20 dB test point
- Manually variable RF attenuator (standard version only)
- Optical input connector
- Plug-and-play capability
- Compatible with Cisco LCI and TNCS Software
- Blind mate RF connections

Prisma II Forward Receiver Operation

The Prisma II Forward Receiver is used in conjunction with an optical transmitter to receive signals from the hub or headend.

Optical input is through an optical connector mounted on the front of the module. The RF output is through a BNC or F-connector on the rear of the chassis.

Introduction, Continued

The optical signal is detected by a photodiode and is converted to an electrical signal. The electrical signal is then sent to an RF amplifier with approximately 24 dB of gain for the module. The output of the RF amplifier goes into an RF path switch which routes the RF output to the respective connector on the rear of the module.

The amplifier provides sufficient gain to ensure a minimum level at the output of the receiver. On the standard version receiver, the RF output may be attenuated as much as 6.0 dB relative to nominal by adjusting the variable attenuator accessible from the front panel. The actual RF output level of the receiver (minus 20 dB) can be monitored at the -20 dB test point on the front panel.

The module is controlled by an ICIM, the LCI software, or TNCS software.

Optical Input

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

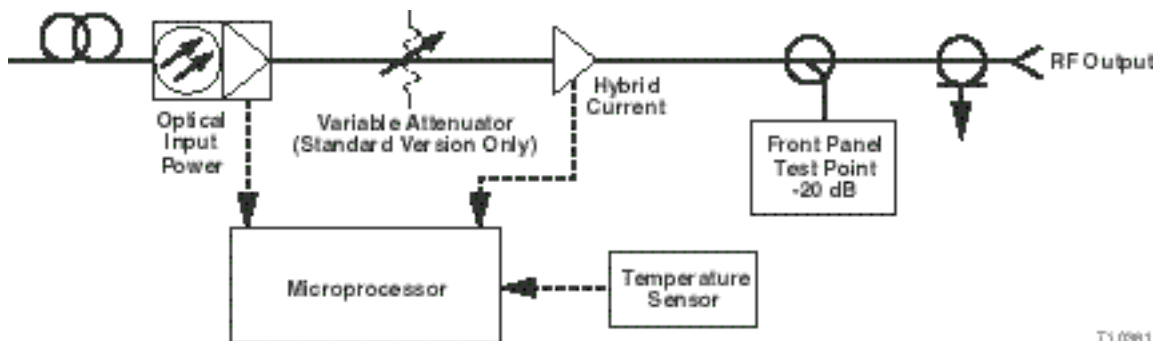


WARNING:

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 Forward Receiver is shown below.



The Front Panel

Overview

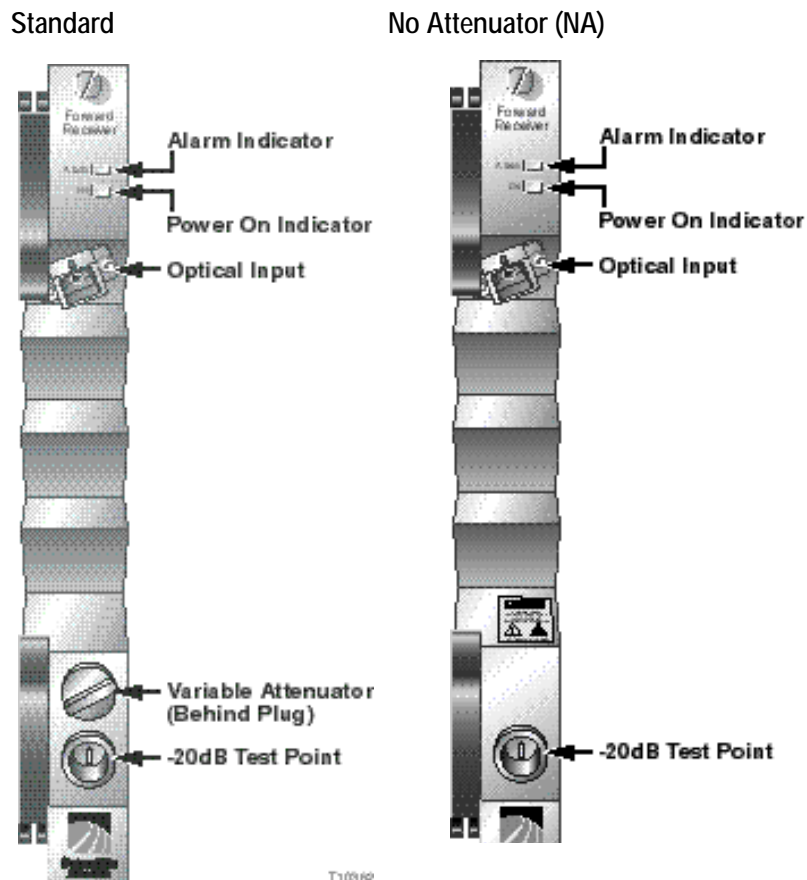
The Prisma II Forward Receiver's front panel includes the following features.

Part	Function
Alarm indicator	Illuminates or blinks when an alarm condition occurs.
Power ON indicator	Illuminates when power is supplied to the module.
Optical input	Connects the optical cable to the input of the module.
-20 dB test point	Provides a -20 dB sample of the RF output signal.
Variable RF Attenuator	Provides adjustment of RF output level (6 dB range).

⚠ CAUTION:
Avoid internal damage to the module! When adjusting the variable attenuator, do not insert the tool beyond the potentiometer and onto the wiring board.

Front Panel Illustration

The front panels of the Prisma II Forward Receivers are shown below.

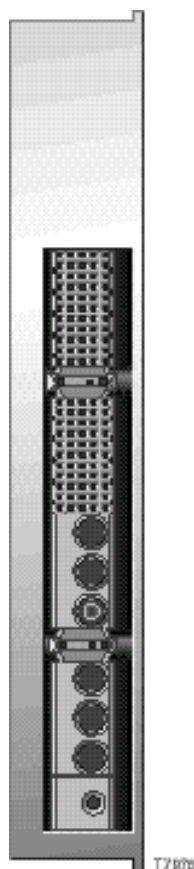


The Back Panel

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 inside the chassis. The 110-pin connector provides the following:

- 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 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 Forward Receiver is shipped from the factory with operational parameters set to factory defaults. However, you will probably choose to configure the operating parameters so that they are best suited for your application.

Configuration and Monitoring Methods

The Prisma II Forward Receiver 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 receiver for the following:

- Receiver on/off
- Master/slave operation
- Nominal input level
- 1310 or 1550 nm operation
- 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 Forward Receiver.

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 Forward Receiver.

Topic	See Page
Preparing for Installation	2-2
Site Requirements	2-3
Connecting the RF Cables to the Chassis	2-6
Installing the Module in the Chassis	2-7
Connecting Optical Cables	2-9
Communications Connections	2-12
Master/Slave Connections	2-14

Preparing for Installation

Overview

Before you begin, make sure that the module is 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 Services

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 optical cable with connectors	carry optical signals
one RF cable with connectors	carry RF 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 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 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

Site Requirements, Continued

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, this 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, this module could be installed in these slots.

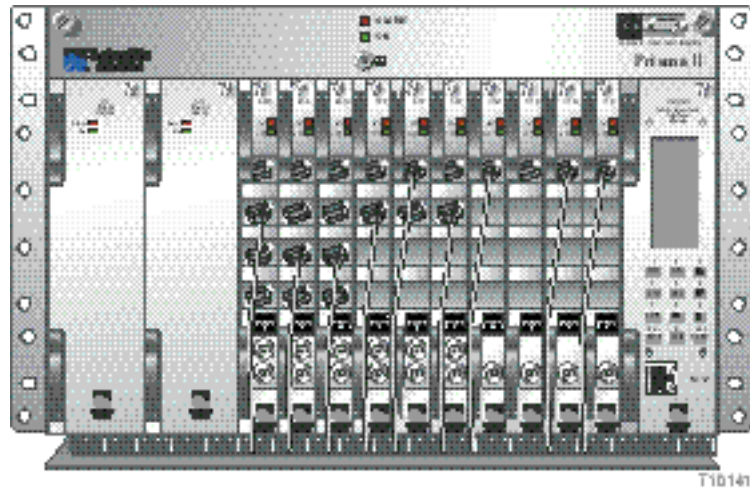
Chassis Style

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.

Site Requirements, Continued

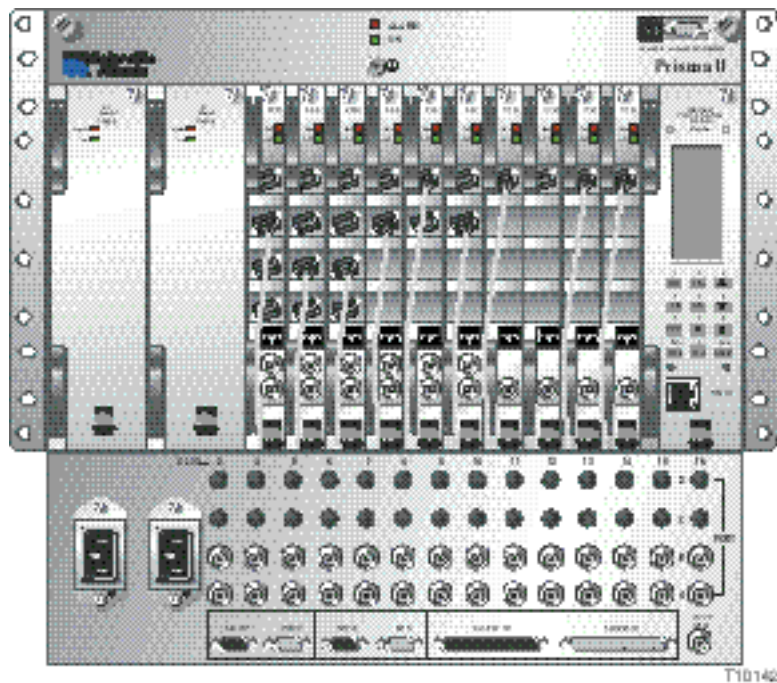
Rear Access Chassis Illustration

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.



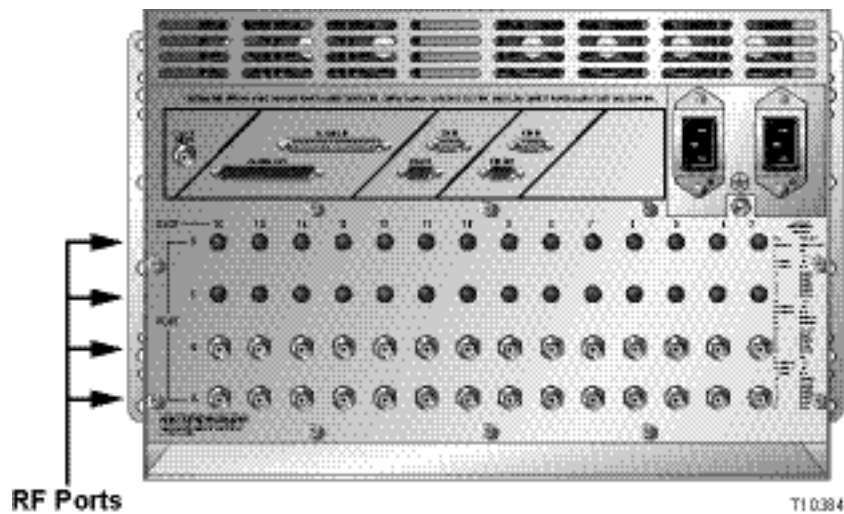
Connecting the RF Cables to the Chassis

RF Cable Connection Procedure

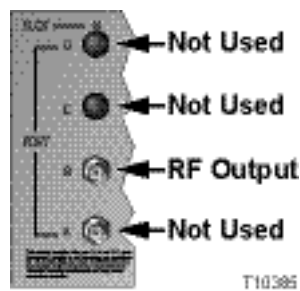
Important: The following procedure assumes the Prisma II Chassis is mounted in a rack.

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

1. Locate one 75 ohm RF cable and route it to the appropriate RF destination.
2. Locate the RF ports of the corresponding slot where the module is to be installed. This is the RF output connection.



3. Attach the other end of the RF cable to the Port B connector (RF output) of the corresponding slot where the module is to be installed.



4. If F-connectors are installed, use a 7/16-in. open-end wrench to secure both cables to the connectors at the chassis. If BNC connectors are used, twist firmly to connect.

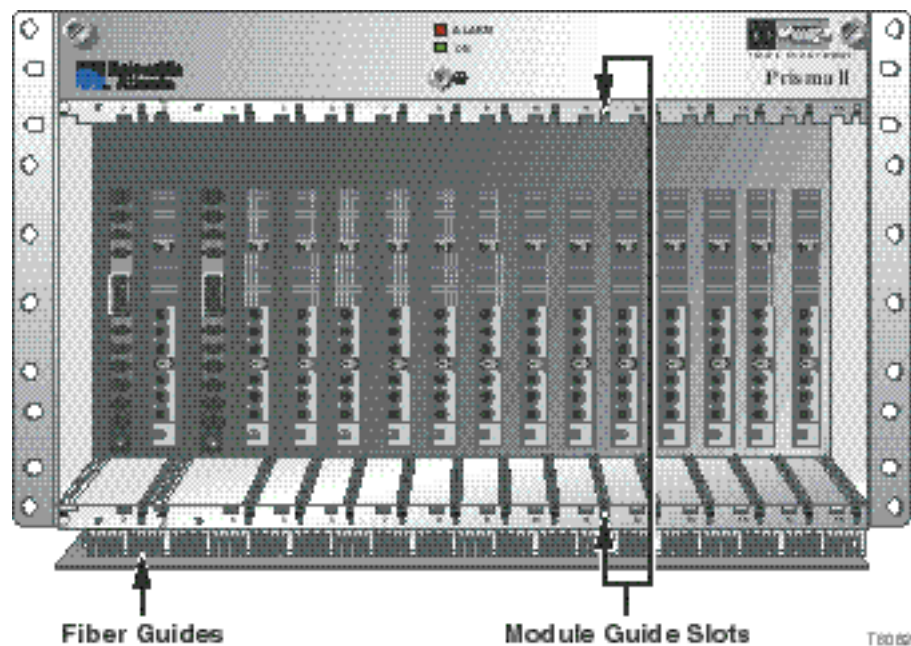
Installing the Module in the Chassis

Installing the Module

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

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.

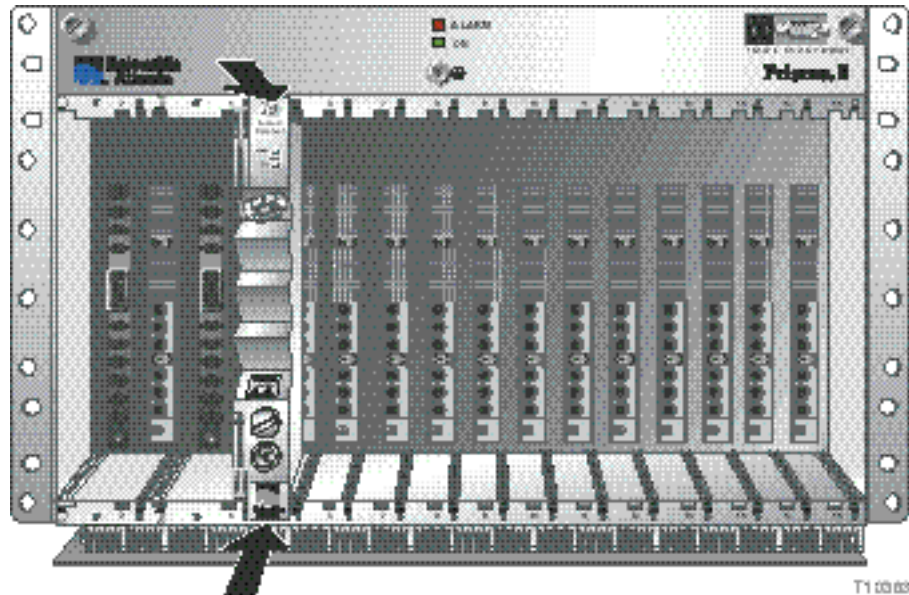


2. Align the ridges on the top and bottom of the module with the module guide slots located on the chassis. Module ejectors must be fully extended when inserting the module.

Installing the Module in the Chassis, Continued

3. Gently slide the module into the chassis until you feel the connectors on the back of the module join the receptacles at the back of the slot.

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

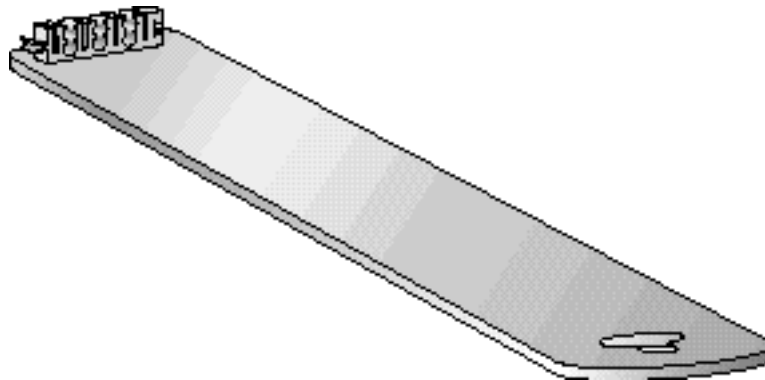


4. Secure the module by pressing the two ejectors located on the left side of the module until they lock. When the levers are locked, the power and communications connections at the rear of the module mates with the communications connectors at the back of the chassis slot.
5. Hand-tighten the screw at the top of the module, to secure it in the chassis. Use a $\frac{3}{8}$ -in. flat-blade screwdriver to secure. **Do not over tighten.**

Connecting Optical Cables

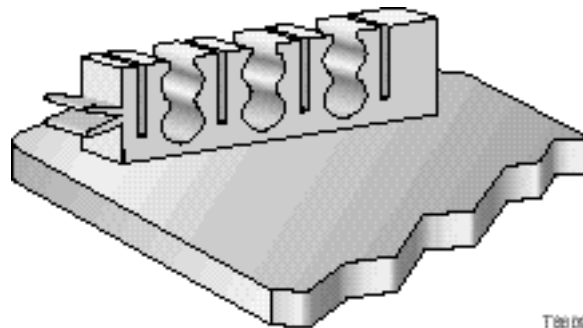
The Fiber Fish Tool

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 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.

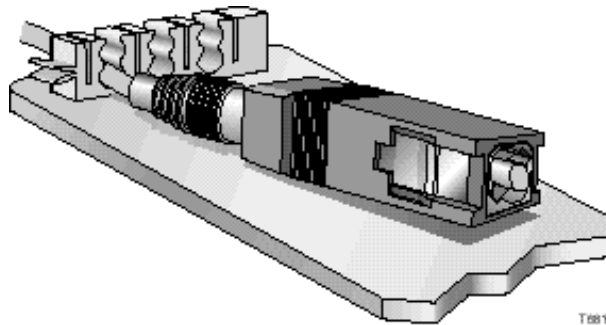


Connecting Optical Cables, Continued

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

To get an 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 Fiber Fish tool as shown.



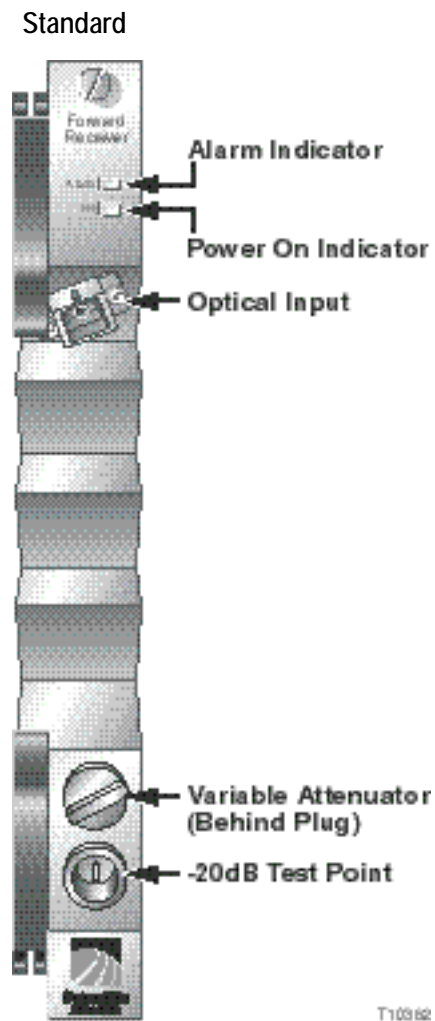
4. At the front of the chassis, pull the Fiber Fish tool (with cable attached) to the front of the chassis.
5. Disengage the optical cable from the Fiber Fish tool and attach to the appropriate connector on desired module. See **Cable Connection Procedure**.

Connecting Optical Cables, Continued

Cable Connection Procedure

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

1. Attach the optical cable to the optical input connector located on the front of the module.



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

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 ICIM to communicate with TNCS.

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 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.



Communications Connections, Continued

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 a 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

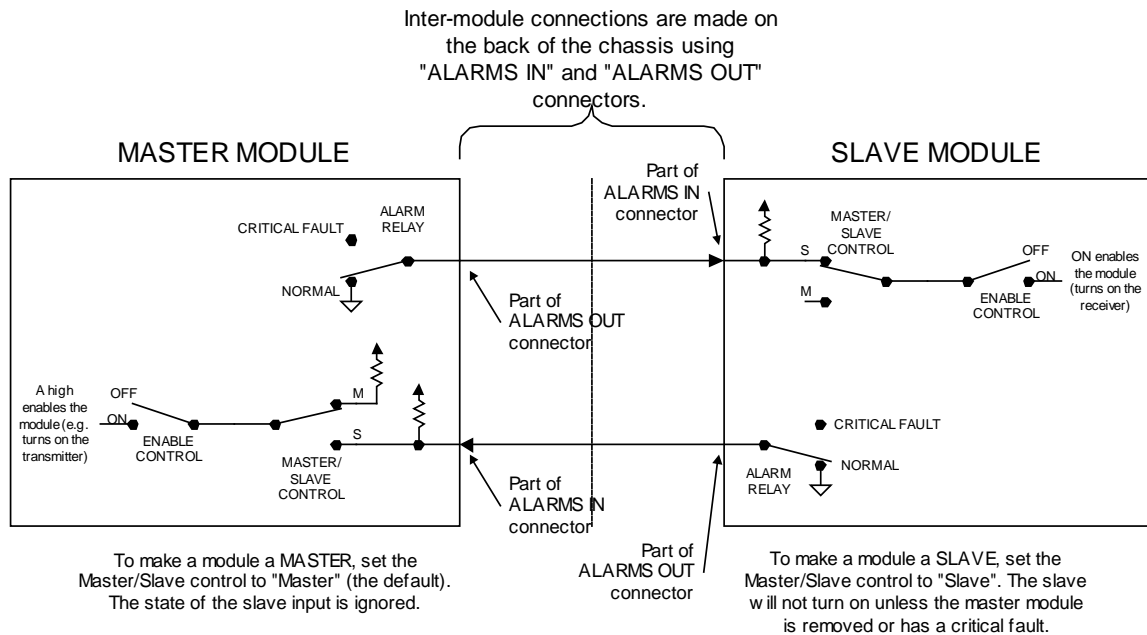
To make EM IN/EM OUT connections, follow these steps.

1. A connection is required from the first chassis containing an ICIM to the TNCS system. The Prisma II Cable Kit, part number 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, part number 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 Forward Receiver 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.

Master/Slave Connections, Continued

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 Forward Receiver.

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 module.

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	3-11
Monitoring Forward Receiver Operating Status Using the ICIM	3-14
Configuring the Forward Receiver Using the ICIM	3-16
Checking Forward Receiver Alarms Using the ICIM	3-18
Checking Manufacturing Data Using the ICIM	3-21
Using the ICIM to Save the Configuration	3-23



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.

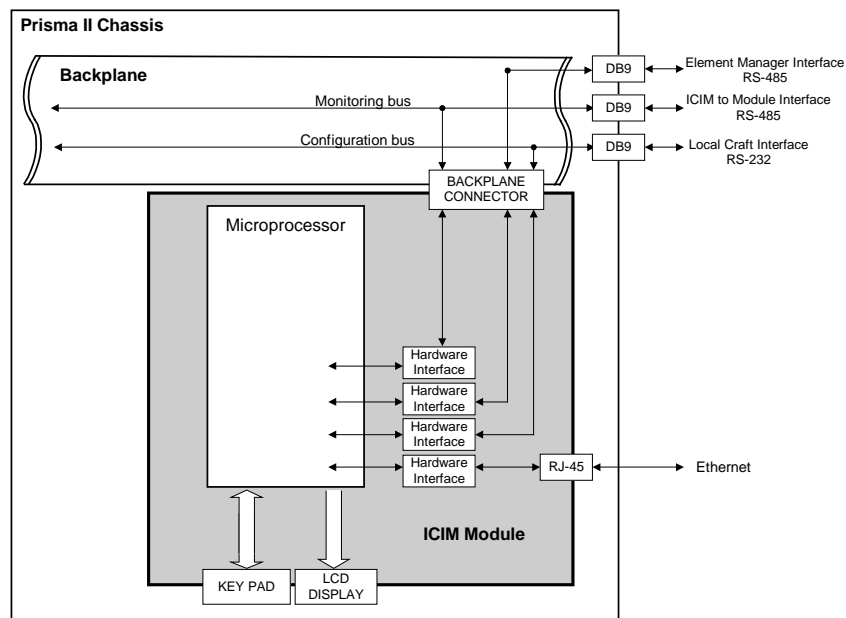
Important: Do not operate any Prisma II Chassis without a fan tray installed properly. If a fan tray is not installed in the Prisma II Chassis, the ICIM will not communicate with any of the modules in that chassis.

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

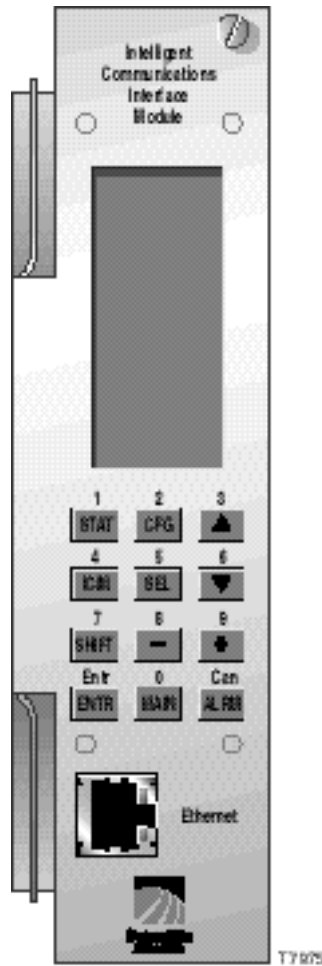
The ICIM is illustrated in the block diagram below.



The ICIM Front Panel

ICIM Front Panel Illustration

The following illustration shows the front panel of the ICIM.



The ICIM Front Panel, Continued

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 illustration shows a vertical rectangular display area representing the LCD screen. The text is arranged in a list-like format, with dashed horizontal lines separating the menu items. The items are: 'MAIN' at the top, 'Offline', 'Modules 15', 'Alarms 0', 'Scroll', and 'Module Shelf Slot' at the bottom.

MAIN
Offline
Modules 15
Alarms 0
Scroll
Module Shelf Slot

The ICIM Front Panel, Continued

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
	Displays status information for the selected module
	Displays configuration information for the selected module
	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
	Selects the highlighted parameter
	Displays ICIM module information such as firmware version, serial number, and baud rate
	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
	Enters input data (if valid)
	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 Cisco 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.

The ICIM Password, Continued

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 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	ICIM	ICIM	ICIM
Offline	Shelf 7 Slot 15	Shelf 7 Slot 15	Shelf 7 Slot 15
Modules 0	Mfg Data	Mfg Data	User Psw
Alarms 0	Password	Password	SA Psw
Scroll			Change Psw
Module Shelf Slot	Update Adr	Update Adr	Disable Psw

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**.

The ICIM Password, Continued

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

ICIM	ICIM	ICIM	ICIM
Shelf 7 Slot 15	Shelf 7 Slot 15	Shelf 7 Slot 15	Shelf 7 Slot 15
User Psw	User Psw *****	User Psw 1234****	User Psw 12345678
Shift Off	Shift On	Rejected Shift Off	Accepted Shift Off

The ICIM Password, Continued

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  key to select **Change Psw**.
4. When **Change Psw/Shift Off** is displayed, press the  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  key to delete that digit.
5. Press the  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  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  key to input the password.

ICIM	ICIM	ICIM	ICIM
Shelf 7 Slot 15	Shelf 7 Slot 15	Shelf 7 Slot 15	Shelf 7 Slot 15
User Psw	Change Psw	Change Psw *****	Change Psw 87654321
SA Psw			
Change Psw			
Disable Psw	Shift Off	Shift On	Shift On

The ICIM Password, Continued

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.

ICIM	ICIM	ICIM
Shelf 7 Slot 15	Shelf 7 Slot 15	Shelf 7 Slot 15
User Psw	Enter Psw 8765****	Enter Psw 87654321
SA Psw		
Change Psw	Password Is Now Disabled	Failed, Password Not Active
Disable Psw	Shift Off	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.

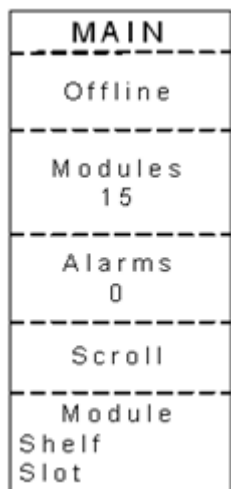
Accessing the ICIM LCD Contrast

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.



Operating the ICIM, Continued

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.

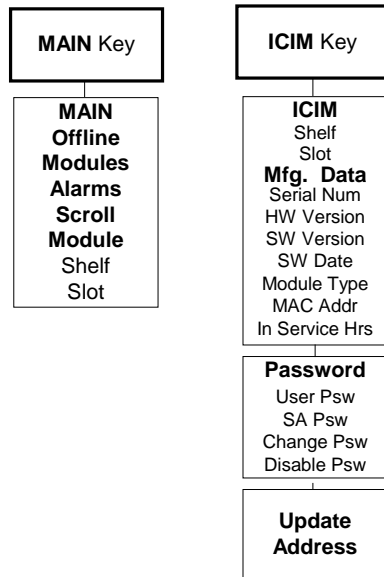
Display	Description
Shelf Slot	Displays the location of the ICIM module.
Mfg Data	Displays manufacturing data about the ICIM.
Password	Allows you to enter, change, or disable a system password. See Using the ICIM Password earlier in this chapter.
Update Adr	If the Chassis ID number switch has been changed,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

ICIM	ICIM	ICIM
Shelf 7 Slot 15	Shelf 7 Slot 15	Shelf 7 Slot 15
Mfg Data	Mfg Data	Mfg Data
Password	Password	Password
Update Adr	Update Adr	Update Adr

Operating the ICIM, Continued

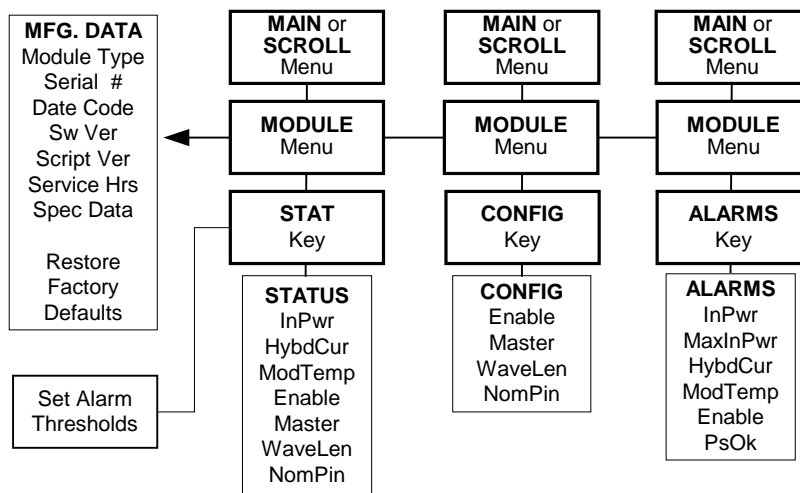
Prisma II MAIN Menu and ICIM Menu Structure

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 Forward Receiver Software Menu Structure

From the MAIN or SCROLL menus, you can navigate to the Prisma II Forward Receiver MODULE menu. From the MODULE menu, press the **STAT**, **CFG**, or **ALRM** key to display the desired parameter menu. The structure for the Prisma II Forward Receiver software is shown below.



Monitoring Forward Receiver Operating Status Using the ICIM

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 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 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 key. The information for the module of interest is now displayed on the ICIM menu.
6. When you have reached the desired module's location, press the 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 key to return to the MAIN menu.

Monitored Parameters

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

Parameter	Units	Function
InPwr	dBm	Actual optical input power level
HybdCur	A	Hybrid amplifier current
ModTemp	degC	Module temperature
Enable	N/A	Receiver on or off
Master	N/A	Master/Slave mode
WaveLen	nm	1310 or 1550 operation
NomPin	dBm	Nominal input power level

Continued on next page

Monitoring Forward Receiver Operating Status Using the ICIM, Continued

STATUS Menus
















Press **STAT** to select the **STATUS** menu. Typical **STATUS** menus are shown below.

STATUS	STATUS	STATUS	STATUS
Shelf 0	Shelf 0	Shelf 0	Shelf 0
Slot 6	Slot 6	Slot 6	Slot 6
Forward Receiver	Forward Receiver	Forward Receiver	Forward Receiver
InPwr 1.00 dBm	ModTemp 35.8 degC	Master Master	NomPin 1.0 dbm
HybCur 0.35 A	Enable ON	WaveLen 1550 nm	
▲ ▼	▲ ▼	▲ ▼	▲ ▼

Configuring the Forward Receiver Using the ICIM

Configuring Parameters

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

1. From the **MAIN** menu, press the  key to highlight the **Shelf** and **Slot** fields.
2. Press the  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  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  key. The initial information for the module of interest is now displayed on the ICIM menu.
6. To configure the module, press the  key.
7. Press the  key or the  key to scroll through the configurable controls until you find the parameter of interest.
8. Press the  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  key to save the changes and return to the MAIN menu.

Configuring the Forward Receiver Using the ICIM, Continued

Configurable Parameters

Configurable parameters for the Prisma II Forward Receiver include the following.

Control	Function	Values	Default
Enable	Receiver On/Off	On or Off	On
Master	Master/Slave. When set to Master Off, receiver begins operation with an external alarm signal	On or Off	On
WaveLen	Configure Receiver for 1310 nm or 1550 nm operation	1310 nm or 1550 nm	1550 nm
NomPin	Set Nominal Input Level	+5.0 to -20.0 dBm in 0.5 dBm steps	3.00 dBm

CONFIG Menus

Some typical Prisma II Forward Receiver **CONFIG** menus are shown below.

CONFIG ----- Shelf 0 Slot 6 ----- Forward Receiver ----- Enable Master WaveLen NomPin ▲ ▼	CONFIG ----- Shelf 0 Slot 6 ----- Forward Receiver ----- Enable ON	CONFIG ----- Shelf 0 Slot 6 ----- Forward Receiver ----- Master ON	CONFIG ----- Shelf 0 Slot 6 ----- Forward Receiver ----- WaveLen 1550 nm
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Checking Forward Receiver 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 condition 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  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  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  key. The **MODULE** menu is displayed on the ICIM.
6. Press the  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  key. The display returns to the MAIN menu.

Checking Forward Receiver Alarms Using the ICIM, Continued

User Alarm Data Display

The alarm display data for this module is shown below.

Alarm	Alarm Condition	Type	Typical Range
InPwr	Optical power = >1.5 dBm or <-1.5 dBm Optical power = >2.0 dBm, <-2.0 dBm	Minor Major	-20 dBm to 6 dBm
MaxInPwr	Optical input > 6.0 dBm	Major	±0.5 dBm of nominal
HybdCur	Current = >.450 A or <.150 A Current = >.500 A or <.050 A	Minor Major	.150 A to .450 A .050 A to .500 A
ModTemp	Module temp exceeds -40°C to 90°C	Major	-40°C to 90°C
Enable	Unit disabled by user	Major	Enabled / disabled
PsOk	Bus Fault	Major	OK/Bus fault

User Alarm Menus

When a module's **ALARMS** menu is selected, press the  key or the  key to scroll through alarms. Typical user **ALARMS** menus are shown below.

ALARMS	ALARMS	ALARMS
Shelf 0 Slot 6	Shelf 0 Slot 6	Shelf 0 Slot 6
Forward Receiver	Forward Receiver	Forward Receiver
-----	-----	-----
InPwr Maj L	HybrdCur Min H	Enable FAULT
MaxInPwr Maj H ▲ ▼	ModTemp Maj L ▲ ▼	PsOk FAULT ▲ ▼

Checking Forward Receiver Alarms Using the ICIM, Continued

Setting 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.

Alarm Threshold Values










Alarm threshold is the value at which an alarm is triggered. The alarm threshold data for this module is shown below.

Alarm Display	Major Low Limit	Minor Low Limit	Minor High Limit	Major High Limit	Hysterisis	Major Low Limit
InPwr	-2.0 dBm	-1.5 dBm	1.5 dBm	2.0 dBm	1.0 dBm	-2.0 dBm
MaxInPwr	N/A	N/A	N/A	N/A	N/A	N/A
HybdCur	.050 A	.150 A	.450 A	.500 A	.001 A	.050 A
ModTemp	-40.0°C	-20.0°C	80.0°C	90.0°C	0°C	-40.0°C
Enable	N/A	N/A	N/A	N/A	N/A	N/A
PsOk	N/A	N/A	N/A	N/A	N/A	N/A

Checking Manufacturing Data Using the ICIM

Checking Manufacturing Data

The Manufacturing Data information listed later can 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  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  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  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 menu, as shown on the right below.

```

MODULE
-----
Shelf   0
Slot    6

Forward
Receiver

-----
Alarms
    1
-----
Mfg. Data

    ▲ ▼

```

```

MFG. DATA
-----
Shelf   0
Slot    6



Forward
Receiver

Module
Type

    2002

    ▲ ▼

```

6. The  or  keys allow you to scroll through the manufacturing data.



Checking Manufacturing Data Using the ICIM, Continued

Manufacturing Data Display

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

Manufacturing Data	Typical Values
Module	Forward Receiver
Module Type	2002
Serial #	!ABCDEFGF
Date Code	F00
Sw Ver (Software Version)	CCB606
Script Ver (Script Version)	14
In Service Hours	1
Spec data	Special data
Restore Factory Defaults	Restores the module's factory default configuration settings.

MFG. DATA Screens

When the **MFG. DATA** screen is selected, the  key or the  keys will scroll through the manufacturing parameters specific to this module. Sample **MFG. DATA** screens are show below.

MFG. DATA ----- Shelf 0 Slot 6 Forward Receiver ----- Module Type 2002 ▲ ▼	MFG. DATA ----- Shelf 0 Slot 6 Forward Receiver ----- Serial # !ABCDEFGF Date Code F00 ▲ ▼	MFG. DATA ----- Shelf 0 Slot 6 Forward Receiver ----- SW Ver CCB606 Script Ver 14 ▲ ▼	MFG. DATA ----- Shelf 0 Slot 6 Forward ----- In Service Hours 1 ▲ ▼
--	--	---	---

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 Forward Receiver.

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 receiver.

In This Chapter

This chapter contains the following topics.

Topic	See Page
LCI Introduction	4-2
System Requirements	4-3
Installing LCI	4-4
Connecting Your Laptop Computer to the Chassis	4-8
Starting LCI	4-9
LCI Module Tree Overview	4-10
Accessing the Module Details Window	4-12
Checking the Operating Status	4-19
Configuring the Forward Receiver	4-21
Checking Forward Receiver Alarms	4-24
Modifying Forward Receiver Alarm Limits	4-26
Checking Manufacturing Data	4-28



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.

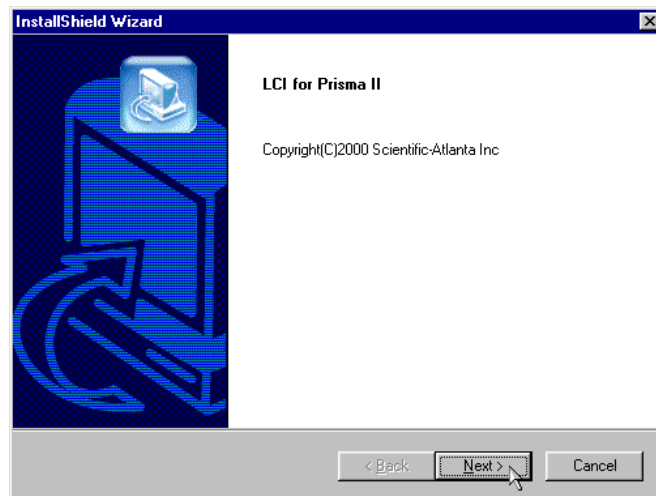
Installing the LCI Software

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.

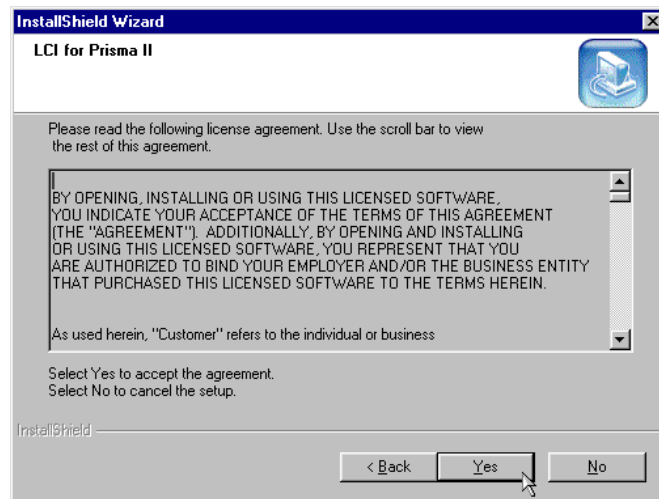
3. Click **Next**.



Result: The License Agreement screen displays.

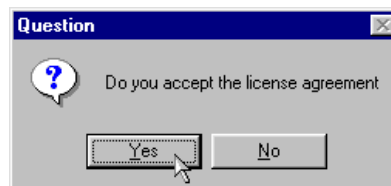
Installing LCI, Continued

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



Result: The License Agreement Confirmation dialog box displays.

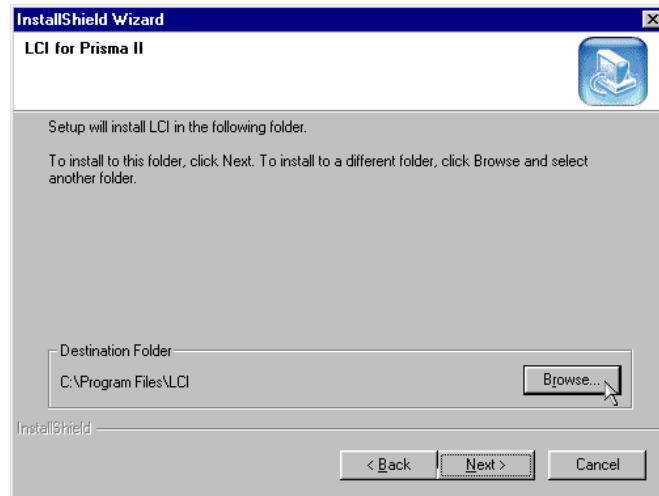
5. Click **Yes**.



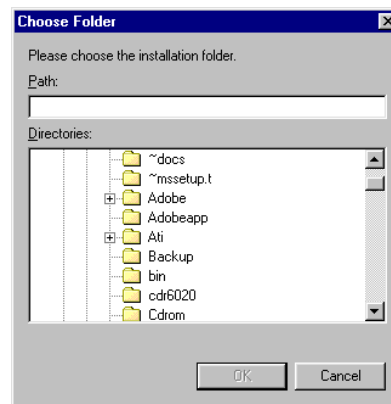
Result: The Destination Folder screen displays.

Installing LCI, Continued

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.

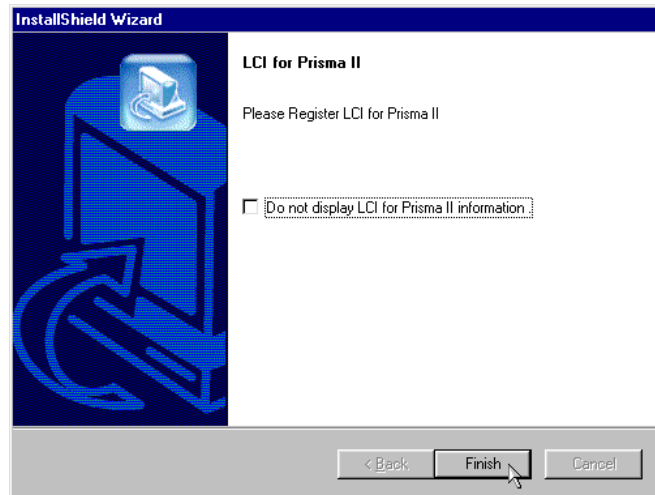


8. Click **OK**.
Result: The Destination Folder screen displays.
9. Click **Next** to begin the installation.
Result: The last installation wizard screen displays after the installation is complete.

Installing LCI, Continued

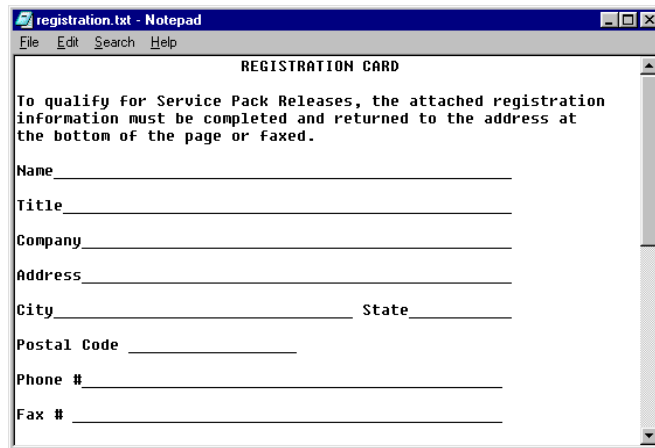
10. Click **Finish**.

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

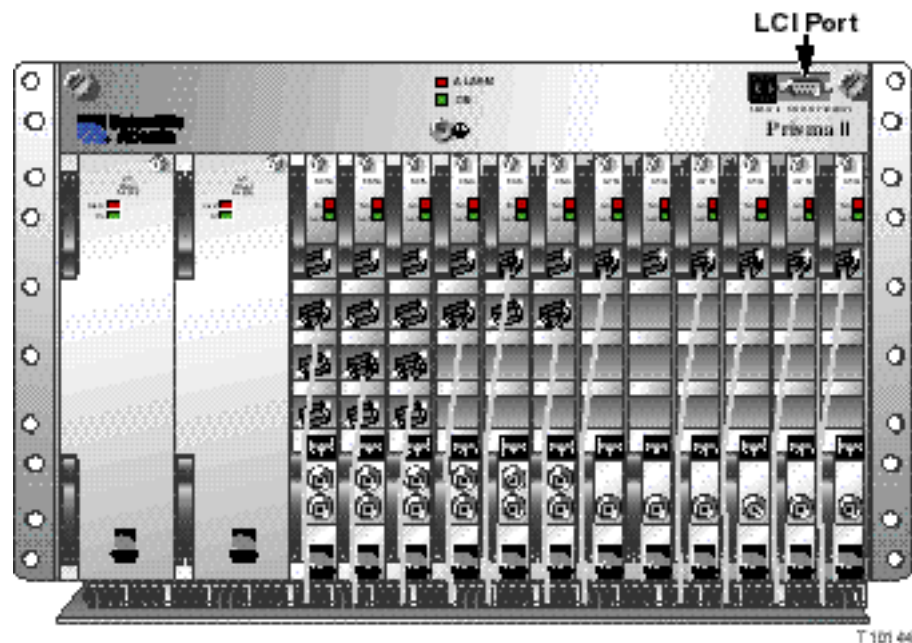
Before you start LCI, you must first connect your laptop computer to the chassis that contains the module(s) you want to check.

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 RS-232 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.

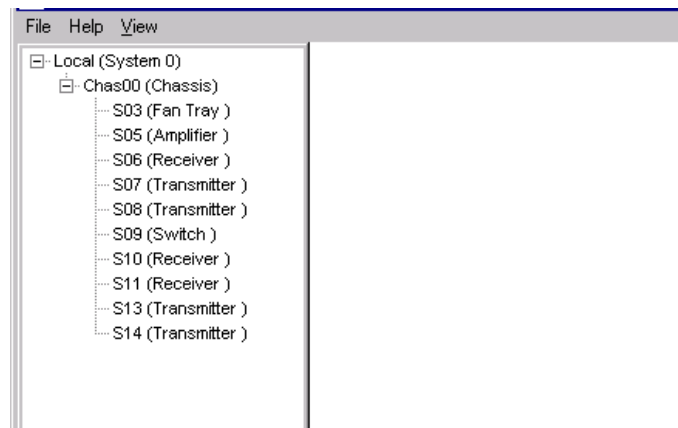
Starting LCI

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



Results:

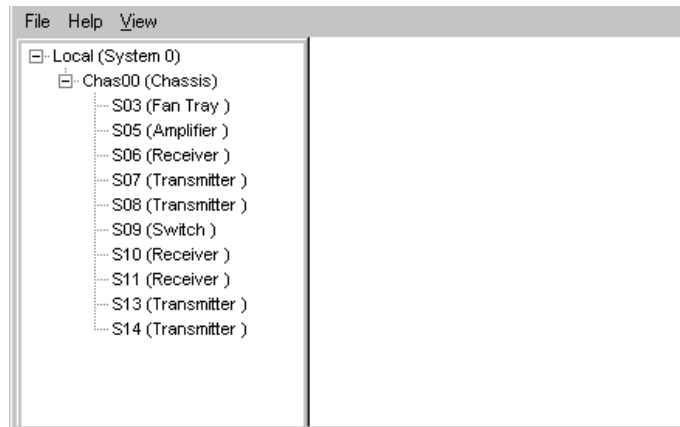
- LCI polls the modules in the chassis
- The main LCI window displays



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
Chas00 (Chassis)	Chassis the computer is connected to
Sxx (Module name)	Module(s) located within the chassis. Each module is of the format <i>chassis slot location (module name)</i> . Example: In the graphic above, S11 (Receiver) represents a Forward Receiver that's located in slot eleven of the chassis.

LCI Module Tree Overview, Continued

Module Information

Information about a module (its parameters, alarms, and status) 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

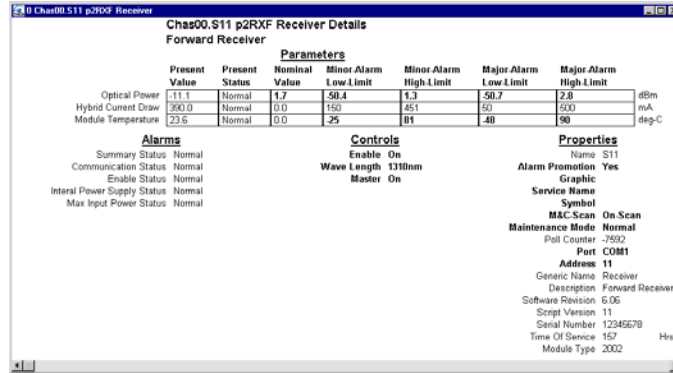
Note: Although you can use the method that's most convenient for you, the procedures throughout this chapter are described using the right-click module technique.

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 Forward Receiver.



The screenshot shows a window titled "Chas00.S11 p2RXF Receiver Details" for a "Forward Receiver". It contains several sections:

Parameters								
Present Value	Present Status	Nominal Value	Minor Alarm Low Limit	Minor Alarm High Limit	Major Alarm Low Limit	Major Alarm High Limit		
Optical Power	11.1	Normal	1.7	50.4	1.3	50.7	2.8	dBm
Hybrid Current Draw	250.0	Normal	0.0	150	151	50	2500	mA
Module Temperature	23.6	Normal	0.0	25	01	40	90	deg-C

Alarms
Summary Status: Normal
Communication Status: Normal
Enable Status: Normal
Internal Power Supply Status: Normal
Max Input Power Status: Normal

Controls
Enable On
Wave Length: 1310nm
Master On

Properties
Name: S11
Alarm Promotion: Yes
Graphic
Service Name
Symbol
M&C Scan: On Scan
Maintenance Mode: Normal
Poll Counter: -7502
Part: COM1
Address: 11
Generic Name: Receiver
Description: Forward Receiver
Software Revision: 6.06
Script Version: 11
Serial Number: 12345678
Time Of Service: 157 hrs
Module Type: 2002

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.

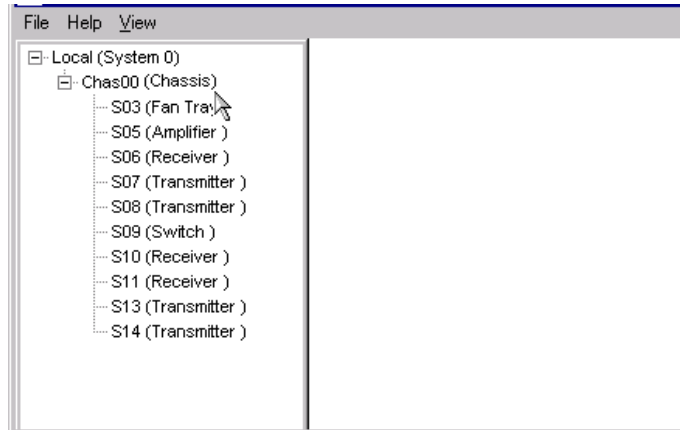
For more information about the module tree, refer to **LCI Module Tree Overview** earlier in this chapter.

Accessing the Module Details Window, Continued

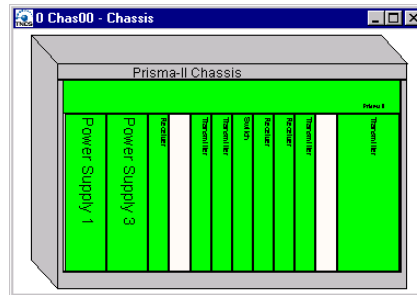
Double-Click the Chassis

To access the Module Details window, follow these steps.

1. Double-click the chassis.



Result: A graphic representation of the chassis displays.



Accessing the Module Details Window, Continued

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

Result: The Module Details window displays.

The screenshot shows a window titled "Chas00.S11 p2RXF Receiver Details" with a subtitle "Forward Receiver". The window is divided into several sections:

Parameters		Minor Alarm		Major Alarm		Major Alarm		
Present Value	Present Status	Nominal Value	Low Limit	High Limit	Low Limit	High Limit		
Optical Power	11.1	Normal	1.7	50.4	1.3	50.7	2.8	dBm
Hybrid Current Draw	380.0	Normal	0.0	150	451	50	250	mA
Module Temperature	23.6	Normal	0.0	25	81	48	90	deg-C

Alarms

- Summary Status: Normal
- Communication Status: Normal
- Enable Status: Normal
- Internal Power Supply Status: Normal
- Max Input Power Status: Normal

Controls

- Enable: On
- Wave Length: 1310nm
- Master: On

Properties

- Name: S11
- Alarm Promotion: Yes
- Graphic: Yes
- Service Name: Forward Receiver
- Symbol: M&C Scan
- On Scan: Normal
- Maintenance Mode: Normal
- Poll Counter: -7502
- Port: COM1
- Address: 11
- Generic Name: Receiver
- Description: Forward Receiver
- Software Revision: 5.05
- Script Version: 11
- Serial Number: 12345678
- Time Of Service: 157 Hrs
- Module Type: 2002

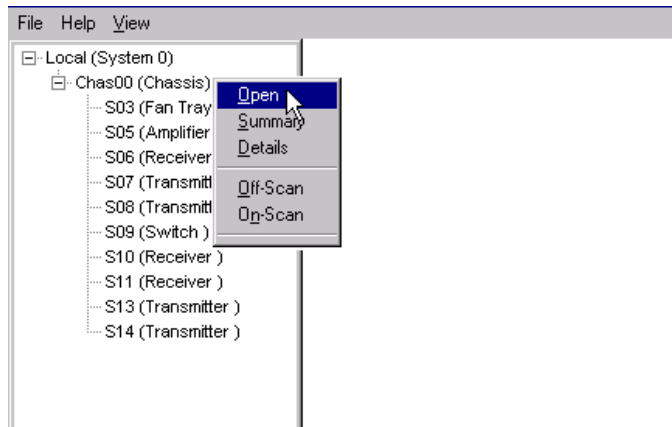
- Proceed with viewing and/or configuring information.

Accessing the Module Details Window, Continued

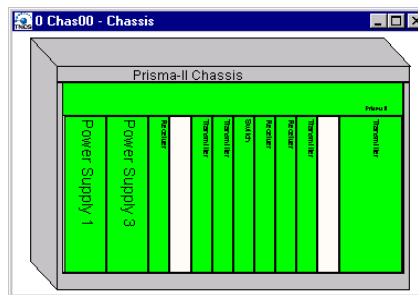
Right-Click the Chassis

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.



Accessing the Module Details Window, Continued

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

Result: The Module Details window displays.

The screenshot shows a window titled 'Chas00.S11 p2RFX Receiver Details' with the subtitle 'Forward Receiver'. The window is divided into several sections:

Parameters		Minor Alarm		Major Alarm		Major Alarm		
Present Value	Present Status	Nominal Value	Low Limit	High Limit	Low Limit	High Limit		
Optical Power	11.1	Normal	1.7	50.4	1.3	50.7	2.8	dBm
Hybrid Current Draw	380.0	Normal	0.0	152	451	20	250	mA
Module Temperature	23.6	Normal	0.0	25	81	48	90	deg-C

Alarms

- Summary Status: Normal
- Communication Status: Normal
- Enable Status: Normal
- Internal Power Supply Status: Normal
- Max Input Power Status: Normal

Controls

- Enable: On
- Wave Length: 1310nm
- Master: On

Properties

- Name: S11
- Alarm Promotion: Yes
- Graphic: Yes
- Service Name: Forward Receiver
- Symbol: Forward Receiver
- M&C Scan: On Scan
- Maintenance Mode: Normal
- Poll Counter: -7502
- Port: COM1
- Address: 11
- Generic Name: Receiver
- Description: Forward Receiver
- Software Revision: 5.05
- Script Version: 11
- Serial Number: 12345678
- Time Of Service: 157 Hrs
- Module Type: 2002

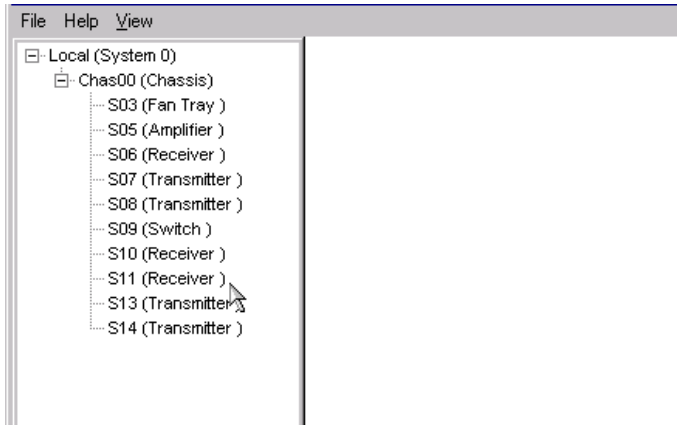
- Proceed with viewing and/or configuring information.

Accessing the Module Details Window, Continued

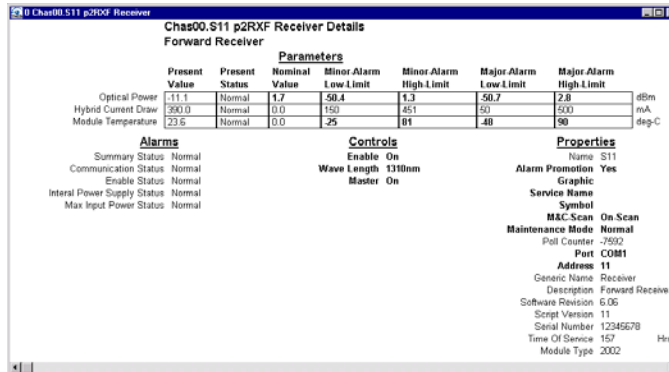
Double-Click the Module

To access the Module Details window, perform these steps.

1. Double-click the module.



Result: The Module Details window displays.



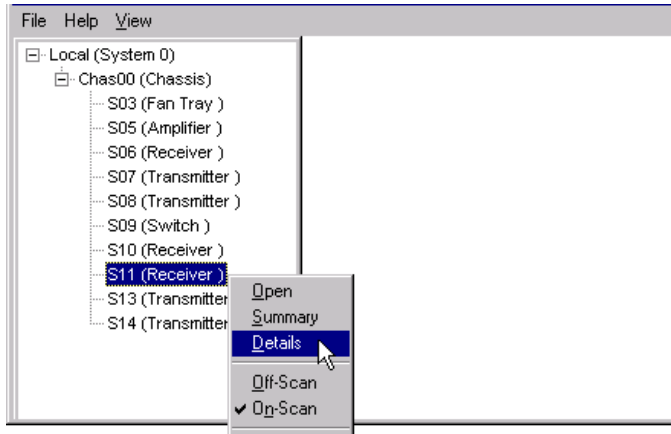
2. Proceed with viewing and/or configuring information.

Accessing the Module Details Window, Continued

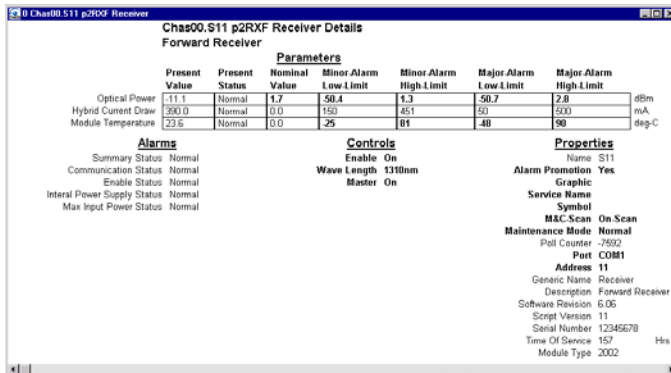
Right-Click the Module

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 forward receiver.

Monitored Parameters

The table below describes the monitored parameters for the forward receiver.

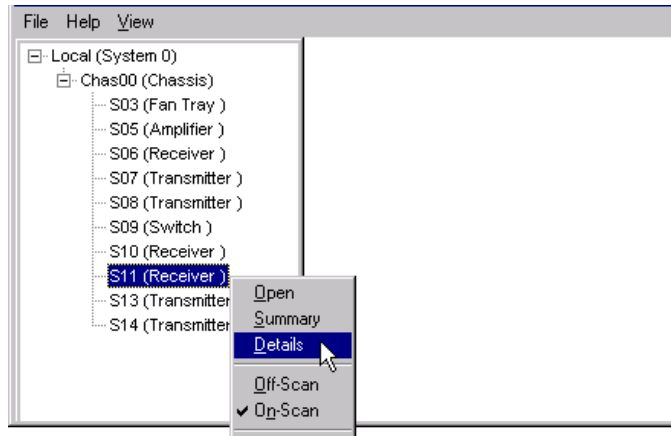
Parameter	Units	Function	Typical value
Optical Power	dBm	Optical Input Power	0.0 dBm
Hybrid Current Draw	A	Hybrid Amplifier Current	0.350 A
Module Temperature	°C	Module Temperature	25.8°C

Checking the Operating Status, Continued

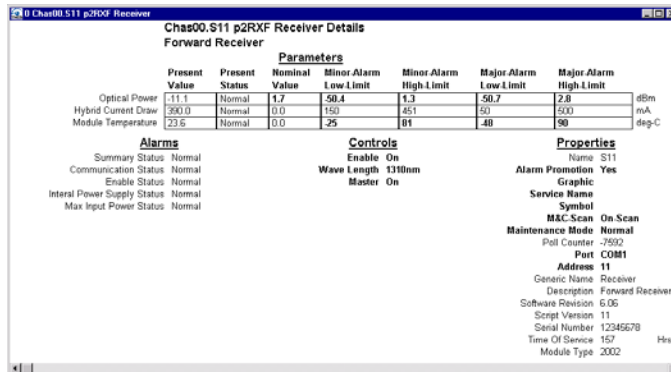
Checking the Operating Status

To monitor the forward receiver operating parameters, follow these steps.

1. In the module tree, right-click the Prisma II Forward Receiver, 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 Forward Receiver

Introduction

Using LCI, you can configure the parameters listed below.

Configurable Parameters

Configurable parameters for the Prisma II Forward Receiver are listed below.

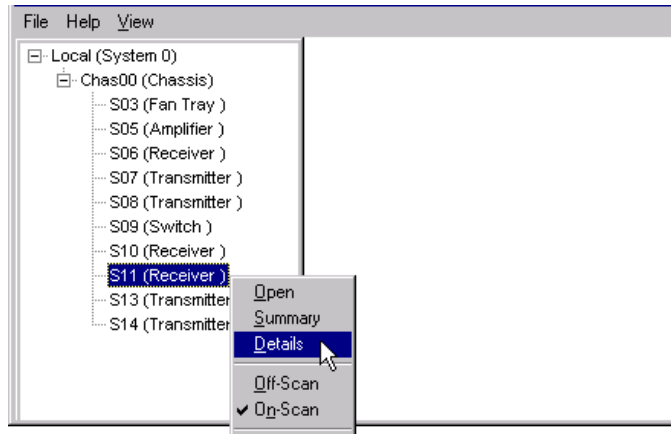
Control	Function	Values	Default
Enable	Receiver On/Off	On = Enabled Off = Disabled	Enabled
Master	When set to Off , receiver begins operation with an external alarm signal	On = Master Off = Slave	On
Nominal InPwr	Set receiver nominal Input signal level	5 dBm to -20 dBm	3.0 dBm
Wave Length	Configure Receiver for 1310 or 1550 nm operation	1310 nm 1550 nm	1550 nm

Configuring the Forward Receiver, Continued

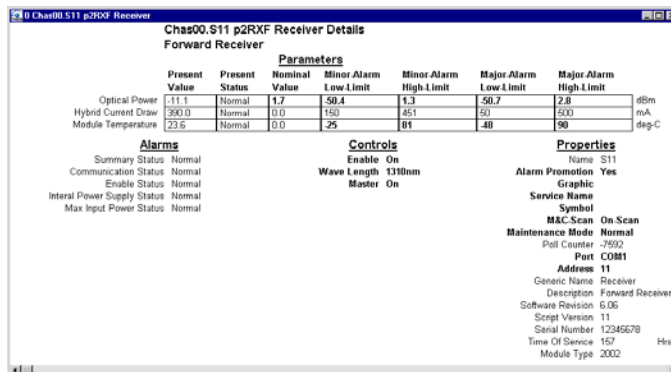
Configuring Parameters

To configure the parameters, follow these steps.

1. In the module tree, right-click the Prisma II Forward Receiver, and click **Details**.



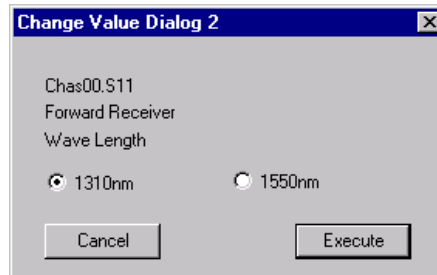
Result: The Module Details window displays.



Configuring the Forward Receiver, Continued

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 Wave Length 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 Forward Receiver Alarms

Introduction

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

Alarm Data Display

The alarm display data for this module is shown below.

Alarm	Alarm Condition	Type	Typical Range
Enable	Unit disabled by user	Major	Enabled /Disabled
Hybrid Current Draw	Current = > .450 A or < .150 A	Minor	.150 A to .450 A
	Current = > .500 A or < .050 A	Major	.050 A to .500 A
InPwr	Optical power = >1.5 dBm or <-1.5 dBm	Minor	-20 dBm to 5 dBm
	Optical power = >2.0 dBm, <-2.0 dBm	Major	-20 dBm to 5 dBm
Module Temperature	Module temp exceeds -20°C to 80°C	Minor	-20°C to 80°C
	Module temp exceeds -40°C to 90°C	Major	-40°C to 90°C
Max Input Power	Optical input > 6.0 dBm	Major	> 6.0 dBm

Alarm Thresholds

Alarm threshold is the value at which an alarm is triggered. The alarm threshold data for this module is shown below.

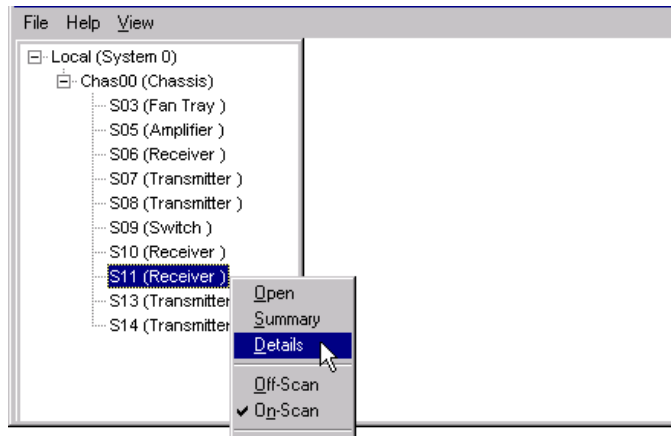
Alarm Display	Major Low Limit	Minor Low Limit	Minor High Limit	Major High Limit	Hysterisis	Major Low Limit
Enable	N/A	N/A	N/A	N/A	N/A	N/A
Hybrid Current Draw	.050 A	.150 A	.450 A	.500 A	.001 A	.050 A
Internal Power Supply	-2.0 dBm	-1.5 dBm	1.5 dBm	2.0 dBm	1.0 dBm	-2.0 dBm
Module Temperature	-40.0°C	-20.0°C	80.0°C	90.0°C	0°C	-40.0°C
Max Input Power	N/A	N/A	N/A	N/A	N/A	N/A

Checking Forward Receiver Alarms, Continued

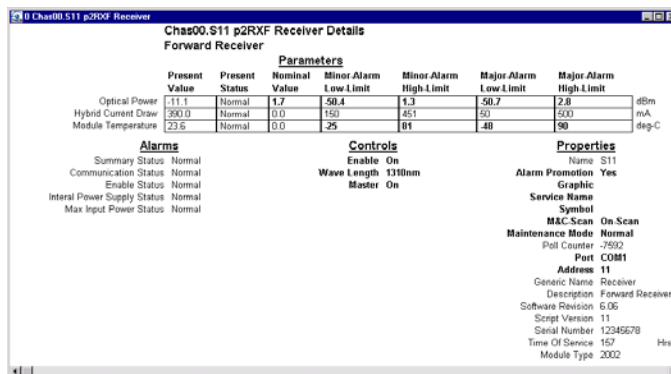
Checking Alarms

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

1. Right-click the Prisma II Forward Receiver, 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 Forward Receiver Alarm Limits

Introduction

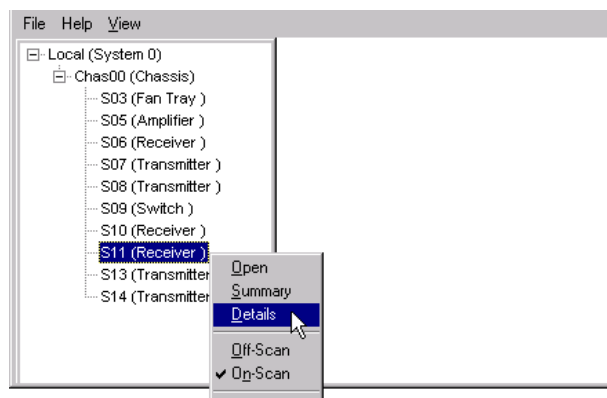
Using LCI, you can modify alarm limits for several parameters. Parameters whose alarm limits you can change are listed below.

Alarm	Alarm Condition	Range	Possible Cause
Module Temperature	Module temp exceeds -40°C to 70°C	-40°C to 70°C	Temp alarm
Optical Power	Optical Output Power	±0.5 dBm of nominal	Internal problem

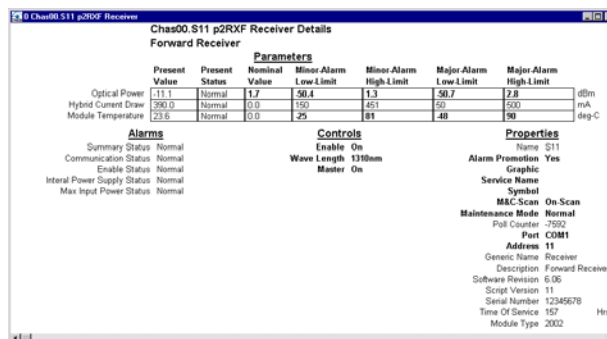
Modifying Alarm Limits

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

1. In the module tree, right-click the Prisma II Forward Receiver, and click **Details**.



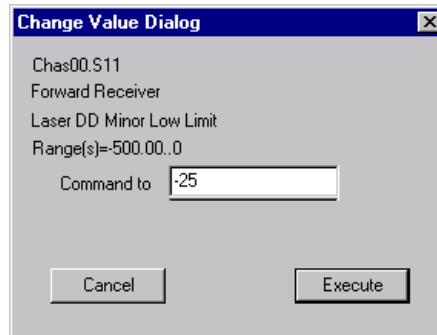
Result: The Module Details window displays. The alarm limits are shown under **Parameters**.



Modifying Forward Receiver Alarm Limits, Continued

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 minor low limit of the Module Temperature 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 Prisma II Forward Receiver.

Manufacturing Data

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

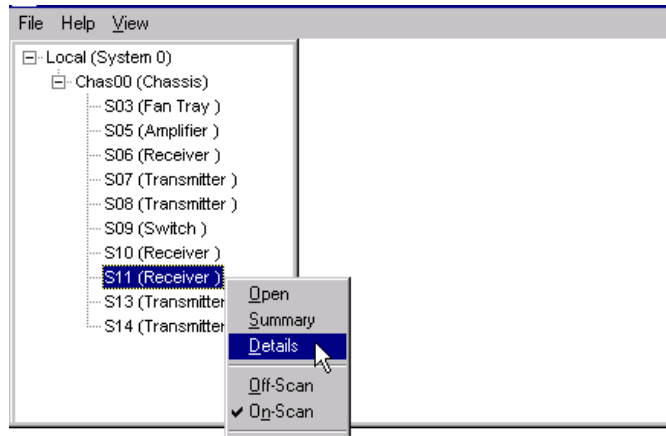
Manufacturing Data	Typical Values
Description	Forward Receiver
Module Type	2002
Serial number	12345678
Software Revision	6.06
Script Version	11
Time of Service	1

Checking Manufacturing Data, Continued

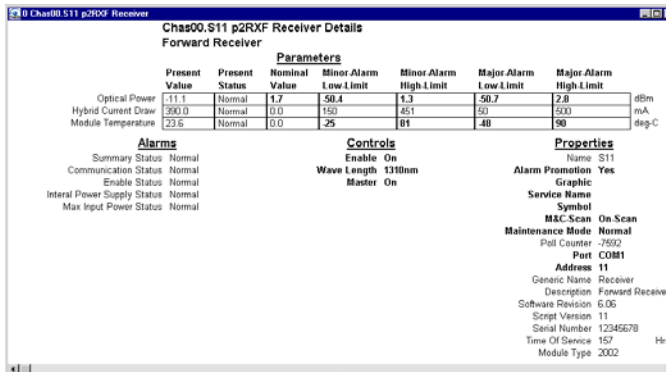
Checking Manufacturing Data

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

1. In the module tree, right-click the Prisma II Forward Receiver, 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 provides information to assist you in maintaining and troubleshooting Prisma II Forward Receiver.

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
Power Supply Related Alarms	5-5

Module Maintenance

Maintaining the Prisma Module

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

Frequency	Maintenance Required
Weekly	<ul style="list-style-type: none">• Check all parameters and test points.• Record data.• Make repairs and adjustments as needed.
Quarterly	<ul style="list-style-type: none">• Make sure all cables are mated properly.• Inspect cables for stress and chafing.• Make sure all retaining screws are tight.
When needed	<ul style="list-style-type: none">• 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 this module.

- Digital voltmeter
- Spectrum analyzer
- 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 transmitter faults.

Troubleshooting Alarm Conditions

Alarm Conditions

If the red ALARM indicator is illuminated or is blinking, check the display on the front panel to determine the cause of the alarm.

Alarm	Status	Possible Causes	Possible Solutions
InPwr	Optical power = >1.5 dBm or <-1.5 dBm Optical power = >2.0 dBm, <-2.0 dBm	Dirty or loose connector, or low input	Check input source and fiber
MaxInPwr	Optical input > 6.0 dBm	Dirty or loose connector, or low input	Check input source and fiber
HybdCur	Current = >450 mA or <150 mA Current = >500 mA or <50 mA	Internal problem	Telephone Cisco Services for help.
ModTemp	Module temperature exceeds -40°C to 70°C	Internal problem, Fan Tray failure, or Ambient Temperature	Telephone Cisco Services for help.
Enable	Unit disabled	Module disabled by user	Enable module
PsOk	Bus voltage status	Internal problem	Telephone Cisco Services for help.

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
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.
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
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
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

Glossary, Continued

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.
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.
C/T	Carrier-to-noise temperature ratio
CW	Continuous Wave
dB	Decibel
dBc	Decibels relative to a reference carrier
dBm	Decibels relative to 1 milliwatt
dB_i	Decibels of gain relative to an isotropic radiator
dB_{uV}	Decibels relative to 1 microvolt
dBW	Decibels relative to 1 watt
dBmV	Decibels relative to 1 millivolt
DC	Direct current
DES	Data Encryption Standard
Deviation	The peak difference between the instantaneous frequency of the modulated wave and the carrier frequency, in an FM system.

Glossary, Continued

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 that 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.
DPU	Digital processing unit
DSP	Digital signal processor
DSR	Digital Storage and Retrieval System
Duplexer	A device that 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

Glossary, Continued

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.
FSK	Frequency-shift keying
ft-lb	Foot-pound
FTP	File Transfer Protocol

Glossary, Continued

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
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
IP	Internet protocol
Kbps	Kilobits per second
in-lb	Inch-pound
LCD	Liquid crystal display
LCI	Local craft interface
LED	Light-emitting diode
Mbps	Megabits per second
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

Glossary, Continued

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
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
QPSK	Quadrature Phase-Shift Keying
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

Glossary, Continued

RX	Receive or receiver
SA	Spectrum analyzer
SAM	Signal analysis meter
SAT	Site acceptance test
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
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
Sweep generator	A signal source that 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.

Glossary, Continued

TS	Transport Stream
TTCN	True tilt correction network
Tx	Transmit or transmitter
UPS	Un-interruptible power supply
Upstream	Signal transmission toward the headend
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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