Enterasys Matrix®

DFE-Platinum Series

Hardware Installation Guide

7G4285-49
7G4205-72

P/N 9034160-03

enterasys®

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

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This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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This digital apparatus does not exceed the class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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WARNING: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Clase A. Aviso de ITE

ADVERTENCIA: Este es un producto de Clase A. En un ambiente doméstico este producto puede causar interferencia de radio en cuyo caso puede ser requerido tomar medidas adecuadas.

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Product Safety

This product complies with the following: UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Seguridad del Producto

El producto de Enterasys cumple con lo siguiente: UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Produktsicherheit

Dieses Produkt entspricht den folgenden Richtlinien: UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.

Electromagnetic Compatibility (EMC)

This product complies with the following: 47 CFR Parts 2 and 15, CSA C108.8, 2004/108/EC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3.

Compatibilidad Electromágnetica (EMC)

Este producto de Enterasys cumple con lo siguiente: 47 CFR Partes 2 y 15, CSA C108.8, 2004/108/EC, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 22, VCCI V-3.

Elektro- magnetische Kompatibilität (EMC)

Dieses Produkt entspricht den folgenden Richtlinien: 47 CFR Parts 2 and 15, CSA C108.8, 2004/108/EC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3.

Hazardous Substances

This product complies with the requirements of European Directive, 2002/95/EC, Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment.

European Waste Electrical and Electronic Equipment (WEEE) Notice

In accordance with Directive 2002/96/EC of the European Parliament on waste electrical and electronic equipment (WEEE):

1. The symbol above indicates that separate collection of electrical and electronic equipment is required and that this product was placed on the European market after August 13, 2005, the date of enforcement for Directive 2002/96/EC.
2. When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.
3. It has been determined by the European Parliament that there are potential negative effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
4. It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated.

   For information about the available collection system, please go to www.enterasys.com/support/ or contact

Enterasys Customer Support at 353 61 705586 (Ireland).

产品说明书附件
Supplement to Product Instructions

部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr^{6+})	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 (Metal Parts)	×	○	○	×	○	○
电路模块 (Circuit Modules)	×	○	○	×	○	○
电缆及电缆组件 (Cables & Cable Assemblies)	×	○	○	×	○	○
塑料和聚合物部件 (Plastic and Polymeric parts)	○	○	○	○	○	×
电路开关 (Circuit Breakers)	○	○	×	×	○	○

○： 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。
Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T 11363-2006 standard.

×： 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006 标准规定的限量要求。
Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T 11363-2006 standard.

对销售之日的所售产品, 本表显示,
凯创供应链的电子信息产品可能包含这些物质。注意:在所售产品中可能会也可能不会含有所有所列的部件。
This table shows where these substances may be found in the supply chain of Enterasys' electronic information products, as of the date of sale of the enclosed product. Note that some of the component types listed above may or may not be a part of the enclosed product.

除非另外特别的标注, 此标志为针对所涉及产品的环保使用期标志. 某些零部件会有一个不同的环保使用期(例如, 电池单元模块)贴在其产品上.
此环保使用期限只适用于产品是在产品手册中所规定的条件下工作.
The Environmentally Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here, unless otherwise marked. Certain parts may have a different EFUP (for example, battery modules) and so are marked to reflect such. The Environmentally Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.

VCCI Notice

This is a class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

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BSMI EMC Statement — Taiwan

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種請況下，使用者會被要求採取某些適當的對策。

Safety Information
Class 1 Laser Transceivers

The single mode interface modules use Class 1 laser transceivers.
Read the following safety information before installing or operating these modules.

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or 55 x 10^{-6} watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm^{-2} or 8 x 10^{3} W m^{2} sr-1.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

Declaration of Conformity

Application of Council Directive(s):	**2004/108/EC** **2006/95/EC**
Manufacturer's Name:	**Enterasys Networks, Inc.**
Manufacturer's Address:	**50 Minuteman Road** **Andover, MA 01810** **USA**
European Representative Address:	**Enterasys Networks, Ltd.** **Nexus House, Newbury Business Park** **London Road, Newbury** **Berkshire RG14 2PZ, England**
Conformance to Directive(s)/Product Standards:	**EC Directive 2004/108/EC** **EN 55022** **EN 61000-3-2** **EN 61000-3-3** **EN 55024** **EC Directive 2006/95/EC** **EN 60950** **EN 60825**
Equipment Type/Environment:	**Networking Equipment, for use in a Commercial or Light Industrial Environment.**

Enterasys Networks, Inc. declares that the equipment packaged with this notice conforms to the above directives.

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10. **ENFORCEMENT.** You acknowledge and agree that any breach of Sections 2, 4, or 9 of this Agreement by You may cause Enterasys irreparable damage for which recovery of money damages would be inadequate, and that Enterasys may be entitled to seek timely injunctive relief to protect Enterasys' rights under this Agreement in addition to any and all remedies available at law.

11. **ASSIGNMENT.** You may not assign, transfer or sublicense this Agreement or any of Your rights or obligations under this Agreement, except that You may assign this Agreement to any person or entity which acquires substantially all of Your stock assets. Enterasys may assign this Agreement in its sole discretion. This Agreement shall be binding upon and inure to the benefit of the parties, their legal representatives, permitted transferees, successors and assigns as permitted by this Agreement. Any attempted assignment, transfer or sublicense in violation of the terms of this Agreement shall be void and a breach of this Agreement.

12. **WAIVER.** A waiver by Enterasys of a breach of any of the terms and conditions of this Agreement must be in writing and will not be construed as a waiver of any subsequent breach of such term or condition. Enterasys' failure to enforce a term upon Your breach of such term shall not be construed as a waiver of Your breach or prevent enforcement on any other occasion.

13. **SEVERABILITY.** In the event any provision of this Agreement is found to be invalid, illegal or unenforceable, the validity, legality and enforceability of any of the remaining provisions shall not in any way be affected or impaired thereby, and that provision shall be reformed, construed and enforced to the maximum extent permissible. Any such invalidity, illegality, or unenforceability in any jurisdiction shall not invalidate or render illegal or unenforceable such provision in any other jurisdiction.

14. **TERMINATION.** Enterasys may terminate this Agreement immediately upon Your breach of any of the terms and conditions of this Agreement. Upon any such termination, You shall immediately cease all use of the Program and shall return to Enterasys the Program and all copies of the Program.

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About This Guide

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys Matrix® 7G4285-49 and 7G4205-72 DFE-Platinum PoE modules.

For information about the CLI (Command Line Interface) set of commands used to configure and manage the DFE-Platinum modules, refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

Note: In this guide, the following terms are used:

- *DFE* refers to Distributed Forwarding Engine series of modules.
- *DFE modules* or *module* refers to both the 7G4285-49 and 7G4205-72, unless otherwise noted.
- *Network expansion module* or *NEM* refers to an optional uplink card installed on the main logic board and accessible through the option slot of the 7G4285-49.
- *PD* refers to Powered Device, which is a device that is PoE compliant to operate using 48 Vdc received through the Ethernet data cabling.

Important Notice

Depending on the firmware version used in the DFE modules, some features described in this document may not be supported. Refer to the Release Notes shipped with the DFE modules to determine which features are supported.

Who Should Use This Guide

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

This guide is intended for a network administrator responsible for installing and setting up the DFE modules.

How to Use This Guide

This preface provides an overview of this guide and the DFE-Platinum Series manual set, and a brief summary of each chapter; defines the conventions used in this document; and instructs how to obtain technical support from Enterasys Networks

To locate information about various subjects in this guide, refer to the following table:

For...	Refer to...
An overview of the DFE modules	Chapter 1, **Introduction**
Network requirements that must be met before installing the DFE modules	Chapter 2, **Network Requirements**
Instructions to install the DFE module hardware	Chapter 3, **Installation**
Troubleshooting installation problems and diagnosing network/operational problems using the LANVIEW LEDs in either the RX/TX port status mode or PoE port status mode	Chapter 4, **Troubleshooting**
Specifications, environmental requirements, and physical properties of the DFE modules	Appendix A, **Specifications**
Instructions to set the mode switches when necessary and remove and replace the DRAM SIMM or DIMM memory	Appendix B, **Mode Switch Settings and Option Installations**
An overview of Power over Ethernet technology and how it is implemented in relation to the DFE modules	Appendix C, **About PoE (Power over Ethernet)**

Related Documents

The manuals listed below can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:

http://www.enterasys.com/support/manuals

- *Enterasys Matrix DFE-Platinum Series Configuration Guide* describes how to use the Command Line Interface to set up and manage the DFE-Platinum modules.
- *Cabling Guide* provides information on dB loss and cable specifications.

Unlike the *Enterasys Matrix DFE-Platinum Series Configuration Guide,* the *Cabling Guide* is not listed alphabetically on the web site. Instead, it is listed under the *Overview Guides* link.

Conventions Used in This Guide

The following conventions are used in this guide.

blue type	Indicates a hypertext link. When reading this document online, click the text in blue to go to the referenced figure, table, or section.
	**Note:** Calls the reader's attention to any item of information that may be of special importance.
	**Caution:** Contains information essential to avoid damage to the equipment. **Precaución:** Contiene información esencial para prevenir dañar el equipo. **Achtung:** Verweißt auf wichtige Informationen zum Schutz gegen Beschädigungen.
	**Warning:** Warns against an action that could result in personal injury or death. **Advertencia:** Advierte contra una acción que pudiera resultar en lesión corporal o la muerte. **Warnhinweis:** Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!
	**Electrical Hazard:** Warns against an action that could result in personal injury or death. **Riesgo Electrico:** Advierte contra una acción que pudiera resultar en lesión corporal o la muerte debido a un riesgo eléctrico. **Elektrischer Gefahrenhinweis:** Warnung vor sämtlichen Handlungen, die zu Verletzung von Personen oder Todesfällen – hervorgerufen durch elektrische Spannung – führen können!

Lowercase x: Indicates the general use of an alphanumeric character (for example, 7x2xx, the x's indicate a combination of numbers or letters).

Getting Help

For additional support related to the modules or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	www.enterasys.com/services/support/
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-978-684-1000 For the Enterasys Networks Support toll-free number in your country: www.enterasys.com/services/support/contact/
Internet mail	support@enterasys.com To expedite your message, type **[SWITCHING]** in the subject line.
To send comments concerning this document to the Technical Publications Department: techpubs@enterasys.com Please include the document Part Number in your email message.	

Before contacting Enterasys Networks for technical support, have the following information ready:

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any actions already taken to resolve the problem (for example, changing mode modules, rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (for example, layout, cable type)
- Network load and frame size at the time of trouble (if known)
- The device history (for example, have you returned the device before, is this a recurring problem)
- Any previous Return Material Authorization (RMA) numbers

1

Introduction

This chapter provides an overview of the DFE-Platinum Series module capabilities, and introduces the 7G4285-49 and 7G4205-72 DFE-Platinum PoE modules.

Overview of DFE-Platinum Series Module Capabilities

The Platinum Distributed Forwarding Engine (DFE) is Enterasys Networks' next generation of enterprise modules for the Matrix N-Series and Matrix E7 switches. These DFE modules deliver high performance and flexibility to ensure comprehensive switching, routing, Quality of Service, security, and traffic containment. Key features include:

- Superior performance and capacity to support more high-bandwidth and latency sensitive applications
- 10/100/1000 Base-TX and 10 Gigabit Ethernet connectivity
- Integrated Services Design that reduces the number/type of modules required, simplifies network design, and lowers entry cost
- Port- and User-Based Policy and Multilayer Packet Classification that provides granular control and security for business-critical applications

- High-availability services with stateful failover for services and management
- Self-learning configuration modules with increased reliability and fault tolerance that reduces configuration time and maximizes uptime
- Network-wide configuration, change, and inventory management that is easier to install, troubleshoot, and maintain
- Reduced support and maintenance costs, and decreased configuration time
- Support for a variety of converged applications including VoIP with Power-over-Ethernet

DFE Module and Interface Options

This section provides an overview of the 7G4285-49 (Figure 1-1) and 7G4205-72 (Figure 1-2). For information about the DFE module features and how to configure them, refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

7G4285-49

The 7G4285-49 has 48, 10BASE-T/100BASE-TX/1000BASE-T, PoE-compliant ports that are accessed through the fixed front panel RJ45 connectors. There is also an option slot for an network expansion module (NEM). The DFE module can be installed in a Matrix E7, Matrix N3, Matrix N5, or Matrix N7 chassis. (See Figure 1-1 on page 1-3.)

Each of the fixed front panel ports can operate in either half-duplex or full-duplex mode of operation. The duplex mode can be determined by either auto-negotiation or manual configuration.

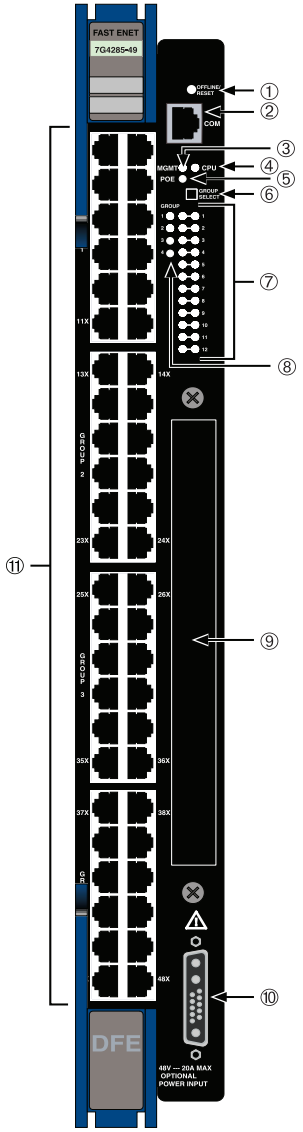
The DFE module ports can be configured to provide a high level of security, control traffic by limiting the rate of traffic accepted into the module and prioritizing traffic to expedite the flow of higher priority traffic through the module. For a complete list of capabilities, refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

The DFE module receives power and backplane connectivity when it is inserted into the Matrix E7, Matrix N7, Matrix N5, or Matrix N3 chassis. The power to support the DFE module connections to 802.3af PoE-compliant 48 Vdc PDs (powered devices) can be from the backplane of a Matrix N5 chassis or from an optional external Matrix N-POE Power System.

The Matrix N-POE Power System can provide 48 Vdc to support up to seven PoE-compliant DFE modules. The connection from the N-POE Power System is by way of the 48 Vdc ~ 20 A Maximum, optional Power Input connector on the front panel of the DFE module.

Note: Only an N-POE Power System can be connected to the 48 Vdc ~ 20 A Maximum Optional Power Input connector of a series PoE-compliant DFE module such as the 7G4285-49.

Figure 1-1 7G4285-49 DFE-Platinum Module



1	OFFLINE/RESET switch	**7**	GROUP STATUS LEDs
2	RJ45 COM port	**8**	GROUP SELECT LEDs
3	MGMT LED	**9**	NEM option slot
4	CPU LED	**10**	48 Vdc ~ 20 A Max. Optional Power Input connector
5	PoE LED		
6	GROUP SELECT switch	**11**	Ports (1-48), 10/100/1000 Mbps, through RJ45s

7G4205-72

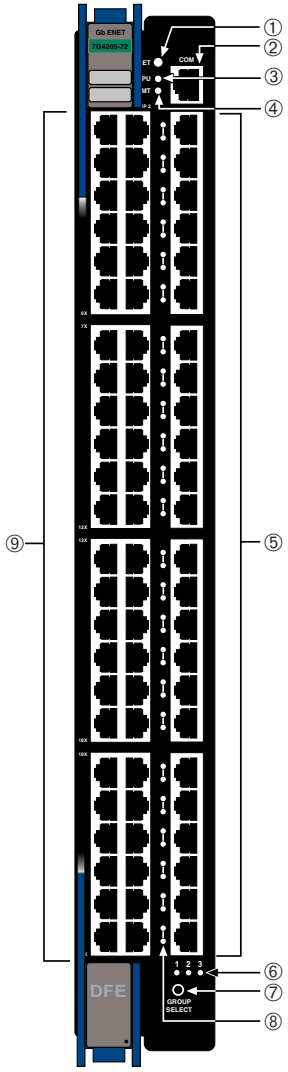
The 7G4205-72 has 72, 10BASE-T/100BASE-TX/1000BASE-T, PoE-compliant ports that are accessed through the fixed front panel RJ45 connectors. The DFE module can be installed in a Matrix E7, Matrix N3, Matrix N5, or Matrix N7 chassis. (See Figure 1-2 on page 1-5.)

Each of the fixed front panel ports can operate in either half-duplex or full-duplex mode of operation. The duplex mode can be determined by either auto-negotiation or manual configuration.

The DFE module ports can be configured to provide a high level of security, control traffic by limiting the rate of traffic accepted into the module and prioritizing traffic to expedite the flow of higher priority traffic through the module. For a complete list of capabilities, refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

The DFE module receives power and backplane connectivity when it is inserted into the Matrix E7, Matrix N7, Matrix N5, or Matrix N3 chassis. The power to support the DFE module connections to 802.3af PoE-compliant 48 Vdc PDs (powered devices) can be from the backplane of a Matrix N5 chassis.

Figure 1-2 7G4205-72 DFE-Platinum Module



1 OFFLINE/RESET switch
2 RJ45 COM port
3 CPU LED
4 MGMT LED
5 Group 3, 20 ports, 10/100/1000 Mbps
6 GROUP LEDs
7 GROUP SELECT button
8 GROUP status LEDs
9 Groups 1&2, 40 ports, 10/100/1000 Mbps

Network Expansion Module (NEM)

The 7G4285-49 option slot provides access to an installed network expansion module. Refer to the Enterasys Networks website for a current listing of the available NEMs. Specific installation instructions are shipped with each NEM.

Connectivity

7G4285-49

Depending on how the 7G4285-49 DFE module is configured, it can support up to:

- 48, 10BASE-T/100BASE-TX/1000BASE-T switched ports connected through 48 fixed front panel connectors, or
- 48, 10BASE-T/100BASE-TX/10001000BASE-T switched ports and an optional network expansion module.

The fixed front panel ports can also support connections to PoE-compliant PDs when the module is connected to an external N-PoE Power System or installed in a Matrix N5 chassis.

7G4205-72

The 7G4205-72 can support up to 72, 10BASE-T/100BASE-TX/1000BASE-T switched ports connected through 72 fixed front panel connectors.

The fixed front panel ports can also support connections to PoE-compliant PDs when the module is installed in a Matrix N5 chassis.

Management

Management of the module can be either in-band or out-of-band. In-band remote management is possible using Telnet, the Enterasys Networks NetSight® management application, or WebView™ application. Out-of-band management is provided through the RJ45 COM (Communication) port on the front panel using a VT100 terminal or a VT100 terminal emulator.

Switch Configuration Using WebView

Enterasys Networks' HTTP-based Web management application (WebView) is an intuitive web tool for simple management tasks.

Switch Configuration Using CLI Commands

The CLI commands enable you to perform more complete switch configuration management tasks.

For CLI command set information and how to configure the module, refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

Secure Networks Policy Support

Policy Enabled Networking manages the allocation of networking infrastructure resources in a secure and effective manner. Using **Secure Networks Policy**, an IT Administrator can predictably assign appropriate resources to the Users, Applications, and Services that use the network; while blocking or containing access for inappropriate or potentially dangerous network traffic. Using this technology it is possible, for the first time, to align IT services with the needs of specific users and applications, and to leverage the network as a key component of the organization's security strategy.

The Secure Networks Policy Architecture consists of 3 components: Classification Rules, Network Services, and Behavioral Profiles. These are defined as follows:

- Classification Rules determine how specific traffic flows (identified by Layer 2, Layer 3, and Layer 4 information in the data packet) are treated by each Switch or Router. In general, Classification Rules are applied to the networking infrastructure at the network edge/ingress point.
- Network Services are logical groups of Classification Rules that identify specific networked applications or services. Users may be permitted or denied access to these services based on their role within the organization. Priority and bandwidth rate limiting may also be controlled using Network Services.
- Behavioral Profiles (or roles) are used to assign Network Services to groups of users who share common needs–for example Executive Managers, Human Resources Personnel, or Guest Users. Access, resources, and security restrictions are applied as appropriate to each Behavioral Profile. A variety of authentication methods including 802.1X, EAP-TLS, EAP-TTLS, and PEAP may be used to classify and authorize each individual user; and the IT Administrator may also define a Behavioral Profile to apply in the absence of an authentication framework.

Standards Compatibility

The DFE modules are fully compliant with the IEEE 802.3-2002, 802.3ae-2002, 802.1D-1998, 802.3af-2003, and 802.1Q-1998 standards. The DFE module provides IEEE 802.1D-1998 Spanning Tree Algorithm (STA) support to enhance the overall reliability of the network and protect against "loop" conditions.

LANVIEW Diagnostic LEDs

LANVIEW diagnostic LEDs serve as an important troubleshooting aid by providing an easy way to observe the status of individual ports and overall network operations.

2

Network Requirements

Before installing the module, review the requirements and specifications referred to in this chapter concerning the following:

The network installation must meet the requirements to ensure satisfactory performance of this equipment. Failure to do so will produce poor network performance.

Note: The *Enterasys Matrix DFE-Platinum Series Configuration Guide* and the *Cabling Guide* referred to in the following sections can be found on the Enterasys Networks World Wide Web site: **http://www.enterasys.com/**

Refer to “Related Documents” on page xvi for additional information.

Link Aggregation

Link Aggregation is a method of grouping multiple physical ports on a network device into one logical link according to the IEEE 802.3ad-2002 standard. Because Link Aggregation is standards based, it allows for automatic configuration with manual overrides (if applicable), and can operate on 10 Mbps, 100 Mbps, or 1000 Mbps Ethernet full duplex ports. Thus the network administrator can combine a group of five 100 Mbps ports into a logical link (trunk) that functions as a single 500 Mbps port. As long as the DFE modules agree on which ports are in the trunk, there are no problems with looping, and the Spanning Tree can treat this trunk as a single port.

In normal usage (and typical implementations) there is no need to enable/disable ports for Link Aggregation. The default values will result in the maximum number of aggregations possible. If the switch is placed in a configuration with its peers not running the protocol, no aggregations will be formed and the DFE modules will function normally (that is, Spanning Tree will block redundant paths).

For details about the commands involved with configuring the Link Aggregation function, refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

10BASE-T Network

When connecting a 10BASE-T segment to any of the RJ45 fixed front-panel ports of the 7G4285-49 or 7G4205-72, ensure that the network meets the Ethernet network requirements of the IEEE 802.3-2002 standard for 10BASE-T and 802.3af-2003 standard for Power over Ethernet (PoE) power sourcing applications over Ethernet cabling. For more information about PoE, refer to Appendix C.

Note: If a port is to operate at 100 or 1000 Mbps, Category 5 cabling must be used. Category 3 cabling does not meet 100 Mbps specifications. For 10 Mbps operation only, Category 3 or Category 5 cabling can be used. Refer to the “100BASE-TX Network” on page 2-3 for information about 100BASE-TX networks and cabling.

100BASE-TX Network

The fixed front panel ports of the 7G4285-49 and 7G4205-72 provide a connection that supports Category 5 UTP cabling. The device at the other end of the twisted pair segment must meet IEEE 802.3-2002 100BASE-TX Fast Ethernet network requirements for the devices to operate at 100 Mbps. The fixed front-panel ports also support the 802.3af-2003 standard for Power over Ethernet (PoE) power sourcing applications over existing cabling. For more information about PoE, refer to Appendix C.

Note: The fixed ports of the modules support Category 5 UTP cabling with an impedance between 85 and 111 ohms for 100 Mbps operation.

The modules are capable of operating at either 10, 100, or 1000 Mbps. The module automatically senses the speed of the other device and adjusts its speed accordingly.

1000BASE-T Network

The 7G4285-49 and 7G4205-72 support 10/100/1000 Mbps via fixed RJ45 front panel connectors. These connectors support copper wire connections that can operate up to 1000 Mbps. The device at the other end of the twisted pair segment must meet IEEE 802.3-2002 network requirements for the devices to operate at Gigabit speed.

Note: The fixed ports of each module support Category 5 UTP cabling with an impedance between 85 and 111 ohms for 100 and 1000 Mbps operation and can automatically sense the port speed of the other device and adjusts its speed accordingly.

3

Installation

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

Important Notice

Read the Release Notes shipped with the DFE modules to check for any exceptions to the supported features and operation documented in this guide.

This chapter provides the instructions to install the 7G4285-49 and 7G4205-72 DFE modules. Follow the order of the sections listed below to correctly install the DFE modules.

Installation Site Requirement

The DFE modules must be installed in a Matrix E7, N3, N5, or N7 chassis located in a Restricted Access Location (RAL). This location should only be accessible by people that have been trained or are technically competent enough to be aware of potential risks of accessing the hazardous areas of the chassis. Locations such as a locked wiring closet or locked cabinet meet this requirement.

Warning: Install this module in a Matrix E7, N3, N5, or N7 chassis that has been installed in a Restricted Access Location only. Access to the equipment by users must be restricted through the use of a tool or lock and key or other means of security and is controlled by the authority responsible for the location.

Advertencia: Instalar este modulo en un Matrix E7, N3, N5, o N7 que ha sido localizado en un lugar de Acceso Restringido. Aceso al equipo debe ser restringido por el responsable del sitio.

Warnhinweis: Installieren Sie dieses Modul nur in einem E7, N3, N5, oder N7 Chassis, wenn sich diese in einer zugangsgeschützten Umgebung befinden. Der Bereich zu den Komponenten sollte durch ein Schloß, einen Schlüssel oder sonstigen Sicherungen geschützt und durch einen Verantwortlichen kontrolliert werden.

Required Tools

A Phillips screwdriver is required to install an optional network expansion module into the 7G4285-49.

Unpacking the DFE Module

Unpack the DFE module as follows:

1. Open the box and remove the packing material protecting the DFE module.
2. Verify the contents of the carton as listed in Table 3-1.

Table 3-1 Contents of DFE Module Carton

Item	Quantity
DFE module (either the 7G4285-49 or the 7G4205-72)	1
This Installation Guide	1
Customer Release Notes	1

3. Remove the tape seal on the non-conductive bag to remove the module.
4. Perform a visual inspection of the module for any signs of physical damage. Contact Enterasys Networks if there are any signs of damage. Refer to “Getting Help” on page xviii for details.

Installing an Optional Network Expansion Module (NEM)

Note: Install any optional equipment before installing the DFE module into a chassis.

Refer to the Enterasys Networks web site for a current listing of the available NEMs. Specific installation instructions are shipped with each NEM.

Installing a network expansion module involves

- removing the safety cover from the DFE module (7G4285-49),
- removing the coverplate from the DFE module,
- installing the network expansion module, and
- replacing the safety cover.

DFE Module Placement and Installation Rules

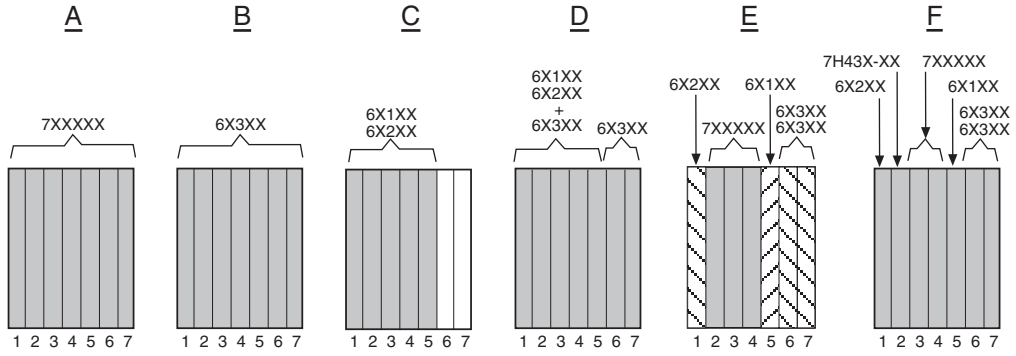
The DFE-Platinum modules can be installed in a Matrix E7 (refer to "Matrix E7 Chassis Module Placement," below, for placement rules), Matrix N3, Matrix N5, or Matrix N7 chassis.

The Matrix N3, Matrix N5, and Matrix N7 chassis support only DFE modules and there are no particular rules for installing modules.

Matrix E7 Chassis Module Placement

Depending on the modules being installed in the Matrix E7 chassis and to help ensure proper operation, consider the following examples and rules for module placement in the chassis. Figure 3-1 shows six examples of chassis module placement. These examples are described below along with the applicable module placement rule.

Figure 3-1 Examples, Module Placement in Matrix E7 Chassis



Example 1 (Figure 3-1, A)

Shows the chassis fully populated with DFE modules (7xxxxx). These modules communicate with each other via the FTM2 chassis backplane and act as a single switching entity with one IP address. The DFE modules are configured using a Command Line Interface set of commands.

Rule: DFE modules can be installed in any available chassis slot in the Matrix E7 chassis.

Example 2 (Figure 3-1, B)

Shows the chassis fully populated with third generation modules (6x3xx). These modules can also be installed in any available chassis slot in the Matrix E7 chassis, but operate as individual modules with separate IP addresses. Each module is configured using Local Management.

Rule: The 6x3xx modules can be installed in any available chassis slot in the Matrix E7 chassis.

Example 3 (Figure 3-1, C)

Shows chassis slots 1 through 5 populated with first and second generation modules (6x1xx and 6x2xx). If a 6x1xx or 6x2xx series module is installed in slot 6 or 7, it will operate in standalone mode (no backplane connectivity). Like the 6x3xx modules, the 6x1xx and 6x2xx modules operate as individual modules with separate IP addresses, and each one is configured using Local Management.

Rule: The 6x1xx and 6x2xx modules can communicate with each other when they are installed in chassis slots 1 through 5 in the Matrix E7 chassis. If installed in slot 6 or 7, they operate in standalone mode.

Example 4 (Figure 3-1, D)

Shows chassis slots 1 through 5 populated with a mix of 6x1xx, 6x2xx, and 6x3xx modules and only third generation modules in slots 6 and 7.

In this module arrangement, the 6x3xx module provides a proxy bridge, which enables the 6x1xx and 6x2xx modules to communicate with 6x3xx modules in slot 6 or 7. If more than one 6x3xx module is installed in slots 1 to 5, the module in the lowest numbered slot performs the proxy function for slots 6 and 7. Therefore, if a 6x3xx module is already performing the proxy function, and another 6x3xx module is inserted into a lower numbered slot, connectivity will be temporarily interrupted, as the new board takes over the proxy function. When a 6x3xx module in a lower numbered slot is removed, and there is a 6x3xx module in a higher numbered slot, communication is not interrupted.

For Local Management, plugging the Local Management connection into the 6x3xx modules will allow management connections to all 6x1xx, 6x2xx, and 6x3xx modules. If the Local Management connection is to a 6x1xx or 6x2xx board, only the modules in the first five slots will be recognized by the management client.

Rule: There must be at least one 6x3xx module in slots 1 through 5 to enable communications between the 6x1xx, 6x2xx, and 6x3xx modules.

Example 5 (Figure 3-1, E)

Shows chassis slots 1 and 5 populated with 6x2xx and 6x1xx modules, respectively; slots 2 through 4 with DFE modules without a bridging module; and slots 6 and 7 with 6x3xx modules.

In this module arrangement, the 6x2xx and 6x1xx modules in slots 1 and 5 can only communicate with each other, because there is no 6x3xx module in one of the first five slots to serve as the proxy bridge to communicate with the 6x3xx modules in slots 6 and 7. The 7x4xxx DFE modules in slots 2, 3, and 4 will operate under one IP address. Since there is no DFE bridging module, the DFE modules will not communicate with any other modules in the chassis.

Rule: In this example, there must be at least one 6x3xx series module, and a bridging module in any of the slots 1 through 5 to enable communications between all generations of modules in the chassis.

Example 6 (Figure 3-1, F)

The module arrangement in this example is similar to the one shown in Figure 3-1, **E** and described in Example 5. The only difference is that one of the bridging modules (7H4382-25, 7H4385-49, 7H4383-49, or 7H4385-49) is installed in slot 2, enabling all modules to communicate with each other. The 7H4385-49 is used in this example.

Rule: In this example, the bridging module serves as both the FTM1-to-FTM2 bridge and the five-to-seven slot proxy bridge. The 6x3xx does not serve as a proxy bridge in this configuration because the bridging module is in a slot with a lower number.

Preparing to Install into a Chassis

Caution: Failure to observe static safety precautions could cause damage to the module. Follow static safety handling rules and wear the antistatic wrist strap.

Do not cut the non-conductive bag to remove the module. Sharp objects contacting the board or components can cause damage.

Precaución: Si no toma las medidas de seguridad necesarias para evitar descargas de electricidad estática, es posible que el módulo se dañe. Siga los consejos de seguridad para la manipulación del producto y no olvide utilizar la pulsera antiestática.

No corte la bolsa antiestática para sacar el módulo. Tenga en cuenta que si algún objeto cortante entra en contacto con la placa o con los componentes, éstos podrían dañarse.

Warning: Install this module in a Matrix E7, N3, N5, or N7 chassis that has been installed in a Restricted Access Location only. Access to the equipment by users must be restricted through the use of a tool or lock and key or other means of security and is controlled by the authority responsible for the location.

Advertencia: Instalar este modulo en un Matrix E7, N3, N5, o N7 que ha sido localizado en un lugar de Acceso Restringido. Aceso al equipo debe ser restringido por el responsable del sitio.

Warnhinweis: Installieren Sie dieses Modul nur in einem E7, N3, N5, oder N7 Chassis, wenn sich diese in einer zugangsgeschützten Umgebung befinden. Der Bereich zu den Komponenten sollte durch ein Schloß, einen Schlüssel oder sonstigen Sicherungen geschützt und durch einen Verantwortlichen kontrolliert werden.

Before installing any module into the Matrix E7 chassis, refer to "DFE Module Placement and Installation Rules" on page 3-3 to familiarize yourself with the FTM1 and FTM2 backplane connections and the module hardware installation rules. Then proceed as follows to prepare the DFE modules for installation.

To install a DFE module into a Matrix E7, Matrix N3, Matrix N7, or Matrix N7 chassis, proceed as follows to prepare the module for installation.

1. Remove the blank panel covering the slot in which the module will be installed. All other slots must remain covered to ensure proper airflow for cooling. (Save the blank plate in the event you need to remove the module.)
2. Remove the module from the shipping box. (Save the box and packing materials in the event the module needs to be reshipped.)
3. Locate the antistatic wrist strap shipped with the chassis. Attach the antistatic wrist strap to your wrist and plug the cable from the antistatic wrist strap into the ESD grounding receptacle at the upper right corner of the chassis.
4. Remove the module from the plastic bag. (Save the bag in the event the module must be reshipped.) Observe all precautions to prevent damage from Electrostatic Discharge (ESD).

5. Examine the module for damage. If any damage exists, DO NOT install the module. Immediately contact Enterasys Networks. Refer to "Getting Help" on page xviii.

6. To install a 7G4285-49 or 7G4205-72 into a Matrix E7, Matrix N7, or Matrix N7, proceed to "Installing the DFE Modules into a Matrix E7 or N7 Chassis" on page 3-7. For Matrix N3, refer to "Installing the DFE Modules into a Matrix N3 or N5 Chassis" on page 3-10.

Installing the DFE Modules into a Matrix E7 or N7 Chassis

To install the 7G4285-49 or 7G4205-72, refer to Figure 3-2 and proceed as follows:

Caution: To prevent damaging the backplane connectors in the following step, take care that the module slides in straight and properly engages the backplane connectors.

Ensure that the top lever lines up with the desired slot number located on the front panel of the chassis. Refer to Figure 3-2.

Precaución: Para evitar que se dañen los conectores del panel posterior en el siguiente paso, intente deslizar el módulo en forma recta y verifique que se enganche correctamente en los conectores de panel posterior.

Asegúrese de que la palanca superior esté alineada con respecto al número de ranura correspondiente ubicado en el panel frontal del chasis. Consulte en Figure 3-2.

Electrical Hazard: To prevent exposure to an energy hazard in a 7G4285-49 connected to an external N-POE Power System, disconnect the 48-Vdc power cable from the 48-Vdc input connector before servicing or removing the 7G4285-49.

Riesgo Eléctrico: Para prevenir la exposicion a un riesgo electrico en una tarjeta 7G4285-49 conectada a un sistema externo de energia N-POE Power System, desconectar el cable de poder de 48-Vdc del conector de entrada 48-Vdc antes de dar servicio o remover la tarjeta 7G4285-49.

Elektrischer Gefahrenhinweis: Um den Schutz vor el. Schäden des Moduls (7G4285-49) zu gewähleisten, bei Verwendung der N-POE Systeme, sollte dies bevor man dieses entnimmt oder Servicearbeiten daran vornimmt, vom 48-Vdc Stecker getrennt werden.

1. Prepare the chassis as described in "Preparing to Install into a Chassis" on page 3-6.
2. Locate the chassis card guides that line up with the slot number in which the module will be installed. Make sure the module locking levers are in the open position (top and bottom).

3. Align the module card between the upper and lower card guides of the desired slot and slide it into the chassis, taking care that the module slides in straight. See Caution below.

Caution: Due to the amount of force needed to properly seat the module connectors into the backplane connectors, it is best to apply force to the end of the levers to insert (or eject) the module. Otherwise, damage could result to the module and chassis.

Precaución: Para colocar los conectores del módulo en los conectores del panel posterior correctamente es necesario hacer bastante fuerza, por ello, para insertar o quitar el módulo, se recomienda concentrar la fuerza en el extremo de las palancas. Si no lo hace, podría dañar el módulo y el chasis.

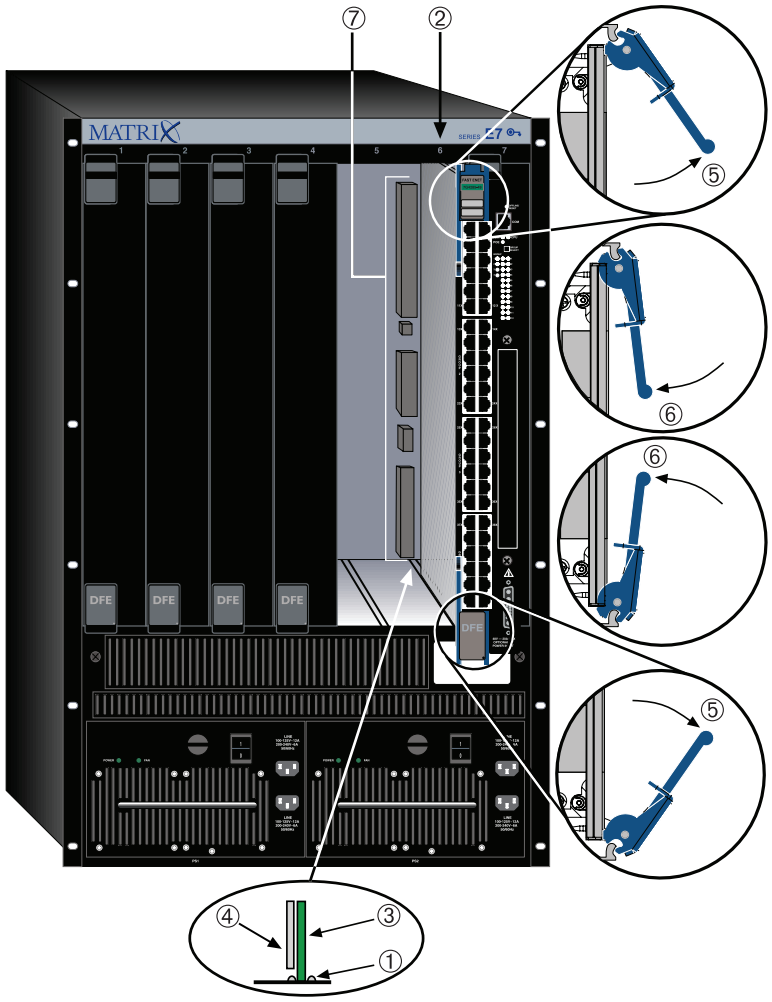
4. Slide the module into the slot until you can engage the top and bottom locking levers.

Caution: In step 5, do not force the locking levers to the point that they touch the face of the front panel. Forcing the locking levers to this point could damage the module and chassis.

Precaución: En el paso 5, tenga cuidado de no llevar las palancas de cierre a un punto en donde estén en contacto con el panel frontal. Si lo hace, podría dañar el módulo y/o el chasis.

5. Refer to the Caution above, then rotate the two levers into the closed position.
6. If the chassis in which the module is installed was powered down for the installation, turn the power supplies on. Check to see that the module CPU LED settles at solid green after a few minutes. If the LED does not turn solid green, refer to Chapter 4 for troubleshooting details.

Figure 3-2 Installing Module into Matrix E7 or N7 Chassis (Matrix E7 shown)



1 Card guides
2 Slot number 6 (Left-most slot is 1)
3 Module card
4 Metal back panel
5 Upper/lower locking tabs (in proper open position)
6 Upper/lower locking tab (in closed position)
7 Backplane connectors
- Top two connectors (power and FTM2
- Bottom two connectors (power and FTM1) (no bottom connectors in Matrix N7 chassis)

Installing the DFE Modules into a Matrix N3 or N5 Chassis

Caution: Failure to observe static safety precautions could cause damage to the module. Follow static safety handling rules and wear the antistatic wrist strap.

Do not cut the non-conductive bag to remove the module. Sharp objects contacting the board or components can cause damage.

Precaución: Si no toma las medidas de seguridad necesarias para evitar descargas de electricidad estática, es posible que el módulo se dañe. Siga los consejos de seguridad para la manipulación del producto y no olvide utilizar la pulsera antiestática.

No corte la bolsa antiestática para sacar el módulo. Tenga en cuenta que si algún objeto cortante entra en contacto con la placa o con los componentes, éstos podrían dañarse.

A DFE-Platinum module can be installed in any available N3 chassis slot (1 through 3). To install a module into the Matrix N3 chassis, refer to Figure 3-3 and proceed as follows:

1. Prepare the DFE modules using the procedure described in "Preparing to Install into a Chassis" on page 3-6.

Caution: When setting the locking levers to the closed position, do not try to force the locking levers to the point that they touch the face of the front panel. Forcing the locking levers to this point could damage the module and chassis.

Precaución: Al mover las palancas a la posición de cerrado, tenga cuidado de no llevarlas a un punto en donde estén en contacto con el panel frontal. Si lo hace, podría dañar el módulo o el chasis.

2. Locate the chassis card guides that line up with the slot number in which the module will be installed. Make sure the module locking levers are in the open position (top and bottom).
3. Align the module card between the upper and lower card guides of the desired slot and slide it into the chassis, taking care that the module slides in straight. See Caution below.

Caution: Due to the amount of force needed to properly seat the module connectors into the backplane connectors, it is best to apply force to the end of the levers to insert (or eject) the module. Otherwise, damage could result to the module and chassis.

Precaución: Para colocar los conectores del módulo en los conectores del panel posterior correctamente es necesario hacer bastante fuerza, por ello, para insertar o quitar el módulo, se recomienda concentrar la fuerza en el extremo de las palancas. Si no lo hace, podría dañar el módulo y el chasis.

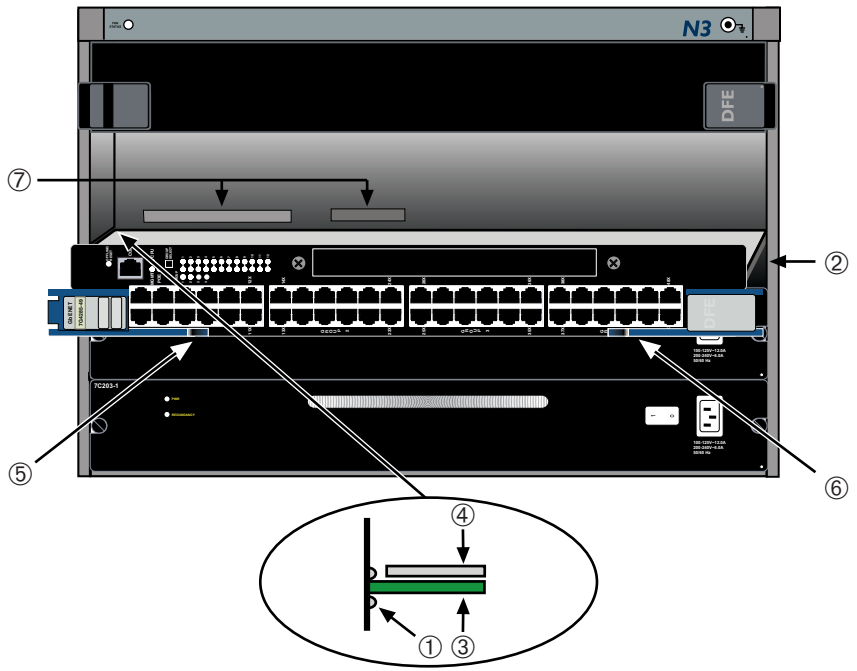
4. Slide the module into the slot until you can engage the top and bottom locking levers.

Caution: In step 5, do not force the locking levers to the point that they touch the face of the front panel. Forcing the locking levers to this point could damage the module and chassis.

Precaución: En el paso 5, tenga cuidado de no llevar las palancas de cierre a un punto en donde estén en contacto con el panel frontal. Si lo hace, podría dañar el módulo y/o el chasis.

5. Refer to the Caution note above, then rotate the two levers into the closed position.
6. If the chassis in which the module is installed was powered down for the installation, turn the power supplies on. Check to see that the module CPU LED settles at solid green after a few minutes. If the LED does not turn solid green, refer to Chapter 4 for troubleshooting details.

Figure 3-3 Installing Module into Matrix N3 or N5 Chassis (Matrix N3 shown)



1 Card guides
2 Slot 1 (Top slot is slot 3.)
3 Module card
4 Metal back panel
5 Upper locking tab (shown in closed position)
6 Lower locking tab (shown in closed position)
7 FTM2 and power backplane connectors

Connecting 48 Vdc Power for PoE Operation

The Matrix N7 (7C105-P) chassis provides 48 Vdc to connected PDs (powered devices) by way of its backplane connection to a PoE-compliant DFE module such as the 7G4285-49 or 7G4205-72.

For a Matrix E7, (6C107), Matrix N3 (7C103) and Matrix N7 (7C107) chassis, an optional external Enterasys Matrix N-POE Power System is required to support PD connections to the 7G4285-49. The power from the Matrix N-POE Power System is supplied through a DC power cable connection to the front-panel 48 Vdc Optional Power connector on the 7G4285-49.

Warning: The 48 V wire harness contains two fuses, F11 and F29. If a fuse needs to be replaced, it must be done by service personnel only. The fuse must be replaced with the same Type and Rated fuse 20 A, 400 VDC.

Advertencia: E arnes del cable de 48V contiene dos fusibles, F11 y F29. Si un fusible requiere ser reemplazado, debe ser hecho por personal de servicio unicamente. El fusible debe ser reemplazado por uno del mismo tipo y clasificado como fusible de 20 A, 400 VDC.

Warnhinweis: Im Kabelbaum der 48V Zuleitung befinden sich 2 Sicherungen, F11 und F29. Die Sicherung darf nur duch Fachpersonal getauscht werden und darf auch nur durch den gleichen Typ ersetzt werden (20A / 400VDC).

Note: If you are planning to install a PoE-compliant DFE module such as the 7G4285-49 in a Matrix N3 (7C103) or Matrix N7 (7C107) chassis, install and connect the Matrix N-POE Power System before connecting to PDs.

Refer to the *Matrix N-Series N-POE Power System Installation Guide* to install and connect a Matrix N-POE Power System to the 7G4285-49.

Connecting to the Network

This section provides the procedures for connecting unshielded twisted pair (UTP) segments from the network or other devices to the 7G4285-49 and 7G4205-72 (“Connecting UTP Cables to DFE Modules” on page 3-13).

Note: If the module is being installed in a network using Link Aggregation, there are rules concerning the network cable and port configurations that must be followed for Link Aggregation to operate properly. Before connecting the cables, refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for the configuration information. For details on how to obtain manuals, refer to the “Related Documents” in **About This Guide**.

Connecting UTP Cables to DFE Modules

The fixed RJ45 front panel connections of the 7G4285-49 and 7G4205-72 are 10/100/1000 Mbps ports. These ports have internal crossovers, and support automatic-polarity sensing when configured for automatic-negotiation.

If automatic-negotiation is not activated on a port, use a straight-through cable when connecting a workstation to the port. When connecting a networking device to the port, such as a bridge, repeater, or router, use a crossover cable.

If a port is set for auto-negotiation, automatic-polarity sensing is also activated. Automatic-polarity sensing eliminates the need for a crossover cable, regardless if the connection is to another network device or a workstation.

Note: All RJ45 front panel ports on these DFE modules support Category 5 Unshielded Twisted Pair (UTP) cabling with an impedance between 85 and 111 ohms. Category 3 cable may be used if the connection is going to be used only for 10 Mbps.

The RJ45 fixed front panel connectors of the 7G4285-49 and 7G4205-72 also support PoE-compliant connections to PDs (powered devices) that require 48 Vdc through the UTP cable to operate. When the 48 Vdc is available through the backplane of an N5 chassis or externally from an N-POE Power System, you can verify if there is power at each port as described later in this procedure.

Making the UTP Connections

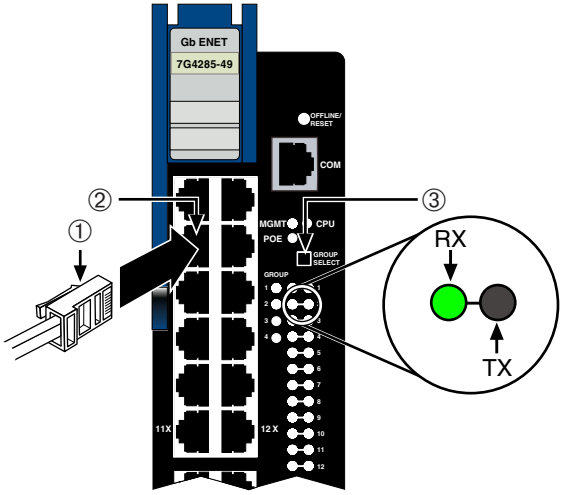
Caution: To prevent damage to the equipment, do not connect the PoE supported ports (1 through 48 or 72) to segments running between buildings. Keep connections to equipment within the building.

Precaución: Para evitar que el equipo se dañe, no conecte los puertos PoE (1 a 48 o 72) a segmentos que vayan de un edificio a otro. Mantenga las conexiones de los equipos dentro del edificio.

To connect and verify UTP cable connections to RJ45 ports (1 through 48 or 72), refer to Figure 3-4 and proceed as follows:

1. Ensure that the device connected to the other end of the segment is powered ON.
2. Insert the RJ45 connector on the twisted pair segment into the appropriate RJ45 port connector.

Figure 3-4 Connecting a Twisted Pair Segment with RJ45 Connector



1 RJ45 cable connector **2** RJ45 port connector **3** GROUP SELECT button

3. Verify that a link exists by checking that the port RX (Receive) LED is ON (flashing amber, blinking green, or solid green). If the RX LED is OFF and the TX (Transmit) LED is not blinking amber, perform the following steps until it is on:

Note: If the RX and TX LEDs of a port do not indicate a link and the end-point device is a PD, you may have a port without 48 Vdc to operate the PD. To check the PoE Port Status, refer to "Verifying PoE Port Status" on page 3-17.

   a. To view the receive and transmit activity on a group of segments, press the GROUP SELECT button for less than one second (see Figure 3-4) to step to the group of interest (Groups 1 through 4).

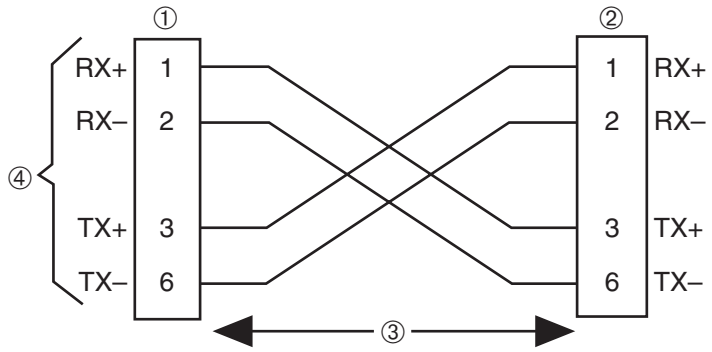
   b. Each time the GROUP SELECT button is pressed for less that one second, the GROUP LED lights up in sequence, indicating which Group is selected. The receive and transmit activity for that group of segments is then indicated by the RX and TX LEDs for each segment.

   c. Verify that the cabling being used is Category 5 UTP with an impedance between 85 and 111 ohms. If the port is to operate at 100 Mbps, category 5 cabling must be used.

   d. Verify that the device at the other end of the twisted pair segment is on, and properly connected to the segment.

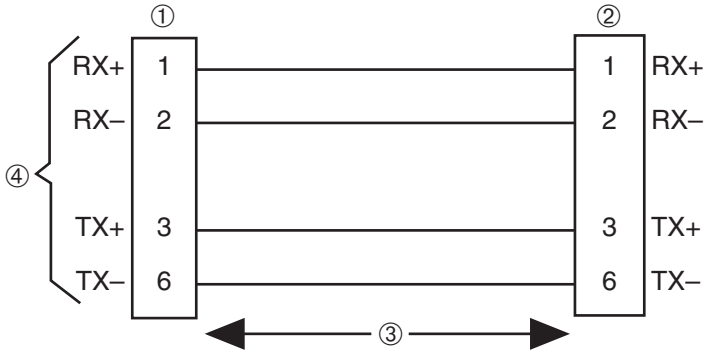
e. Verify that the RJ45 connectors on the twisted pair segment have the proper pinouts and check the cable for continuity. Typically, a crossover cable is used between hub devices. A straight-through cable is used to connect between switches or hub devices and an end user (computer). Refer to Figure 3-5 and Figure 3-6 for four-wire RJ45 connections. Refer to Figure 3-7 and Figure 3-8 for eight-wire RJ45 connections.

Figure 3-5 Four-Wire Crossover Cable RJ45 Pinouts, Connections Between Hub Devices



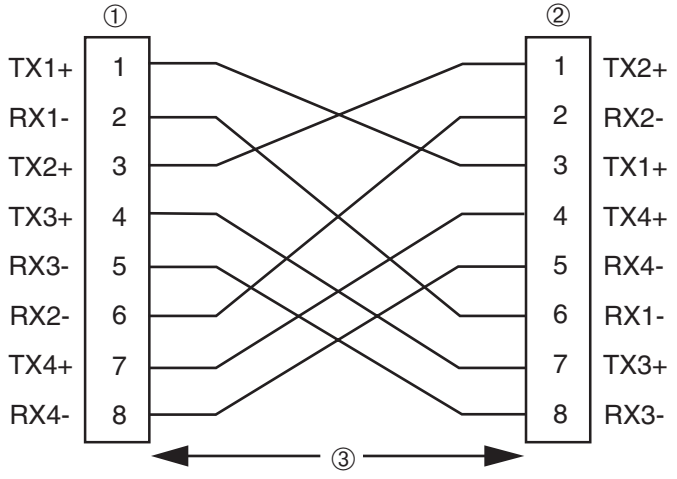
1 RJ45 device port
2 Other device port
3 RJ45-to-RJ45 crossover cable
4 RX+/RX- and TX+/TX- connections. These connections must share a common color pair.

Figure 3-6 Four-Wire Straight-Through Cable RJ45 Pinouts, Connections Between Switches and End User Devices



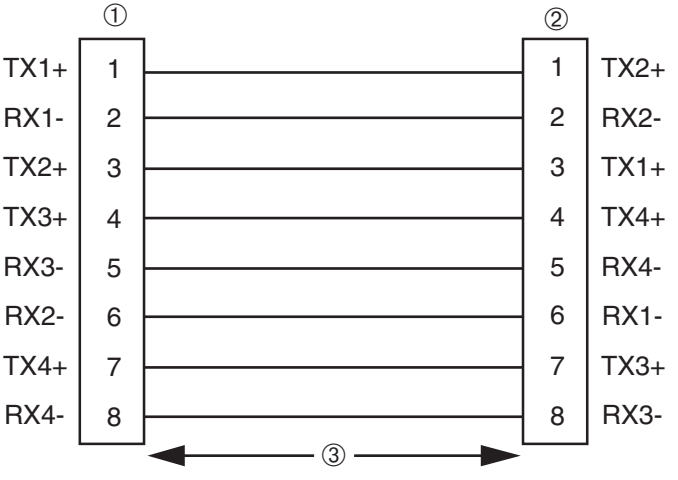
1 RJ45 device port
2 Other device port
3 RJ45-to-RJ45 straight-through cable
4 RX+/RX- and TX+/TX- connections. These connections must share a common color pair.

Figure 3-7 Eight-Wire Crossover Cable RJ45 Pinouts, Connections Between Hub Devices



1 RJ45 device port
2 Other device port
3 RJ45-to-RJ45 crossover cable

Figure 3-8 Eight-Wire Straight-Through Cable RJ45 Pinouts, Connections Between Switches and End User Devices



1 RJ45 device port
2 Other device port
3 RJ45-to-RJ45 straight-through cable

f. Ensure that the twisted pair connection meets the dB loss and cable specifications outlined in the *Cabling Guide.* Refer to "Related Documents" in **About This Guide** for information on obtaining this document.

If a link is not established and it is connected to a PD (Powered Device), check the PoE Port Status to ensure that there is 48 Vdc power at the 7G4285-49 or 7G4205-72 RJ45 port. Refer to "Verifying PoE Port Status" on page 3-17. If there is still a problem, contact Enterasys Networks. Refer to "Getting Help" on page xviii for details.

4. Repeat steps 1 through 3 above, until all connections have been made.

Verifying PoE Port Status

If a PD is connected to the 7G4285-49 or 7G4205-72 RJ45 port, ensure that there is power at the RJ45 port as follows:

1. Press on the GROUP SELECT switch for more than one second. The 7G4285-49/ 7G4205-72 will enter the PoE status mode, which will indicate a set of power status conditions relating to the PoE Port Status.
2. Now, every time you press the GROUP SELECT switch for less than a second, the GROUP LED lights up in sequence, indicating which group is selected. The PoE POWER STATUS for that group of segments is then indicated by the RX and TX LEDs for each segment. If there is power at the port, the RX LED is green and the TX LED is off. Otherwise, refer to Chapter 4 for troubleshooting information.
3. Press on the GROUP SELECT switch again for more than one second. This returns the 7G4285-49/7G4205-72 to port RX (receive) and TX (transmit) status mode.

Connecting to COM Port for Local Management

This section describes how to install a UTP straight-through cable with RJ45 connectors and optional adapters to connect a PC, a VT series terminal, or a modem to an Enterasys Networks module to access Local Management. This section also provides the pinout assignments of the adapters.

What Is Needed

The following is a list of the user-supplied parts that may be needed depending on the connection:

- RJ45-to-DB9 female adapter
- UTP straight-through cable terminated at both ends with RJ45 connectors
- RJ45-to-DB25 female adapter
- RJ45-to-DB25 male adapter

Using a UTP straight-through cable and an RJ45-to-DB9 adapter, you can connect products equipped with an RJ45 COM port to an IBM or compatible PC running a VT series emulation software package.

Using a UTP straight-through cable and an RJ45-to-DB25 female adapter, you can connect products equipped with an RJ45 COM port to a VT series terminal or VT type terminals running emulation programs for the VT series.

Using a UTP straight-through cable and an RJ45-to-DB25 male adapter, you can connect products equipped with an RJ45 COM port to a Hayes compatible modem that supports 9600 baud.

Connecting to an IBM PC or Compatible Device

To connect an IBM PC or compatible device, running the VT terminal emulation, to an Enterasys Networks module COM port (Figure 3-9), proceed as follows:

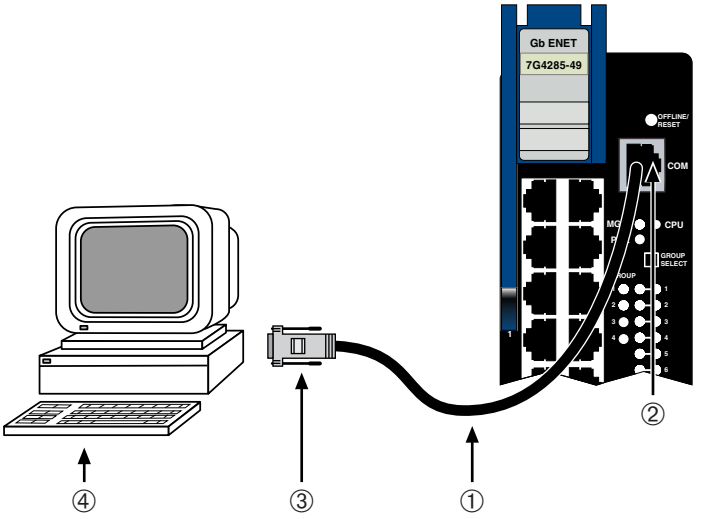
1. Connect the RJ45 connector at one end of the UTP straight-through cable to the communications COM port on the Enterasys Networks module. (The COM port is also known as a Console port.)
2. Plug the RJ45 connector at the other end of the UTP straight-through cable into an RJ45-to-DB9 adapter.
3. Connect the RJ45-to-DB9 adapter to the communications port on the IBM PC.

4. Turn on the PC and set the following parameters on your VT emulation package:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

5. When these parameters are set, the Local Management password screen will display. Refer to the appropriate *Enterasys Matrix DFE-Platinum Series Configuration Guide* for further information.

Figure 3-9 Connecting an IBM PC or Compatible



1 UTP straight-through cable with RJ45 connectors
2 RJ45 COM port
3 RJ45-to-DB9 PC adapter
4 IBM PC or compatible device

Connecting to a VT Series Terminal

To connect a VT Series terminal to an Enterasys Networks DFE modules COM port (Figure 3-10), use a UTP straight-through cable with RJ45 connectors and an RJ45-to-DB25 female adapter, and proceed as follows:

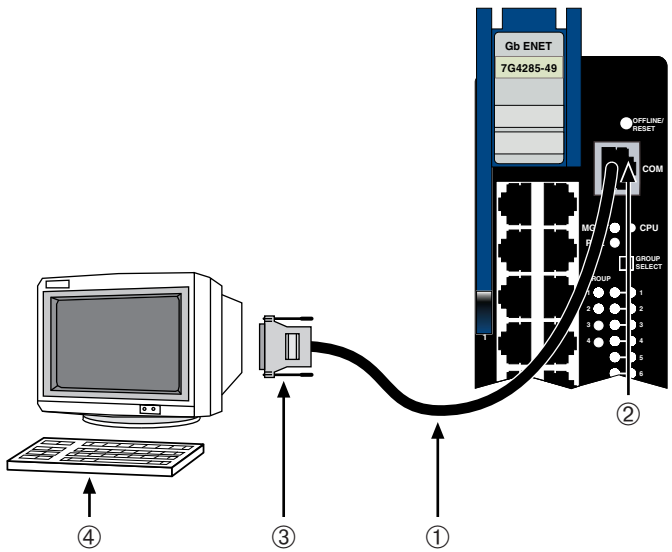
1. Connect the RJ45 connector at one end of the UTP straight-through cable to the COM port on the Enterasys Networks module.
2. Plug the RJ45 connector at the other end of the UTP straight-through cable into the RJ45-to-DB25 female adapter.

3. Connect the RJ45-to-DB25 adapter to the port labeled COMM on the VT terminal.
4. Turn on the terminal to access the Setup Directory and set the following parameters:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

When these parameters are set, the Local Management password screen will display. Refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for further information.

Figure 3-10 Connecting a VT Series Terminal



1 UTP straight-through cable with RJ45 connectors
2 RJ45 COM port
3 RJ45-to-DB25 VT adapter
4 VT series terminal

Connecting to a Modem

To connect a modem to an Enterasys Networks DFE modules COM port (Figure 3-11), use a UTP straight-through cable with RJ45 connectors and an RJ45-to-DB25 male adapter, and proceed as follows:

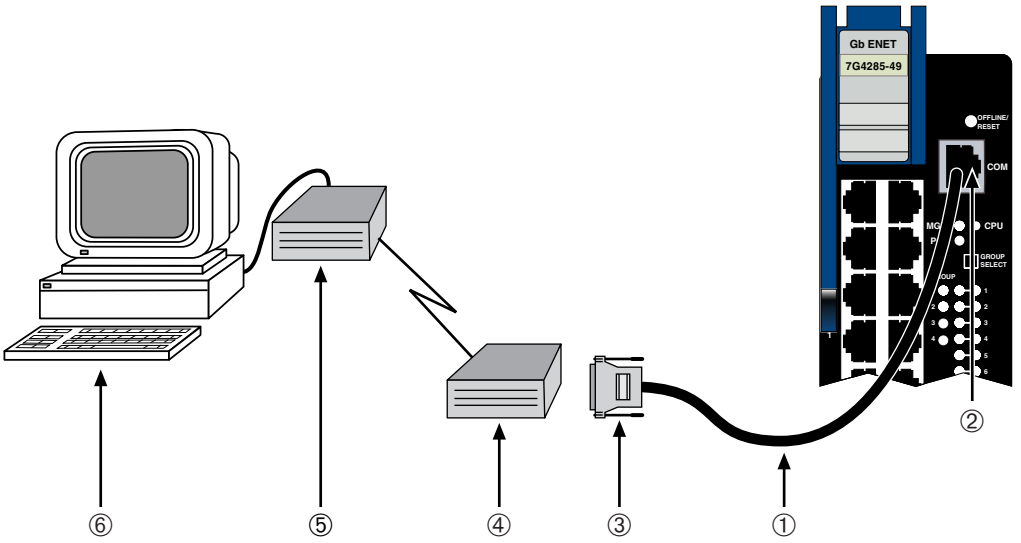
1. Connect the RJ45 connector at one end of the UTP straight-through cable to the COM port of the module.

2. Plug the RJ45 connector at the other end of the UTP straight-through cable into the RJ45-to-DB25 modem adapter.
3. Connect the RJ45-to-DB25 adapter to the communications port on the modem.
4. Turn on the modem.
5. With a PC connected to a remote modem, you can configure the switch remotely. To accomplish this, you must configure your PC VT emulation package with the following parameters.

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

6. When these parameters are set, the Local Management password screen will display. Refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for further information.

Figure 3-11 Connecting to a Modem

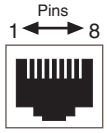


1 UTP straight-through cable with RJ45 connectors
2 RJ45 COM port
3 RJ45-to-DB25 modem adapter
4 Local modem
5 Remote modem
6 PC

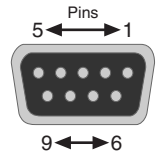
Adapter Wiring and Signal Assignments

COM Port Adapter Wiring and Signal Diagram

RJ45		DB9	
Pin	Conductor	Pin	Signal
1	Blue	2	Receive (RX)
4	Red	3	Transmit (TX)
5	Green	5	Ground (GRD)
2	Orange	7	Request to Send (RTS)
6	Yellow	8	Clear to Send (CTS)



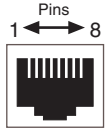
RJ45 Connector (Female)



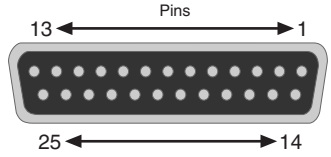
DB9 Connector (Female)

VT Series Port Adapter Wiring and Signal Diagram

RJ45		DB25	
Pin	Conductor	Pin	Signal
4	Red	2	Transmit (TX)
1	Blue	3	Receive (RX)
6	Yellow	5	Clear to Send (CTS)
5	Green	7	Ground (GRD)
2	Orange	20	Data Terminal Ready

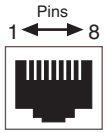


RJ45 Connector (Female)

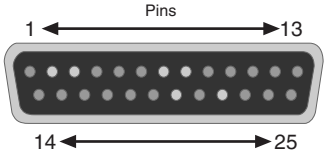


DB25 Connector (Female)

Modem Port Adapter Wiring and Signal Diagram			
RJ45		DB25	
Pin	Conductor	Pin	Signal
1	Blue	2	Transmit (TX)
2	Orange	8	Data Carrier Detect (DCD)
4	Red	3	Receive
5	Green	7	Ground (GRD)
6	Yellow	20	Data Terminal Ready (DTR)
8	Gray	22	Ring Indicator



RJ45 Connector (Female)



DB25 Connector (Male)

Completing the Installation

Completing the DFE module installation depends on whether the module is being installed in:

- a new DFE module system (refer to "Completing the Installation of a New System" on page 3-24), or
- an established, operating DFE module system (refer to "Completing the Installation of a DFE Module in an Existing System" on page 3-26).

Completing the Installation of a New System

In a new system of DFE modules, one of the installed DFE modules will become the management module on chassis power up, and all DFE modules will automatically be set to the factory default values. A complete list of the factory default values are provided in Chapter 3 of the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

After installing all DFE modules into the host chassis and making the connections to the network, proceed to the following First-Time Log-In Using a Console Port Connection procedure to access the module management startup screen from your PC, terminal, or modem connection.

First-Time Log-In Using a Console Port Connection

Notes: This procedure applies only to initial log-in, and to logging in to a device not yet configured with administratively-supplied user and password settings.

By default, the Matrix DFE Series device is configured with three user login accounts: **ro** for Read-Only access; **rw** for Read-Write access; and **admin** for super-user access to all modifiable parameters. The default password is set to blank (press ENTER). For information on changing these default passwords, refer to Chapter 3 in the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

Start the Command Line Interface (CLI) from the module's local console port as follows:

1. Connect a terminal to the local console port as described in "Connecting to COM Port for Local Management" on page 3-18. The startup screen, Figure 3-12, displays.
2. At the login prompt, enter one of the following default user names:
   - **ro** for Read-Only access,
   - **rw** for Read-Write access, or
   - **admin** for Super User access. (This access level allows Read-Write access to all modifiable parameters, including user accounts.)
3. Press ENTER.
4. The Password prompt displays. Leave this string blank and press ENTER. The module information and Matrix prompt displays as shown in Figure 3-12.

The module is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to DFE management, refer to Chapter 3 in the *Enterasys Matrix DFE-Platinum Series Configuration Guide*. The CLI commands enable you to initially set up and perform more involved management configurations.

The *Enterasys Matrix DFE-Platinum Series Configuration Guide* is available online at:

http://www.enterasys.com/support/manuals

If you require assistance, contact Enterasys Networks using one of the methods described in "Getting Help" on page xviii.

Figure 3-12 Matrix DFE Startup Screen Example (N7 Chassis)

```
login: admin
Password:


M A T R I X N7
Command Line Interface

Enterasys Networks, Inc.
50 Minuteman Rd.
Andover, MA 01810-1008 U.S.A.

Phone:  +1 978 684 1000
E-mail: support@enterasys.com
WWW:    http://www.enterasys.com

(c) Copyright Enterasys Networks, Inc. 2003

Chassis Serial Number:     xxxxxxxxxxxx
Chassis Firmware Revision: xx.xx.xx

Matrix N7(su)->
```

Completing the Installation of a DFE Module in an Existing System

In an established DFE module system,

- a DFE module is already established as the management module,
- the passwords have already been set for various users,
- the system IP address is set, and
- other system parameters have been set.

When you install a new DFE module into a system with an existing configured user account, the current system settings in that account are already recognized by the new DFE module and it will operate accordingly.

If you need to change any settings, you can connect a terminal to the local console port as described in "Connecting to COM Port for Local Management" on page 3-18 to access system management, or use a Telnet connection to access the DFE module system management as described in Chapter 3 of the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

Logging in with an Administratively-Configured User Account

If the device's default user account settings have been changed, proceed as follows:

1. At the login prompt, enter your administratively-assigned user name and press ENTER.
2. At the Password prompt, enter your password and press ENTER.

The notice of authorization and the Matrix prompt displays as shown back in Figure 3-12.

Note: Users with Read-Write (rw) and Read-Only access can use the **set password** command to change their own passwords. Administrators with Super User (su) access can use the **set system login** command to create and change user accounts, and the **set password** command to change any local account password. For information on the set password and set system login commands, refer to Chapter 3 in the *Enterasys Matrix DFE-Platinum Series Configuration Guide*.

The module is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to DFE management, refer to Chapter 3 in the *Enterasys Matrix DFE-Platinum Series Configuration Guide*. The CLI commands enable you to initially set up and perform more involved management configurations.

The *Enterasys Matrix DFE-Platinum Series Configuration Guide* is available online at:

http://www.enterasys.com/support/manuals

If you require assistance, contact Enterasys Networks using one of the methods described in "Getting Help" on page xviii.

4

Troubleshooting

This chapter provides information concerning the following:

Using LANVIEW

The DFE module uses a built-in visual diagnostic and status monitoring system called LANVIEW. The LANVIEW LEDs (Figure 4-1) allow quick observation of the network status to aid in diagnosing network problems.

About the Management (MGMT) LED

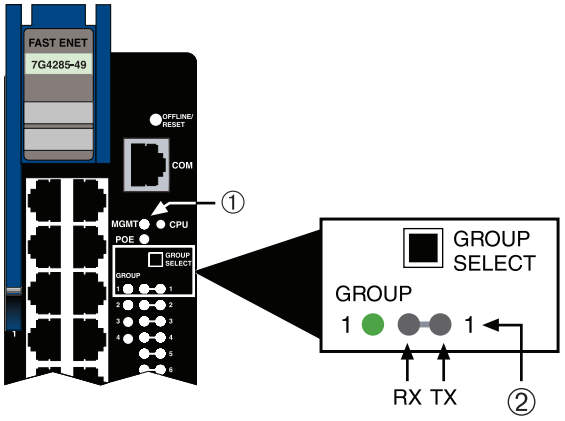
The MGMT LED (shown in Figure 4-1) indicates when the module is serving as the Management Module to control the management functions for all DFE modules in the chassis. The Management Module handles all IP requests to the chassis IP address, such as, but not limited to, PING, Telnet, SNMP, HTTP. The Management Module also handles the CLI configuration sessions through the console port. So, when you plug into a DFE module COM port to configure a DFE module in the chassis, it is handled by the Management Module regardless of the DFE module COM port that you use.

Viewing Receive/Transmit Activity on 7G4285-49

You can view the 7G4285-49 receive and transmit port activity on the RX and TX LEDs. However, only one group of 12 ports may be viewed at a time.

To view the receive and transmit activity on a group of 7G4285-49 segments, press the GROUP SELECT button (see Figure 4-1) for less than one second to step to the group of interest (Groups 1 through 4). Each time the GROUP SELECT button is pressed for less than one second, the GROUP LED lights up in sequence, indicating which group is selected. The receive and transmit activity for that group of segments is then indicated by the RX and TX LEDs for each port.

Figure 4-1 LANVIEW LEDs on 7G4285-49



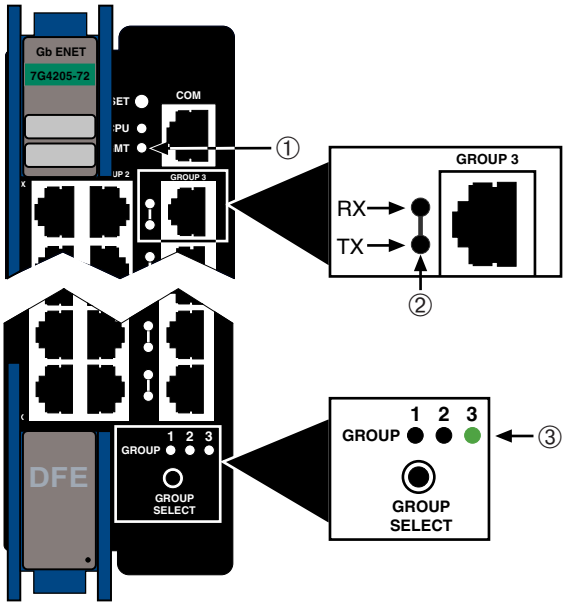
1 MGMT LED **2** Group 1, Port 1 LEDs

Viewing Receive/Transmit Activity on 7G4205-72

On the 7G4205-72, you can view the receive and transmit activity on the RX and TX LEDs. However, only one group of 24 ports may be viewed at a time.

To view the receive and transmit activity on a group of attached segments, press the GROUP SELECT button (see Figure 4-2) to step to the group of interest (Groups 1 through 3). Each time the GROUP SELECT button is pressed, a GROUP LED lights up in sequence, indicating which group is selected. The receive and transmit activity for that group of segments is then indicated by the RX and TX LEDs for each port. Figure 4-2 shows Group 3 selected and the location of Group 3, port 1 RX and TX LEDs.

Figure 4-2 LANVIEW LEDs on 7G4205-72



1 MGMT LED **2** Group 3, port 1 status LEDs **3** Group 3 select LED

Viewing the PoE Port Status

If the 7G4285-49 or 7G4205-72 is installed in an N5 chassis or if the 7G4285-49 is receiving 48 Vdc from an external N-POE Power System to support connections to PDs (Powered Devices), you can view the power status indications on the RX and TX LEDs. However, only one group of 12 ports may be viewed at a time. To view the PoE port status, refer to Figure 4-1 and proceed as follows:

1. Press the GROUP SELECT button for more than one second. The DFE module will enter the PoE port status mode.
2. Now, every time you press the GROUP SELECT button for less than a second, the GROUP LED lights up in sequence, indicating which Group is selected. The PoE POWER STATUS for that group of segments is then indicated by the RX and TX LEDs for each segment. If there is power at the port, the RX LED is green and the TX LED is off. Otherwise, refer to Table 4-1 for troubleshooting information.
3. Press the GROUP SELECT button again for more than one second. This returns the DFE module to the default status mode to monitor RX (receive) and TX (transmit) activity.

Table 4-1 on page 4-5 describes the LED indications and provides recommended actions as appropriate.

Note: The terms used in Table 4-1 to indicate the following:

- **Flashing** indicates LED is flashing randomly.
- **Blinking** indicates LED is flashing at a steady rate (approximately 50% on, 50% off).
- **Solid** indicates a steady LED light. No pulsing.
- **Alternating** indicates LED is flashing in a steady rate other than 50% on, 50% off.

Table 4-1 LANVIEW LEDs

LED	Color	State	Recommended Action
MGMT	Off	**Off**. This DFE module is NOT the Management Module.	None.
	Green	**Solid**. This module is the designated Management Module.	None.
	Amber	**Flashing**. This is a temporary indication that the DFE module is saving data.	None.
CPU	Off	Power off.	Ensure chassis has adequate power.
	Amber	**Blinking**. DFE module in process of booting.	None.
		Solid. Testing.	If the LED remains amber for several minutes, contact Enterasys Networks for technical support.
	Green	**Blinking**. Image starts running.	None.
		Solid. Functional.	None.
	Red	**Solid**. Processor in reset.	None.
	Green and Amber	**Blinking**. Indicates that the DFE module is in the process of shutting down.	None. This state is activated when the OFFLINE/RESET switch is pressed for less than 1 second to start the process of an orderly shutdown. While in this state, do not remove any DFE module.
	Amber and off	**Alternating (67% on, 33% off)**. Indicates that a shutdown process has completed. This indication will remain for 60 seconds before automatically restarting.	While in this state, you have 60 seconds to safely remove the DFE module from the chassis.

Table 4-1 LANVIEW LEDs (continued)

LED	Color	State	Recommended Action
RX/TX Indications in Standard Mode			
RX (Receive)	Off	**No link**. No activity. Port enabled or disabled.	None.
	Green	**Solid**. Link present, port enabled, no traffic is being received by the interface.	None.
	Amber	**Flashing**. Link present, port enabled, traffic is being received by the interface.	None.
	Red	**Blinking**. Indicates collisions. This indication is only supported on 10/100 ports.	Contact Enterasys Networks for technical support.
TX (Transmit)	Off	Port enabled, but no activity.	If it is known that the port should be active and is not, contact Enterasys Networks for technical support.
	Green	**Flashing**. Indicates data transmission activity. Rate of flashing indicates the data rate.	None.
	Red	**Flashing**. Fault or Error (collision).	None, unless there is a high rate of activity. In this case, check for network configuration problems or a defective device.

Table 4-1 LANVIEW LEDs (continued)

LED	Color	State	Recommended Action
RX/TX LED Indications in PoE Port Status Mode			
RX/TX	Green/Off	There is a connection to a PD. There is 48 Vdc at the RJ45 connector.	None.
	Off/Red	Port is off due to overload. The attached device exceeded maximum load according to 802.3af standard PoE device power classification.	1. Check the attached PD to see if it is defective and drawing too much power for its Power Classification. 2. Check Ethernet cable from the PD for short circuits. 3. Contact Enterasys Networks for technical support.
	Red/Off	Port is off due to PoE power management. Port may be turned off due to priority or other administration configuration.	None
RX/TX	Off/Off	Port is off for other reason.	1. There is no connection to a PD. 2. If the DFE module is in an N5 chassis, ensure that the N5 is turned on. 3. If connected to an N-POE Power System, ensure that it is turned on. 4. If the power is being received from an N-POE Power System, check the 48 Vdc power cable connection. 5. Swap 48 Vdc power cable with a known good one. 6. If you still have a problem, contact Enterasys Networks for technical support.

Troubleshooting Checklist

If the module is not working properly, refer to Table 4-2 on page 4-8 for a checklist of problems, possible causes, and recommended actions to resolve the problem.

Table 4-2 Troubleshooting Checklist

Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Ensure that the DFE module was installed properly according to the installation instructions in Chapter 3, and that the host chassis is providing power.
No Local Management Password screen.	Incorrect terminal setup.	Refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for proper setup procedures.
	Improper console cable pinouts.	Refer to Appendix A for proper COM port pinouts.
	Corrupt firmware image, or hardware fault.	If possible, attempt to download the image to the DFE module again. Refer to "Setting the Mode Switches" on page B-2 for instructions to clear NVRAM.
Cannot navigate beyond Password screen.	Improper username/ password combination entered.	If the username/password combination has been forgotten, refer to "Setting the Mode Switches" on page B-2 for instructions on how to set the mode switch to reset the username/password combination to the default values.

Table 4-2 Troubleshooting Checklist (continued)

Problem	Possible Cause	Recommended Action
Cannot contact the module through in-band management.	IP address not assigned.	Refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for the IP address assignment procedure.
	Port is disabled.	Enable port. Refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for instructions to enable/disable ports.
	Host Port policy and/or management VLAN is incorrectly configured, or not configured.	Verify that a management VLAN exists and that it is associated with the Host Port. Refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for information about Host Port and management VLAN configuration.
	No link to device.	Verify that all network connections between the network management station and the DFE module are valid and operating. If the problem continues, contact Enterasys Networks for technical support.
Port(s) goes into standby for no apparent reason.	Loop condition detected.	Verify that Spanning Tree is enabled. Refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for the instructions to set the type of STA. Review the network design and delete unnecessary loops. If the problem continues, contact Enterasys Networks for technical support.

Table 4-2 Troubleshooting Checklist (continued)

Problem	Possible Cause	Recommended Action
User parameters (IP address, device and module name, etc.) were lost when the module power was cycled, the front panel OFFLINE/ RESET switch was pressed.	Position of Mode switch (7), Persistent Data Reset, was changed sometime before either cycling power or pressing the OFFLINE/RESET switch, causing the user-entered parameters to reset to factory default settings. Clear Persistent Data that was set through Local Management. The DFE module was moved either from slot-to-slot or from chassis-to-chassis.	Reenter the lost parameters as necessary. Refer to the *Enterasys Matrix DFE-Platinum Series Configuration Guide* for the instructions to configure the DFE module. If the problem continues, contact Enterasys Networks for technical support.

Overview of DFE Module Shutdown Procedure

Caution: Do not remove a DFE module from an operating chassis system before reading the following information and instructions.

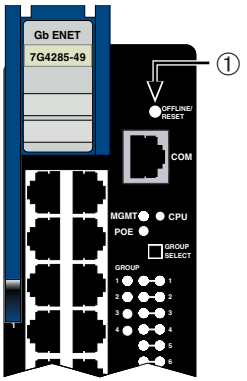
Precaución: Antes de retirar los módulos DFE del chasis en funcionamiento, lea las siguientes instrucciones y la información suministrada.

The DFE modules installed in a Matrix E7, Matrix N3, Matrix N5, or Matrix N7 chassis are interdependent and operate under a single IP address as a single, distributed switch system (hardware, databases, and persistent storage). In this operating environment, the DFE module must shut down in an orderly fashion to ensure that the other modules in the system and other devices on the network are notified of the impending change. The device(s) can then make intelligent decisions and stabilize the network before the change is made; thereby increasing network availability.

You can shut down a DFE module in an operating system using the OFFLINE/RESET switch shown in Figure 4-3. There are two procedures to shut down a DFE module.

- Recommended shutdown procedure ("Recommended Shutdown Procedure Using OFFLINE/RESET Switch" on page 4-11)
- Last resort shutdown procedure (not recommended) ("Last Resort Shutdown Procedure Using OFFLINE/RESET Switch" on page 4-12)

Figure 4-3 OFFLINE/RESET Switch



1 OFFLINE/RESET switch (in similar location on all DFE modules)

Recommended Shutdown Procedure Using OFFLINE/RESET Switch

Caution: Do not pull any DFE module out of an operating chassis before it has completed its shutdown routine.

Precaución: No retire los módulos DFE del chasis en funcionamiento hasta que no se haya terminado con la rutina de apagado.

Before pulling a DFE module out of a chassis,

press or tap on its OFFLINE/RESET switch for less than 1 second.

Its CPU LED changes from solid green to blinking between green and amber, indicating that the DFE module is shutting down. At the end of the DFE module shutdown routine, the CPU LED changes to a 67%/33% sequence of amber/off, respectively, indicating the module is in a halt state. In this time it is safe to restart or remove the DFE module from the chassis.

When a controlled shutdown is initiated from the OFFLINE/RESET switch, you have 60 seconds from the time the CPU starts flashing amber/off until the time the device is automatically restarted.

Note: The only safe time to pull a DFE module out of the chassis is when the CPU LED is blinking amber. Otherwise, system operation will be interrupted.

Last Resort Shutdown Procedure Using OFFLINE/RESET Switch

Caution: This method of shutting down a DFE module is not recommended except as a last resort, because all processes currently running on the module will be interrupted resulting in loss of frames.

Precaución: No se recomienda utilizar este método para apagar los módulos DFE. Recurra a él sólo como último recurso, puesto que interrumpe todos los procesos del módulo en funcionamiento, lo que podría resultar pérdidas de frames.

To reset a DFE module without it performing an orderly shutdown routine,

press and hold the OFFLINE/RESET switch for approximately 6 seconds.

Pulling any DFE module out of the chassis before it has been shut down is not recommended. The only safe time to pull a module out of the chassis is after the completion of a shutdown and the management LED is flashing amber/off.

A

Specifications

This appendix provides information about the following:

Enterasys Networks reserves the right to change the specifications at any time without notice.

DFE Module Specifications

Table A-1 provides the Input/Output ports, processors and memory, physical, and environmental module specifications for the 7G4285-49 DFE module. Table A-2 provides the same information for the 7G4205-72 DFE module.

Table A-1 7G4285-49 Specifications

Item	Specification
Ports 1 through 48	Forty-eight, 10BASE-T/100BASE-TX/1000BASE-T ports by way of RJ45 connectors. These ports also support PoE operation.
Option Slot	Supports one optional NEM.
Processors/Memory	
Processor	MPC750CX, 400 MHz processor
Dynamic Random Access Memory (DRAM)	256 MB
FLASH Memory	32 MB
Physical	
Dimensions	46.43 H x 6.05 W x 29.51 D (cm) 18.28 H x 2.38 W x 11.62 D (in.)
Approximate Weight	Gross: 5.54 kg (12.0 lb) (shipping carton containing one module) Net: 4.10 kg (9.0 lb) (one module without packaging)
Predicted hours for Mean Time Between Failures (MTBF)	For the MTBF hours for this product, refer to the MTBF web site at URL: http://www.enterasys.com/support/mtbf/
Environmental	
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity	5% to 90% (non-condensing)

Table A-2 7G4205-72 Specifications

Item	Specification
Ports 1 through 72	Seventy-two, 10BASE-T/100BASE-TX/1000BASE-T ports by way of RJ45 connectors. These ports also support PoE operation.
Processors/Memory	
Processor	MPC750CX, 400 MHz processor
Dynamic Random Access Memory (DRAM)	128 MB
FLASH Memory	32 MB
Physical	
Dimensions	46.43 H x 6.05 W x 29.51 D (cm) 18.28 H x 2.38 W x 11.62 D (in.)
Approximate Weight	Gross: 6.04 kg (13.3 lb) (shipping carton containing one module) Net: 4.60 kg (10.1 lb) (one module without packaging)
Predicted hours for Mean Time Between Failures (MTBF)	For the MTBF hours for this product, refer to the MTBF web site at URL: http://www.enterasys.com/support/mtbf/
Environmental	
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity	5% to 90% (non-condensing)

COM Port Pinout Assignments

The COM port is a serial communications port for local access to Local Management. Refer to Table A-3 for the COM port pin assignments.

Table A-3 COM Port Pin Assignments

Pin	Signal Name	Input/Output
1	Transmit Data (XMT)	Output
2	Clear to Send (CTS)	Input
3	Data Set Ready (DSR)	Input
4	Receive Data (RCV)	Input
5	Signal Ground (GND)	NA
6	Request to Send (RTS)	Output
7	Data Terminal Ready (DTR)	Output
8	Data Carrier Detect (DCD)	Input

Regulatory Compliance

The 7G4285-49 and 7G4205-72 meet the safety and electromagnetic compatibility (EMC) requirements listed in Table A-4:

Table A-4 Compliance Standards

Regulatory Compliance	Standards
Safety	UL 60950, CSA C22.2 No. 60950, 2006/95/EC, EN 60950, IEC 60950, EN 60825, 21 CFR 1040.10.
Electromagnetic Compatibility (EMC)	47 CFR Parts 2 and 15, CSA C108.8, 2004/108/EC, EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024, AS/NZS CISPR 22, VCCI V-3.

B

Mode Switch Settings and Option Installations

This appendix covers the following items:

Required Tools

Use the following tools to perform the procedures provided in this appendix:

- Antistatic wrist strap
- Phillips screwdriver

Caution: An antistatic wrist strap is required to perform the procedures in this appendix. Use the antistatic wrist strap shipped with chassis when performing any of the procedures in this appendix to minimize ESD damage to the devices involved.

Precaución: Para llevar a cabo los procedimientos especificados en el apéndice deberá utilizar una pulsera antiestática. Para realizar cualquiera de los procedimientos especificados en el apéndice, no olvide utilizar la pulsera electrostática que acompaña el chasis para minimizar los efectos de las descargas de electricidad estática.

Note: Although the illustrations in this section show the 7G4285-49, all switch, DIMM, and DRAM SIMM locations are the same on both DFE modules.

Setting the Mode Switches

Caution: Read the appropriate sections to be fully aware of the consequences when changing switch settings.

Only qualified personnel should change switch settings.

Precaución: Si desea modificar la configuración del interruptor, lea las secciones correspondientes para saber cuál será el resultado de hacerlo.

Estas modificaciones a la configuración sólo debe realizarlas personal calificado.

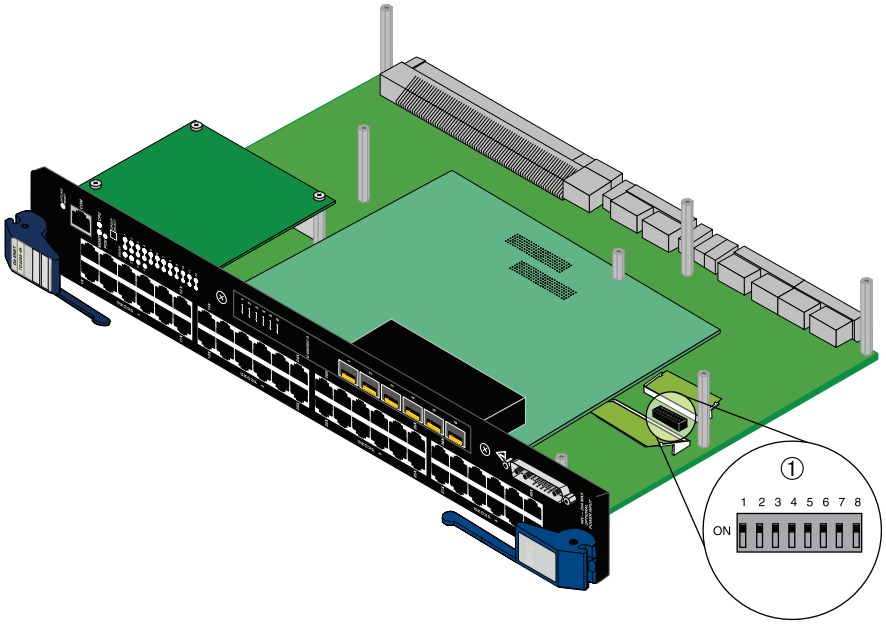
Figure B-1 shows the location of the mode switches and the switch settings for normal operation. These switches are set at the factory and rarely need to be changed.

Switch definitions and positions are as follows:

- Switches 1 through 6 – For Enterasys Networks use only.
- Switch 7 – Clear Persistent Data. Changing the position of this switch clears Persistent Data on the next power-up of the module. All user-entered parameters, such as the IP address, module names, etc., are reset to the factory default settings. Once the module resets, you can either use the factory default settings or reenter your own parameters.
- Switch 8 – Clear Admin Password. Changing the position of this switch clears the admin password, and restores the factory default password on the next power-up of the module. Once the module resets, you can either use the factory default settings or reenter your own password.

Note: Do not change the position of Switch 8 unless it is necessary to reset the admin password to its factory default setting.

Figure B-1 Mode Switch Location (7G4285-49 shown without safety cover)



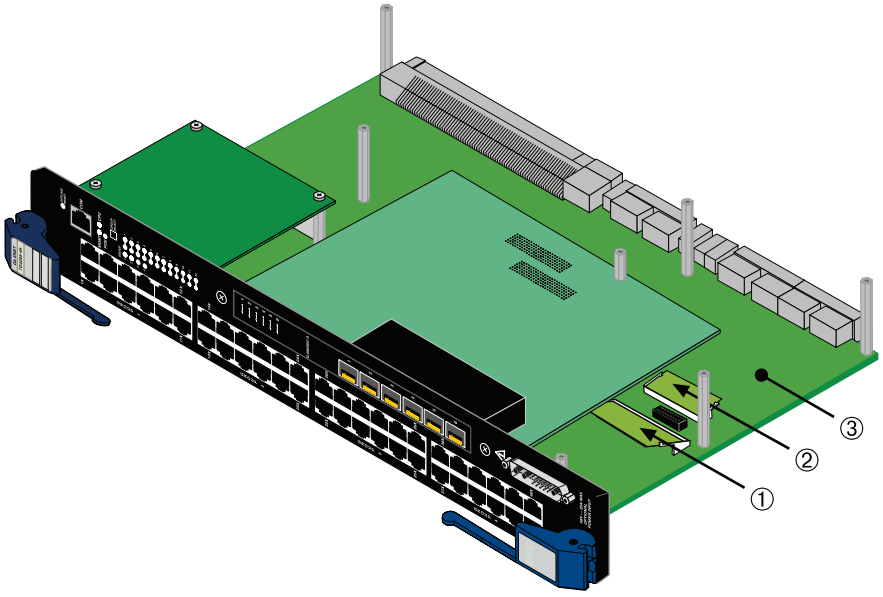
1 Mode switch pack (7G4285-49 shown without safety cover)

Memory Locations and Replacement Procedures

If the Dual In-line Memory Module (DIMM) or DRAM Single In-line Memory Module (SIMM) (FLASH memory) needs to be replaced, the following sections describe how to access, locate, and replace these memory modules. If you have questions concerning the replacement of either memory module, refer to "Getting Help" on page xviii for details on how to contact Enterasys Networks.

Figure B-2 shows the DIMM and DRAM SIMM locations on the main PC board.

Figure B-2 DIMM and DRAM SIMM Locations (7G4285-49 shown without safety cover)



1 DRAM SIMM **2** DIMM **3** Main PC board

Gaining Access to Memory Modules

Before you can replace the DRAM SIMM, you must gain access to it by removing the safety cover and the network expansion module, if one is installed. To gain access to the DIMM, you only need to remove the safety cover.

Removing the Safety Cover

Warning: The safety cover protects you from exposure to an energy hazard in excess of 240 Volt-Amperes. Never operate the DFE module without the safety cover installed.

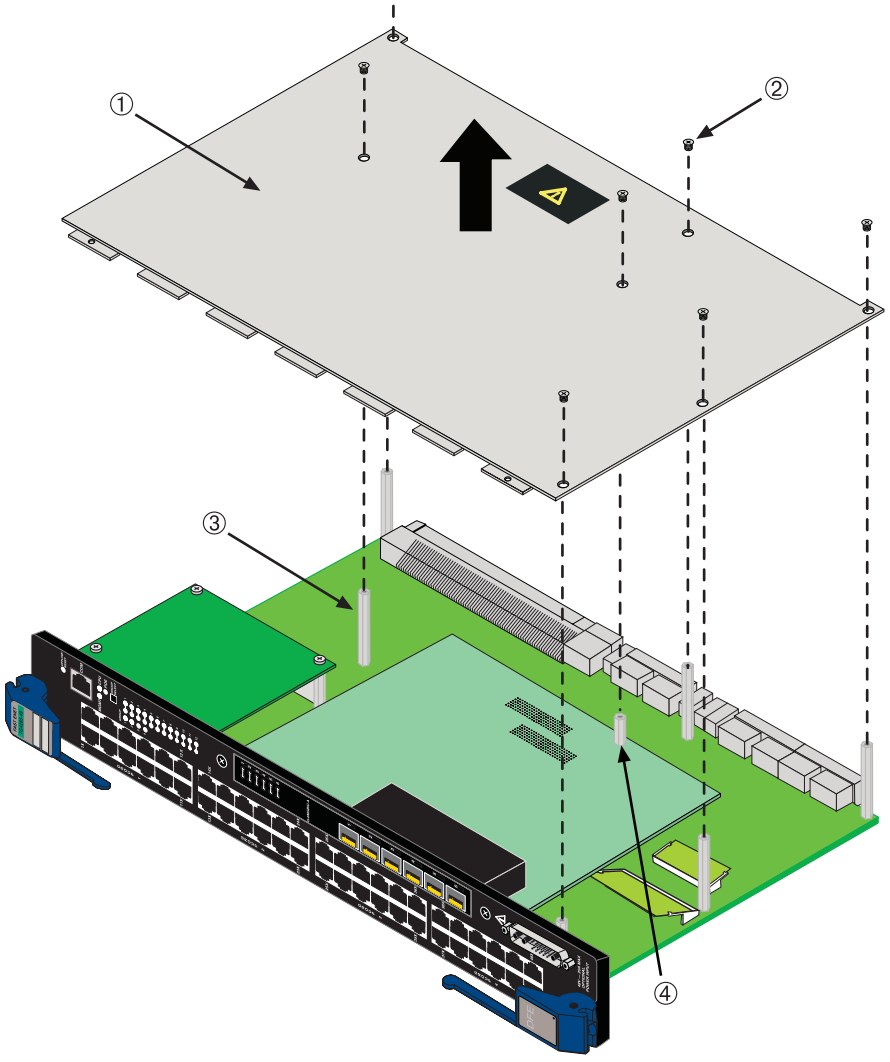
Advertencia: La cubierta de seguridad lo protege de exponerlo al riesgo de energía en exceso de 240 Volt -Amperes.Nunca se debe opererar el modulo de DFE sin la cobertura de seguridad instalada.

Warnhinweis: Die Sicherheitsabdeckung schützt vor Stromstössen von bis zu 240 VA. Bitte nehmen Sie niemals die DFE Module ohne die Abdeckung in Betrieb.

Refer to Figure B-3 and proceed as follows:

1. Attach the antistatic wrist strap (refer to the instructions on the antistatic wrist strap package).
2. Place the DFE module on an antistatic pad on a sturdy flat surface.
3. Remove the seven screws fastening the safety cover to the seven standoffs on the main board. Save all screws for later use to reinstall the safety cover.
4. If you need to replace the DRAM SIMM, proceed to "DRAM SIMM Replacement Procedure" on page B-7. If you are replacing the DIMM, proceed to "DIMM Replacement Procedure" on page B-10.

Figure B-3 Removing the Safety Cover



1 Safety cover
2 Cover screws (7)
3 Standoffs (7)
4 Standoff/spacer screwed to standoff under expansion module

DRAM SIMM Replacement Procedure

Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

Precaución: Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

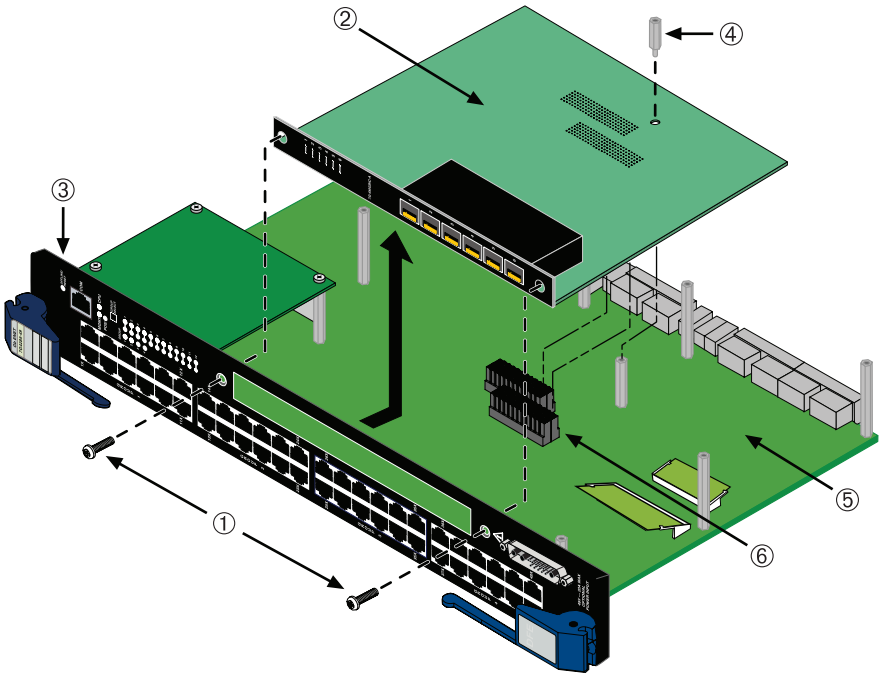
After you have removed the safety cover as described in "Removing the Safety Cover" on page B-5, proceed to "Removing the Optional Network Expansion Module".

Removing the Optional Network Expansion Module

Refer to Figure B-4 and proceed as follows:

1. Attach the antistatic wrist strap (refer to the instructions on the antistatic wrist strap package).

Figure B-4 Removing the Optional Network Expansion Module



1 Coverplate screws (2)
2 Network expansion module
3 DFE module front panel
4 Standoff
5 Main PC board
6 Main board connectors

2. Remove the two screws fastening the network expansion module to the DFE module front panel and remove the standoff fastening the network expansion module to the main board. Save the two screws and standoff for later use to reinstall the network expansion module.
3. Lift and remove the network expansion module off the two main PC board connectors. Now you have access to the DRAM SIMM. To replace the DRAM SIMM, proceed to "Removing the DIMM".

Removing the DIMM

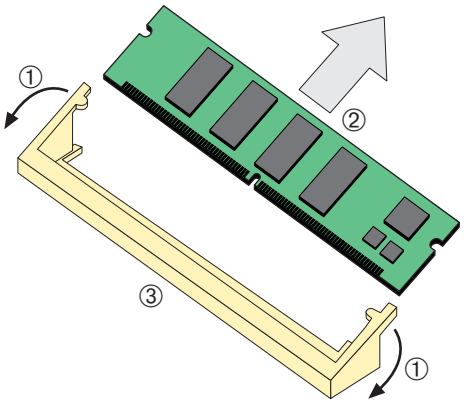
To remove the DIMM, refer to Figure B-5 and proceed as follows.

1. Refer to Figure B-5. Push the connector arms away from the DIMM to release it from the connector.

Note: The ejector arms on this connector are not spring-loaded, so they will remain in the open position until manually closed.

2. Remove the DIMM from the connector.

Figure B-5 Removing the Existing DIMM



1 Connector arms **2** Memory module **3** Connector

Installing the DIMM

Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

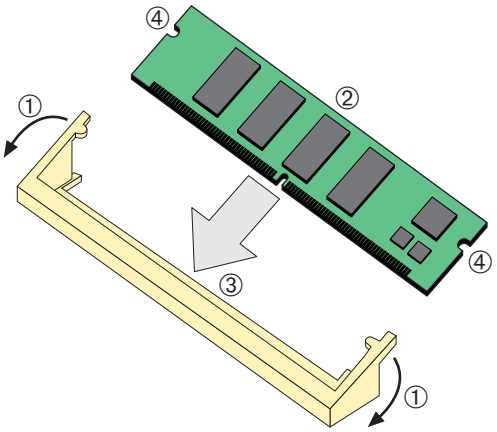
Precaución: Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To install the DIMM, refer to Figure B-6 and proceed as follows:

1. With the connector arms set in the open position, insert the DIMM between the connector fingers and push the DIMM into the connector until the tabs on the two connector arms pull in towards the DIMM alignment notches.
2. Push the DIMM further into the connector until the two DIMM alignment notches and the tabs on the two connector arms lock the DIMM into place.
3. Reinstall the network expansion module. Refer to "Installing the Network Expansion Module (NEM)" on page B-12 for instructions.

4. Reinstall the safety cover. Refer to "Reinstalling the Safety Cover" on page B-14 for instructions.

Figure B-6 Installing the DIMM



1 Connector arms	**3** Connector fingers
2 DIMM	**4** DIMM alignment notches (2)

DIMM Replacement Procedure

In the event that the DIMM needs to be replaced, the following sections explain how to remove and install the SIMM. If you have questions concerning the replacement of the SIMM, refer to "Getting Help" on page xviii for details on how to contact Enterasys Networks.

Removing the DIMM

Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

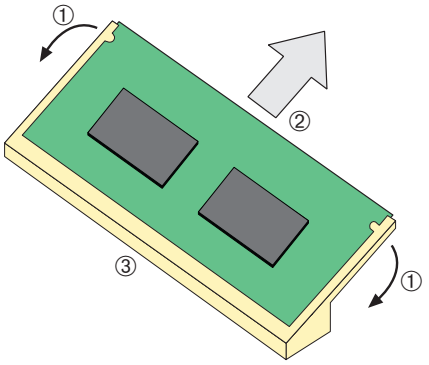
Precaución: Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To remove the existing DIMM, proceed as follows:

1. Remove and save the seven screws attaching the safety cover to the standoffs on the main PC board.
2. Locate the DIMM connector on the main PC board. Refer back to Figure B-2 for the DIMM location on the 7G4285-49.

3. Push the connector arms away from the DIMM, as shown in Figure B-7, and simultaneously lift the DIMM enough to release it from the connector fingers.

Figure B-7 Removing the Existing DIMM



1 Connector arms **2** DIMM **3** Connector fingers

4. Rotate the DIMM upwards, then remove it from the connector fingers.

Installing the DIMM

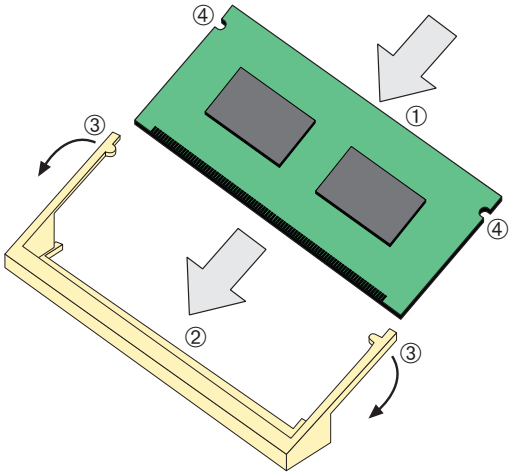
Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

Precaución: Al trabajar con equipos electrónicos sensibles, tome todas las precauciones de seguridad para evitar descargas de electricidad estática.

To install a DIMM, refer to Figure B-8 and proceed as follows:

1. Insert the DIMM down between the connector fingers.
2. Pivot the DIMM downward so the tabs on the connector arms align with the two DIMM alignment notches. With the two connector arms spread outward, push the DIMM down between the connector arms. Then release the two connector arms to lock the DIMM into place.
3. Reinstall the safety cover. Refer to "Reinstalling the Safety Cover" on page B-14 for instructions.

Figure B-8 Installing the DIMM



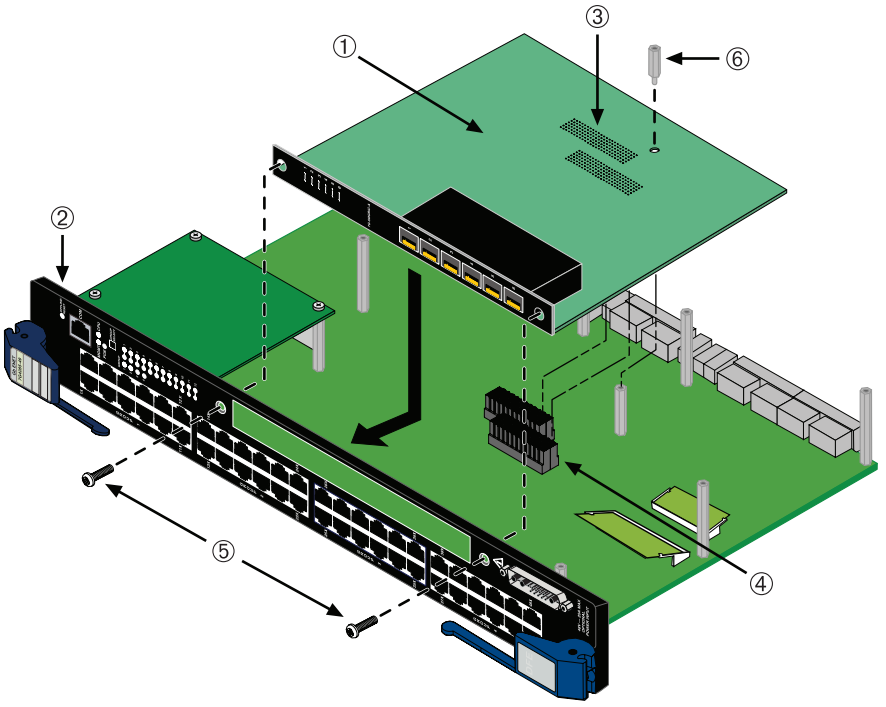
1 DIMM	**3** Connector arms
2 Connector fingers	**4** Alignment notches (2)

Installing the Network Expansion Module (NEM)

Refer to Figure B-9 and proceed as follows:

1. Position the network expansion module so its front panel is under the edge of the DFE module front panel.
2. Align the two network expansion module connectors with the main board connectors. Then press straight down over the two network expansion module connectors, applying pressure until they are properly seated.

Figure B-9 Installing the Network Expansion Module (NEM)



1	NEM	**3**	NEM connectors	**5**	Coverplate screws (2)
2	Front panel	**4**	Main board connectors	**6**	Standoff

3. Use two of the saved coverplate screws to fasten the network expansion module to the DFE module front panel, but do not tighten screws at this time.
4. Insert the saved standoff through the network expansion module to the standoff on the main board. Screw in the standoff, but do not tighten screws at this time.
5. Tighten the two coverplate screws first, then the standoff.

Reinstalling the Safety Cover

To install the safety cover, refer to Figure B-10 and proceed as follows:

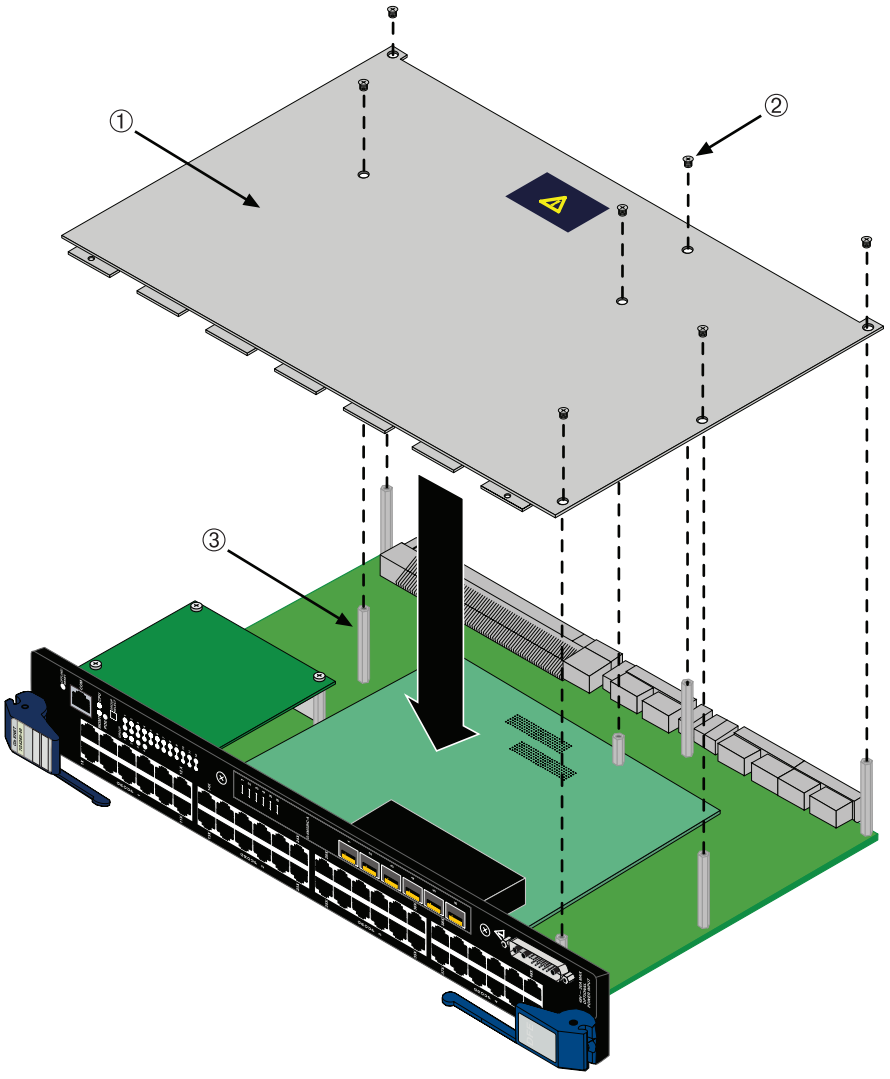
Warning: The safety cover protects you from exposure to an energy hazard in excess of 240 Volt-Amperes. Never operate the DFE module without the safety cover installed.

Advertencia: La cubierta de seguridad lo protege de exponerlo al riesgo de energía en exceso de 240 Volt -Amperes.Nunca se debe opererar el modulo de DFE sin la cobertura de seguridad instalada.

Warnhinweis: Die Sicherheitsabdeckung schützt vor Stromstössen von bis zu 240 VA. Bitte nehmen Sie niemals die DFE Module ohne die Abdeckung in Betrieb.

1. Locate the seven screws saved in the procedure "Removing the Safety Cover" on page B-5.
2. Fasten the safety cover to the standoffs using the seven screws. This completes the safety cover installation.

Figure B-10 Installing the Safety Cover



1 Safety cover **2** Screws (7) **3** Standoff (7)

C

About PoE (Power over Ethernet)

This appendix provides an overview of Power over Ethernet Technology and how it is implemented in relation to the 7G4285-49 and 7G4205-72 DFE modules.

Overview

Power over Ethernet (PoE) refers to the ability to provide operational power through the same Ethernet cabling to a PD (powered device) connected to a data network. Modern Ethernet implementations employ differential signals over twisted pair cables. This requires a minimum of two twisted pairs for a single physical link. Both ends of the cable are isolated with transformers blocking any DC or common mode voltage on the signal pair. PoE exploits this fact by using two twisted pairs as the two conductors to supply a direct current. One pair carries the power supply current and the other pair provides a path for the return current. While several proprietary legacy implementations of PoE have been deployed by LAN equipment vendors, in 2003 the IEEE published the IEEE 802.3af-2003 specification, which is part of the 802.3 suite of standards.

The 7G4285-49 and 7G4205-72 are fully compliant with the IEEE 802.3af standard. They support the standard resistor based detection method, as well as AC disconnect capability. The 7G4285-49 and 7G4205-72 are also capable of supplying the maximum specified current to all ports simultaneously.

Each PD has a PDC (Powered Device Classification) that is transmitted to the DFE module for power management purposes. Table C-1 lists the classifications and the associated power ranges.

Table C-1 Powered Device Classifications

Class	Usage	PD Maximum Power Range Usage
0	Default	0.44 to 12.95 Watts
1	Optional	0.44 to 3.84 Watts
2	Optional	3.84 to 6.49 Watts
3	Optional	6.49 to 12.95 Watts
4	Not Allowed	Reserved for Future Use

Proprietary PD Detection

The 7G4285-49 and 7G4205-72 support a subset of the currently deployed proprietary PoE methods. This includes support for Cisco PDs, including a proprietary capacitor based detection scheme.

Power Interface

The 7G4285-49 and 7G4205-72 can interface with an external 48V power supply that resides in a Matrix N5 chassis or from a separate Matrix N-POE Power System.

Matrix N5 Backplane 48 Vdc Interface

The 7G4285-49 and 7G4205-72 have a connector that interfaces with the backplane of the N5 chassis for 48 Vdc power. This power connection on the DFE modules is fused, has EMI suppression components for this interface, and can support a sustained output current of 20 A.

Front Panel 48 Vdc Interface

The 48 Vdc Optional Power Input connector on the 7G4285-49 front panel provides a power interface connection for an Enterasys Matrix N-POE Power System, which provides the 48 Vdc, 20 Amperes of power and return as well as the power supply status signals. The status signals indicate the presence and operating state of each Matrix N-POE Power System power supplies. This 48 Vdc Optional Power Input interface is not fused as the N-PoE Power System has a circuit breaker for each PoE switch module power feed.

Warning: The DFE module is shipped with a cover over its 48 Vdc Optional Power Input connector. Do not remove this cover when the DFE module is installed in an N5 chassis. This cover is removed only when you connect a 48 Vdc power cable from the Enterasys N-POE Power System.

Advertencia: El modulo DFE es embarcado con una cubierta sobre su conector de poder opcional de 48 Vdc. No remover esta cubierta cuando el modulo DFE es instalado en un chassis N5. Esta cubierta debe removerse unicamente cuando se conecta el cable de poder de 48 Vdc hacia el Sistema de Enterasys de Energia por Cable (Enterasys N-POE Power System).

Warnhinweis: Im Auslieferungszustand der DFE Module stülpt eine Schutzkappe über dem 48V Gleichspannungs-Anschluss, die nur dann abgezogen werden darf, wenn ein Enterasys N-POE Power System angeschlossen wird. Keinesfalls darf diese Schutzkappe abgezogen werden, wenn das DFE Modul in einem N5 Chassis installiert wird.

PoE Port Status LEDs

The PoE port status of each 10/100/1000 Mbps front-panel port is indicated by the two-color RX and TX LED display for each port. To observe the PoE port status indications, you must switch the DFE module management system from the default RX/TX Status Mode to the PoE Port Status Mode using the DFE module front-panel GROUP SELECT switch. The switch operation and a description of how to use the LED indications are described in "Using LANVIEW" on page 4-1.

Table C-2 provides a brief description of each port status RX/TX LED display.

Table C-2 PoE Status LED Indications

PoE Port Status	RX LED	TX LED
Port is powered on	Green	Off
Port is off due to overload	Off	Red
Port is off due to power management	Red	Off
Port is off for other reason	Off	Off

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