

Enterasys Matrix[®]

DFE-Gold Series

Hardware Installation Guide

PoE Module 4H4285-49



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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Clase A. Aviso de ITE

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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 Electromagnética (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.

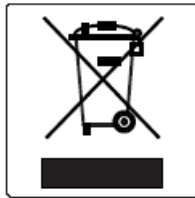
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This product complies with the requirements of European Directive, 2002/95/EC, Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment.

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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

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.

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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。

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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.



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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 55×10^{-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 $8 \times 10^3 \text{ W m}^2 \text{ sr}^{-1}$.

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
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About This Guide

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys Matrix® DFE-Gold 4H4285-49 module.

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



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

- *DFE* refers to Distributed Forwarding Engine series of modules.
- *DFE module* or *module* refers to the 4H4285-49, unless otherwise noted.
- *Network expansion module* or *NEM* or refers to an optional uplink card installed on the main logic board and accessible through the option slot of the 4H4285-49.
- *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 module, some features described in this document may not be supported. Refer to the Release Notes shipped with the DFE module 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 module.

How to Use This Guide

This preface provides an overview of this guide and the DFE-Gold 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 module	Chapter 1, Introduction
Network requirements that must be met before installing the DFE module	Chapter 2, Network Requirements
Instructions to install the DFE module hardware and optional interface card	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 4H4285-49	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
Overview of Power over Ethernet technology and how it is implemented in relation to the 4H4285-49.	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-Gold Series Configuration Guide* provides information on how to use the Command Line Interface to set up and manage the DFE modules.
- *Matrix N-Series N-POE Power System Installation Guide* describes how to implement PoE and connect to the 48 Vdc Optional Power connector of the DFE module.
- *Cabling Guide* provides information on dB loss and cable specifications.

Unlike the *Enterasys Matrix DFE-Gold Series Configuration Guide* and the *Matrix N-Series N-POE Power System Installation 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:



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: Verweist auf wichtige Informationen zum Schutz gegen Beschädigungen.



Electrical Hazard: Warns against an action that could result in personal injury or death due to an electrical hazard.

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!



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!

Lowercase x: Indicates the general use of an alphanumeric character (for example, 6x1xx, 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

Introduction

This chapter provides an overview of the DFE-Gold Series module capabilities, and introduces the 4H4285-49 DFE-Gold module.

Important Notice

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

For information about...	Refer to page...
Overview of DFE-Gold PoE Module Capabilities	1-2
DFE-Gold Module	1-2
Connectivity	1-5
Management	1-5
Secure Networks Policy Support	1-5
Standards Compatibility	1-6
LANVIEW Diagnostic LEDs	1-6

Overview of DFE-Gold PoE Module Capabilities

The Gold 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-Gold Module

This section provides an overview of the 4H4285-49 ([Figure 1-1](#)). For information about the DFE module features and how to configure them, refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

4H4285-49

The 4H4285-49 is an edge-network switch with 48, 10BASE-T/100BASE-TX and PoE compliant ports, accessed through fixed front panel RJ45 connectors and an option slot for a network expansion module (NEM). 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-Gold module can be installed in a Matrix N3, N5, N7, or E7 chassis.



Caution: Regardless of which chassis is used, the chassis system must be dedicated to DFE-Gold modules (4xxxxx) only. Do not insert 7xxxxx modules or other legacy modules into the same chassis with 4xxxxx modules as this will render the chassis inoperable.

Precaución: Cualquiera que sea el chasis que utilice, recuerde que el sistema debe aplicarse exclusivamente a los módulos DFE (Distributed Forwarding Engine) de la serie Gold (4xxxxx). No inserte módulos 7xxxxx ni otros módulos legado dentro de un chasis con módulos 4xxxxx. Si lo hace, el chasis no funcionará.

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, and information concerning how to configure the DFE module features are provided in the *Enterasys Matrix DFE-Gold Series Configuration Guide*.

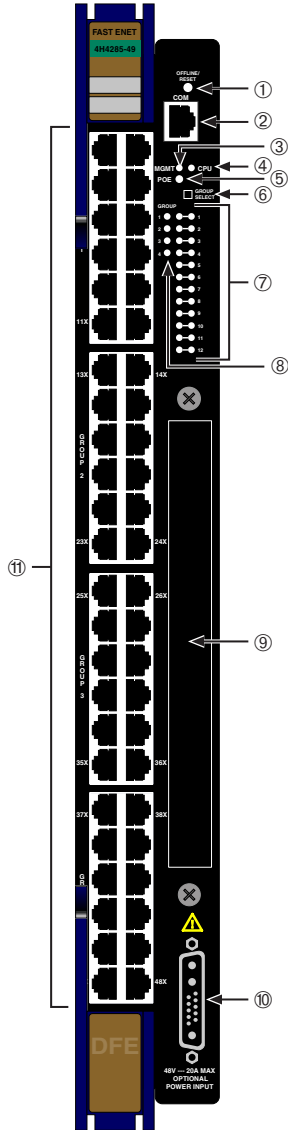
The DFE module receives power and backplane connectivity when it is inserted into the Matrix E7, Matrix N7, Matrix N5, or Matrix N3 chassis. The power to support the DFE module connections to 802.3af PoE-compliant 48 Vdc PDs (powered devices) can be from the backplane of a Matrix N5 chassis or from an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

The Matrix N-POE Power System can provide 48 Vdc to support up to eight 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 4H4285-49.

Figure 1-1 4H4285-49 DFE-Gold Module



- | | | | |
|---|-------------------------|----|---|
| 1 | OFFLINE/RESET button | 7 | GROUP status LEDs |
| 2 | RJ45 COM (Console Port) | 8 | GROUP select LEDs |
| 3 | MGMT LED | 9 | NEM option slot |
| 4 | CPU LED | 10 | 48 Vdc/20 Amperes Maximum, optional power input connector |
| 5 | POE LED | 11 | Ports (1-48), 10/100 Mbps through RJ45 connectors |
| 6 | GROUP SELECT button | | |

Connectivity

4H4285-49

Depending on how the 4H4285-49 is configured, it can support up to:

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

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 an N5 chassis.

Management

Management of the module can be either in-band or out-of-band. In-band remote management is possible using Telnet, 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-Gold 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 module is fully compliant with the IEEE 802.3-2002, 802.3ae-2002, 802.3af-2003, 802.1D-1998, and 802.1Q-1998 standards. The DFE-Gold 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.

Network Requirements

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

For information about...	Refer to page...
Link Aggregation	2-1
10BASE-T Network	2-2
100BASE-TX Network	2-2

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 *Matrix DFE-Gold 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.

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 *Matrix DFE-Gold Series Configuration Guide*.

10BASE-T Network

When connecting a 10BASE-T segment to any of the RJ45 fixed front-panel ports of the 4H4285-49, 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 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 2-2 for information about 100BASE-TX networks and cabling.

100BASE-TX Network

The fixed front panel ports of the 4H4285-49 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 module support Category 5 UTP cabling with an impedance between 85 and 111 ohms for 100 Mbps operation.

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

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 module to check for any exceptions to the supported features and operation documented in this guide.

This chapter provides the instructions to install the 4H4285-49 DFE module and an optional network expansion module. Follow the order of the sections listed below to correctly install the DFE module.

For information about...	Refer to page...
Installation Site Requirement	3-2
Unpacking the DFE Module	3-2
Installing Optional Network Expansion Module (NEM)	3-3
DFE Module Placement and Installation Rules	3-3
Installing 4H4285-49 into a Matrix E7 or N7 Chassis	3-7
Installing 4H4285-49 into Matrix N3 or N5 Chassis	3-10
Connecting 48 Vdc Power for PoE Operation	3-12
Connecting to COM Port for Local Management	3-18
Completing the Installation	3-24

Installation Site Requirement

The 4H4285-49 must be installed in a Matrix N3 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 N3 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 N3 o N7 que ha sido localizado en un lugar de Acceso Restringido. Acceso al equipo debe ser restringido por el responsable del sitio.

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

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 4H4285-49	1
Installation Guide	1
Customer Release Notes	1

3. Remove the tape seal on the non-conductive bag to remove the DFE module.
4. Perform a visual inspection of the DFE 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 Optional Network Expansion Module (NEM)



Note: Install any optional equipment before proceeding to “[DFE Module Placement and Installation Rules](#)” on page 3-3 for an explanation of the rules to install different series modules in a Matrix E7 chassis.

A Phillips screwdriver is required to install an optional network expansion module into the 4H4285-49.

Refer to your release notes or the Enterasys Networks web site for the latest available network expansion modules.

Installing an network expansion module involves

- removing the safety cover,
- removing the coverplate from the 4H4285-49,
- attaching the NEM, and
- replacing the safety cover.

Specific installation instructions are shipped with each NEM.

DFE Module Placement and Installation Rules

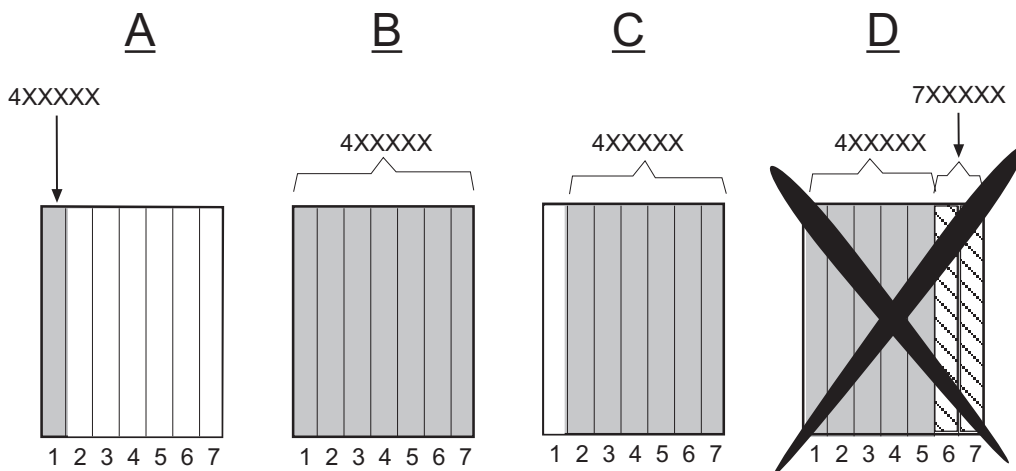
The DFE module can be installed in a Matrix E7 (refer to [Figure 3-1](#) on page 3-4 for placement rules), Matrix N3, Matrix N5, or Matrix N7 chassis.

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



Caution: Regardless of which chassis is used, the chassis system must be dedicated to DFE-Gold modules (4xxxxx) only. Do not insert 7xxxxx modules or other legacy modules into the same chassis with 4xxxxx modules as this will render the chassis inoperable.

Precaución: Cualquiera que sea el chasis que utilice, recuerde que el sistema debe aplicarse exclusivamente a los módulos DFE (Distributed Forwarding Engine) de la serie Gold (4xxxxx). No inserte módulos 7xxxxx ni otros módulos legado dentro de un chasis con módulos 4xxxxx. Si lo hace, el chasis no funcionará.

Figure 3-1 Examples, Slot Numbers/Module Placement in Matrix E7 or N7

To ensure proper operation of the system, consider the following examples and rules for module placement in either chassis.

Example 1 (Figure 3-1, A)

Shows one module installed in the chassis. If the chassis is populated with only one 4xxxxx, it must be installed in slot 1.

Rule: If only one 4xxxxx is installed in the chassis, it must be in slot 1. Always install a 4xxxxx in slot 1 of the chassis.

Example 2 (Figure 3-1, B)

Shows the chassis fully populated with 4xxxxx modules. By default, the chassis system can continue to operate after losing operation of all modules except the module in slot 1. (The loss of operation can be due to module reset, removal, or failure.) However, with the redundancy key installed, the system will remain operational provided that there is an operating module in slot 1 or 2.



Caution: When installing a module into slot 1 of a non-operating chassis, it is strongly recommended that the module have the desired version of firmware. Installation of a replacement module into slot 1 of a non-operating chassis requires reconfiguration of the system settings.

Precaución: Para instalar un módulo en la ranura 1 del chasis apagado, lo mejor es que el módulo corresponda a la versión de firmware solicitada. Para instalar un módulo de reemplazo en la ranura 1 del chasis apagado será necesario reconfigurar el sistema.

The chassis system can be configured for two-module management redundancy using cli command: `set license redundancy <license key>`

For information on how to use this command, refer to the *Enterasys Matrix DFE-Gold Series Configuration Guide*. To access this guide on the web, refer to [“Related Documents”](#) on page xvi.

Rule: By default, the operation of all modules, except for the one in slot 1, can be lost without losing system operation. With the redundancy key installed, the system will remain in operation provided the module in slot 1 or 2 is operational.

Example 3 (Figure 3-1, C)

Shows the module missing from slot 1. As long as the redundancy key has been programmed into the system and the module in slot 2 is operational, the system will continue to operate.



Caution: When installing a module into slot 1 of a non-operating chassis, it is strongly recommended that the module have the desired version of firmware. Installation of a replacement module into slot 1 of a non-operating chassis requires reconfiguration of the system settings.

Precaución: Para instalar un módulo en la ranura 1 del chasis apagado, lo mejor es que el módulo corresponda a la versión de firmware solicitada. Para instalar un módulo de reemplazo en la ranura 1 del chasis apagado será necesario reconfigurar el sistema.

Rule: You can power up the system completely as long as there is a module in slot 1. With the redundancy key installed, you can power up the system completely as long as there is an operating module in slot 1 or 2.

Example 4 (Figure 3-1, D)

Shows a chassis populated with 4xxxxx modules in all slots except 1 and 2. This system is **not operational** because there is no module in slot 1 or 2 for management purposes.

Rule: In a 4xxxxx system, the chassis system will not operate with modules missing from slots 1 and 2.

Example 5 (Figure 3-1, E)

Shows a chassis populated with 4xxxxx and 7xxxxx modules. **DO NOT** install 4xxxxx and 7xxxxx modules in the same chassis. In a 4xxxxx system, the chassis must be dedicated to DFE modules only.

Rule: In a 4xxxxx system, the chassis must be populated with only 4xxxxx modules to operate.

Preparing to Install the 4H4285-49



Caution: Failure to observe static safety precautions could cause damage to the DFE-Gold 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 N3 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 N3 o N7 que ha sido localizado en un lugar de Acceso Restringido. Acceso al equipo debe ser restringido por el responsable del sitio.

Warnhinweis: Installieren Sie dieses Modul nur in einem N3 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.

Follow the instructions below before installing a module in a Matrix E7, N3, N5, or N7 chassis.

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 the module into a Matrix E7 or N7, proceed to [“Installing 4H4285-49 into a Matrix E7 or N7 Chassis”](#) on page 3-7. To install the module into an N3 chassis, proceed to [“Installing 4H4285-49 into Matrix N3 or N5 Chassis”](#) on page 3-10.

Installing 4H4285-49 into a Matrix E7 or N7 Chassis

Before installing a DFE-Gold module into a Matrix E7 or N7 chassis, make sure that you refer to instruction in [“Preparing to Install the 4H4285-49”](#) on page 3-6.

To install the module, 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.

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.



Electrical Hazard: To prevent exposure to an energy hazard in a 4H4285-49 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 4H4285-49.

Riesgo Eléctrico: Para prevenir la exposición a un riesgo eléctrico en una tarjeta 4H4285-49 conectada a un sistema externo de energía 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 4H4285-49.

Elektrischer Gefahrenhinweis: Um den Schutz vor el. Schäden des Moduls (4H4285-49) zu gewährleisten, bei Verwendung der N-POE Systeme, sollte dies bevor man dieses entnimmt oder Servicearbeiten daran vornimmt, vom 48-Vdc Stecker getrennt werden.

1. Locate the chassis card guides that line up with the slot number in which the module will be installed. (In this example, slot 2 is being used.) Make sure the module locking levers are in the open position (top and bottom).
2. 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.

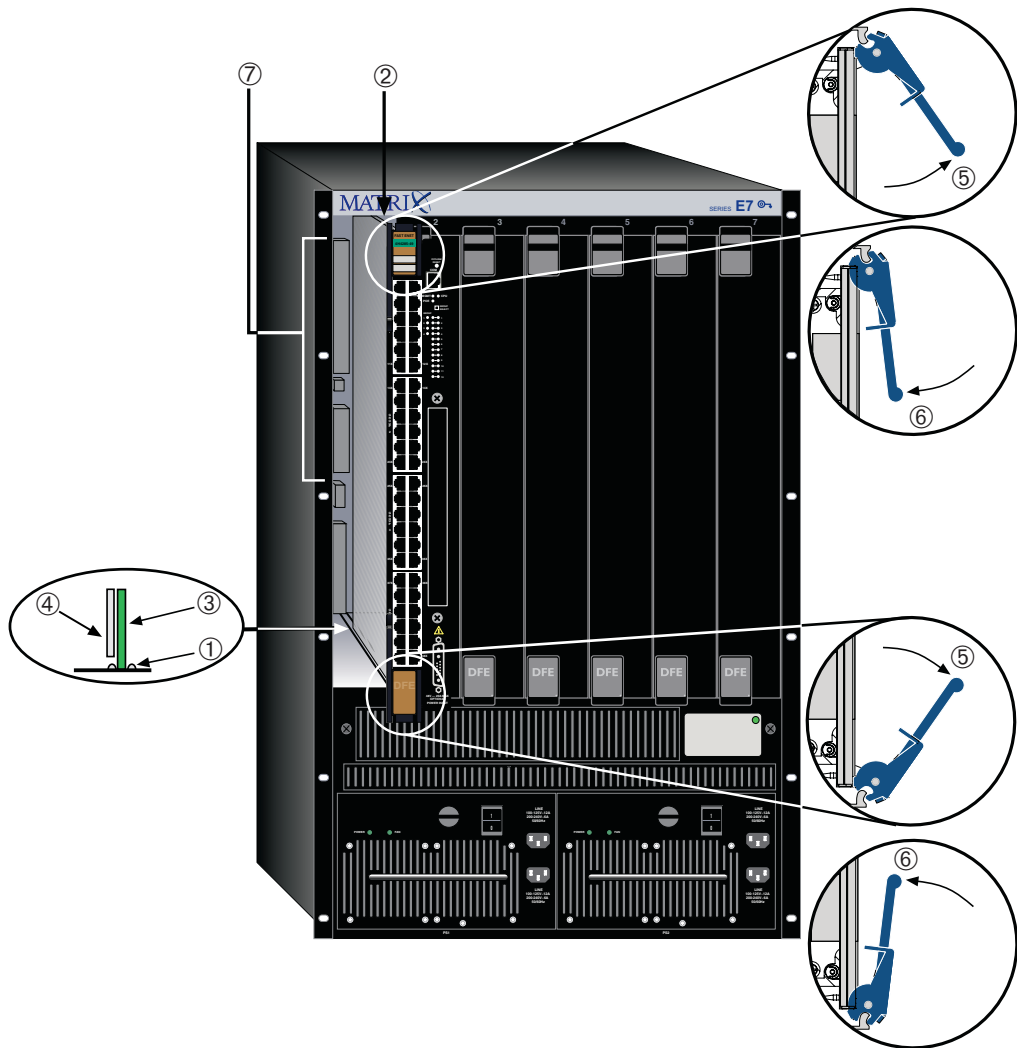
3. Slide the module into the slot until you can engage the top and bottom locking levers with the chassis as shown in [Figure 3-2](#).



Caution: In step 4, 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 4, 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 o el chasis.

4. Refer to the Caution note above, then rotate the two levers into the closed position.
5. 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 | 5 Upper/lower locking tabs (in proper open position) |
| 2 Slot number 2 (right-most slot is 7) | 6 Upper/lower locking tab (in closed position) |
| 3 Module card | 7 Backplane connectors (power and FTM2) |
| 4 Metal back panel | |

Installing 4H4285-49 into Matrix N3 or N5 Chassis



Caution: Failure to observe static safety precautions could cause damage to the DFE-Gold 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 N3 or N5 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 N3 o N5 que ha sido localizado en un lugar de Acceso Restringido. Acceso al equipo debe ser restringido por el responsable del sitio.

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

To install a DFE module, refer to [Figure 3-3](#) and use the same procedure described in [“Installing 4H4285-49 into a Matrix E7 or N7 Chassis”](#) on page 3-7. As with the E7, N5 and N7 chassis, 7xxxxx modules cannot be installed with the 4xxxxx modules.



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.

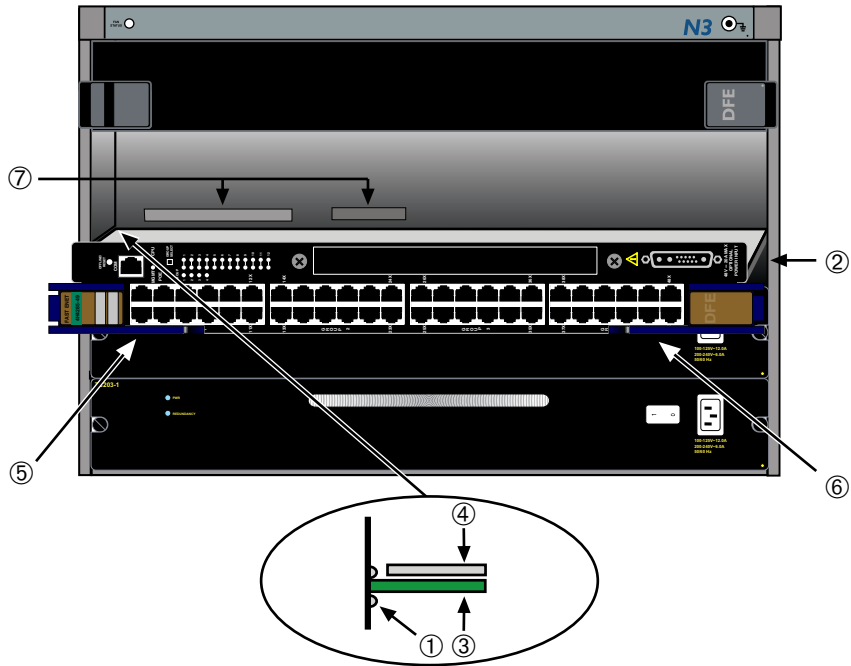


Electrical Hazard: To prevent exposure to an energy hazard in a 4H4285-49 connected to an external N-POE Power System, disconnect the 48-Vdc power cable from the 48-Vdc input connector before servicing or removing the 4H4285-49.

Riesgo Eléctrico: Para prevenir la exposición a un riesgo eléctrico en una tarjeta 4H4285-49 conectada a un sistema externo de energía 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 4H4285-49.

Elektrischer Gefahrenhinweis: Um den Schutz vor el. Schäden des Moduls (4H4285-49) zu gewährleisten, bei Verwendung der N-POE Systeme, sollte dies bevor man dieses entnimmt oder Servicearbeiten daran vornimmt, vom 48-Vdc Stecker getrennt werden.

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 backplane and power connectors

Connecting 48 Vdc Power for PoE Operation

The Matrix N5 (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 4H4285-49.



Note: When you install the 4H4285-49 in a Matrix N5 chassis, the 4H4285-49 48 Vdc Optional Power Input **does not** support a connection from an external N-POE Power System. The 48 Vdc power is supplied through the backplane of the N5 chassis from its own 48 Vdc power modules. If none of these power modules are installed, then there is no PoE support.



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.

For 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 4H4285-49. 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 4H4285-49.



Warning: The 48V 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 durch 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 4H4285-49 in a Matrix E7 (6C107), 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 4H4285-49.

Connecting to the Network

This section provides the procedures for connecting unshielded twisted pair (UTP) segments from the network or other devices to the 4H4285-49 (“[Connecting UTP Cables to 4H4285-49](#)” on page 3-13).



Note: If the DFE 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-Gold Series Configuration Guide* for the configuration information. For details on how to obtain manuals, refer to “[Related Documents](#)” on page xvi.

Connecting UTP Cables to 4H4285-49

The fixed RJ45 front panel connections of the 4H4285-49 are 10/100 Mbps ports. The ports have internal crossovers, and also 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 the 4H4285-49 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 fixed RJ45 front panel connectors of the 4H4285-49 also support PoE-compliant connections to PDs (powered devices) that require 48 Vdc through the UTP cable to operate. Whether 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



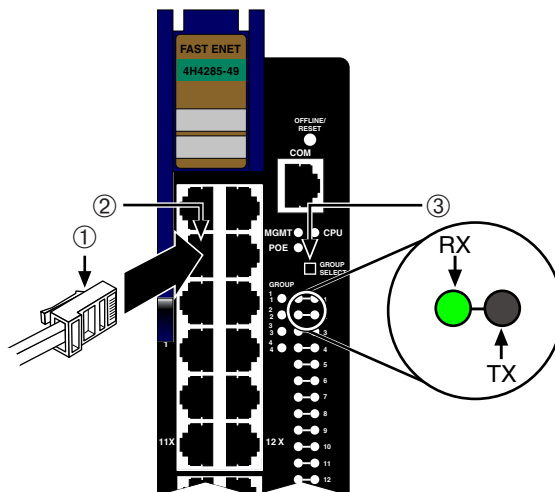
Caution: To prevent damage to the equipment, do not connect the PoE supported ports (1 through 48) to segments running between buildings. Keep connections to equipment within the building.

Precaución: Para evitar que el equipo se dañe, no conecte los puertos PoE (1 a 48) 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, 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:

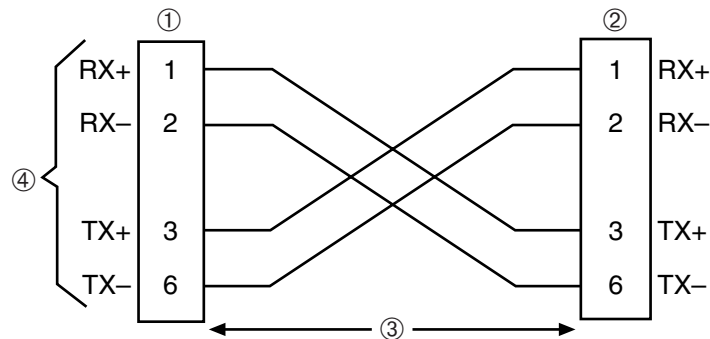


Note: If the RX and TX LEDs of a port do not indicate a link and the end-point device is a PD, you may have a port without 48 Vdc to operate the PD. To check the PoE Port Status, refer to [“Verifying PoE Port Status”](#) on page 3-17.

- 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).
- 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 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.

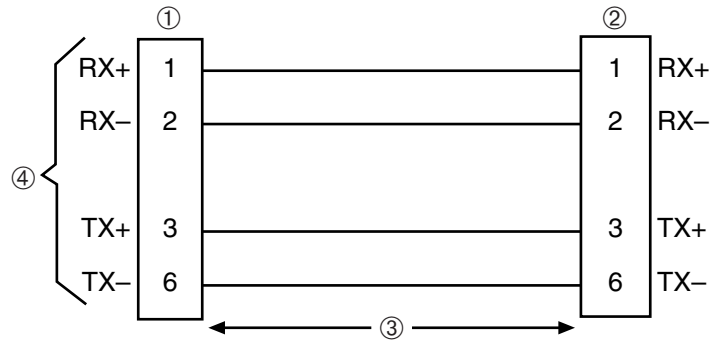
Figure 3-5 Four-Wire Crossover Cable RJ45 Pinouts, Connections Between Hub Devices



- 1 RJ45 device port
- 2 Other device port

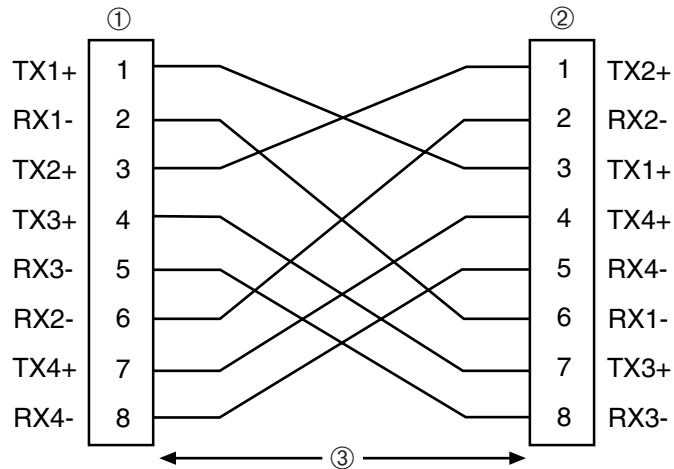
- 3 RJ45-to-RJ45 crossover cable
- 4 RX+/RX- and TX+/TX- connections. These connections must share a common color pair.

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



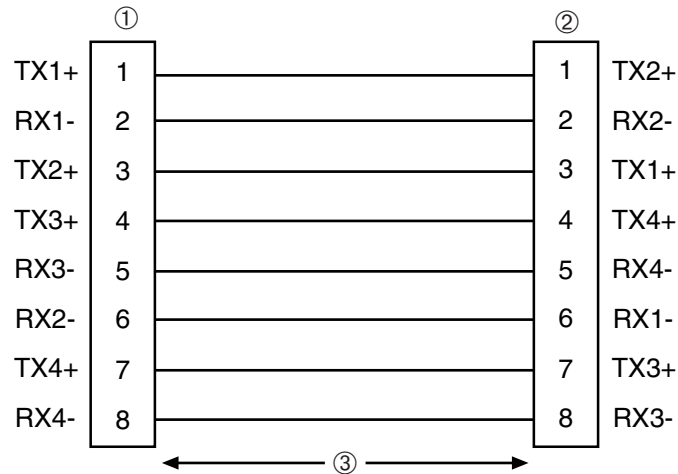
- 1 RJ45 device port
- 2 Other device port
- 3 RJ45-to-RJ45 straight-through cable
- 4 RX+/RX- and TX+/TX- connections. These connections must share a common color pair.

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”](#) on page xvi for information on obtaining this document.

If a link is not established and it is connected to a PD device, check the PoE Port Status to ensure that there is 48 Vdc power at the 4H4285-49 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 4H4285-49 RJ45 port, ensure that there is power at the RJ45 port as follows:

1. Press on the GROUP SELECT button for more than one second. The 4H4285-49 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 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 [Chapter 4](#) for troubleshooting information.

3. Press on the GROUP SELECT button again for more than one second. This returns the 4H4285-49 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 each end with an RJ45 connector
- RJ45-to-DB25 female adapter
- RJ45-to-DB25 male adapter

With a UTP straight-through cable with RJ45 connectors and 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.

With a UTP straight-through cable and 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.

With 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:

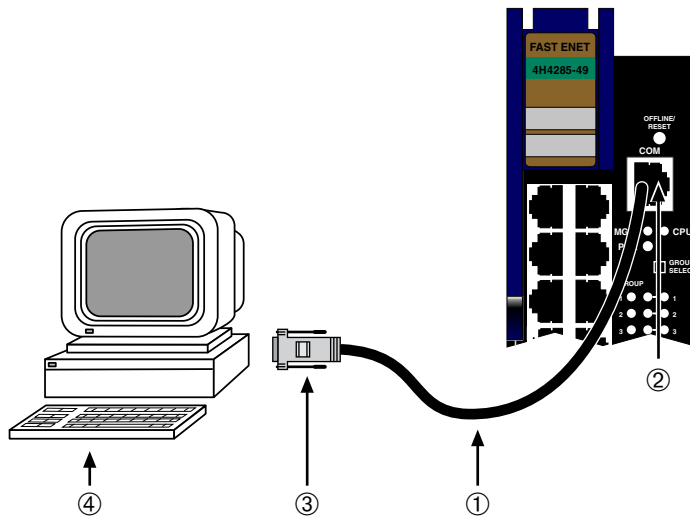
1. Connect the RJ45 connector at one end of a UTP straight-through cable to the communications COM port on the Enterasys Networks module. (The COM port is also known as a Console port.)
2. Plug the RJ45 connector at the other end of the UTP straight-through cable into an RJ45-to-DB9 adapter.
3. Connect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

- Turn on the PC and configure your 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

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

Figure 3-9 Connecting an IBM PC or Compatible



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

Connecting to a VT Series Terminal

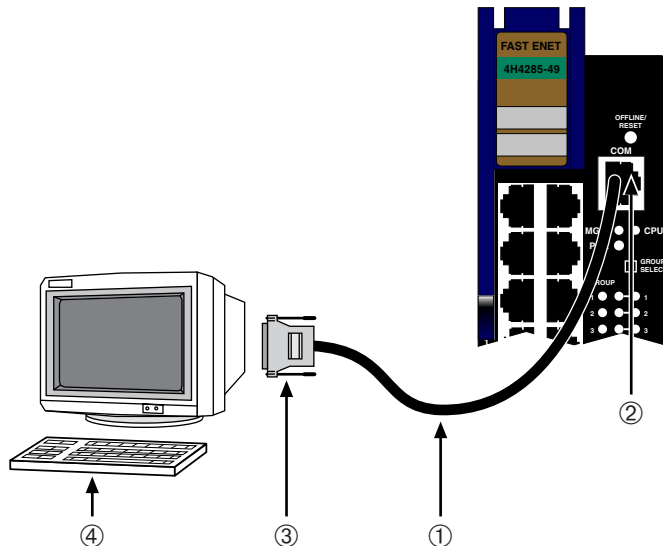
To connect a VT Series terminal to an Enterasys Networks DFE module COM port (Figure 3-10), use a UTP straight-through cable with RJ45 connectors and an RJ45-to-DB25 female adapter, and proceed as follows:

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 and access the Setup Directory. Set the following parameters on your terminal:

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-Gold Series Configuration Guide* for further information.

Figure 3-10 Connecting a VT Series Terminal



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

Connecting to a Modem

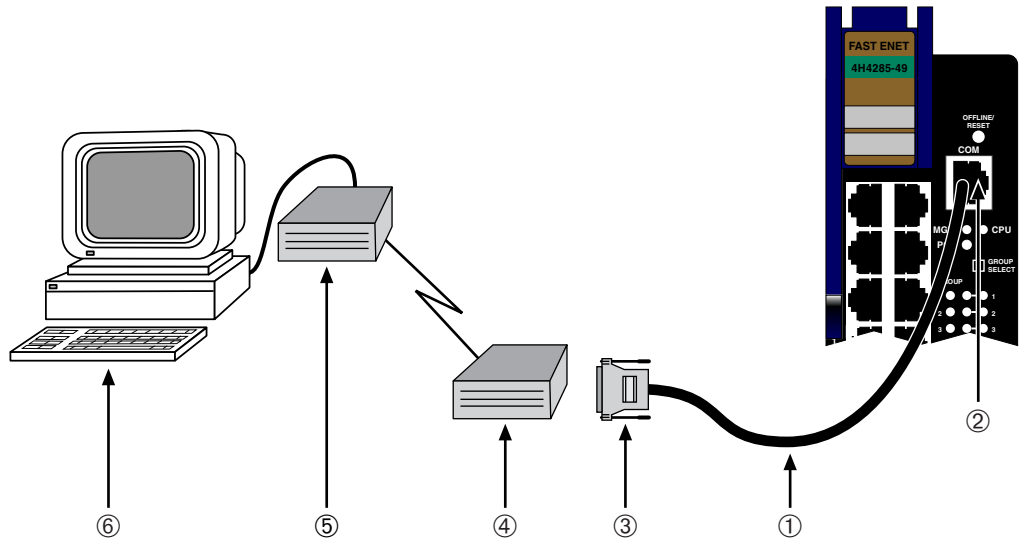
To connect a modem to an Enterasys Networks DFE module COM port (Figure 3-11), use a UTP straight-through cable with RJ45 connectors and an RJ45-to-DB25 male adapter, and proceed as follows:

1. Connect the RJ45 connector at one end of the UTP straight-through cable to the COM port of the DFE-Gold 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-Gold Series Configuration Guide* for further information.

Figure 3-11 Connecting Using a Modem

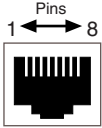
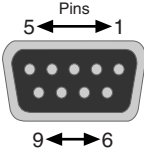


- 1 UTP straight-through cable with RJ45 connectors
- 2 RJ45 COM port
- 3 RJ45-to-DB25 modem adapter

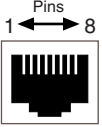
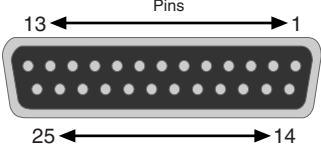
- 4 Local modem
- 5 Remote modem
- 6 PC

Adapter Wiring and Signal Assignments

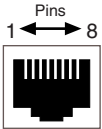
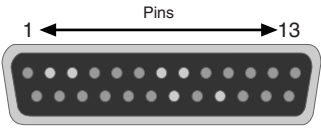
COM Port Adapter Wiring and Signal Diagram			
RJ45		DB9	
Pin	Conductor	Pin	Signal
1	Blue	2	Receive (RX)
4	Red	3	Transmit (TX)
5	Green	5	Ground (GRD)
2	Orange	7	Request to Send (RTS)
6	Yellow	8	Clear to Send (CTS)

 <p>RJ45 Connector (Female)</p>	 <p>DB9 Connector (Female)</p>
--	--

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

 <p>RJ45 Connector (Female)</p>	 <p>DB25 Connector (Female)</p>
--	---

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

 <p>RJ45 Connector (Female)</p>	 <p>DB25 Connector (Male)</p>
--	---

Completing the Installation

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

- a new DFE module system (refer to [“Completing the Installation”](#) on page 3-24), or
- an established, operating DFE module system (refer to [“Completing the Installation of a DFE-Gold 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-Gold Series Configuration Guide*.

After installing all DFE modules into the host chassis and making the connections to the network, proceed to [“First-Time Log-In Using a Console Port Connection”](#) on page 3-25 to access the module management startup screen from your PC, terminal, or modem connection.

First-Time Log-In Using a Console Port Connection



Note: 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 (carriage return). For information on changing these default passwords, refer to Chapter 3 in the *Enterasys Matrix DFE-Gold 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 DFE module is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to DFE module management, refer to Chapter 3 in the *Enterasys Matrix DFE-Gold Series Configuration Guide*. The CLI commands enable you to initially set up and perform more involved management configurations.

The *Enterasys Matrix DFE-Gold 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 Defogged Startup Screen Example (N7 Chassis)

```
login: admin
Password:

M A T R I X N7 GOLD
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: xxxxxxxxxxxxxx
Chassis Firmware Revision: xx.xx.xx

Matrix N7(su)->
```

Completing the Installation of a DFE-Gold Module in an Existing System

In an established DFE-Gold module system,

- a DFE-Gold 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-Gold module into a system with an existing configured user account, the current system settings in that account are already recognized by the new DFE-Gold 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-Gold module system management as described in Chapter 3 of the *Enterasys Matrix DFE-Gold 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-Gold Series Configuration Guide*.

The DFE 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-Gold Series Configuration Guide*. The CLI commands enable you to initially set up and perform more involved management configurations.

The *Enterasys Matrix DFE-Gold 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.

Troubleshooting

This chapter provides information concerning the following:

For information about...	Refer to page...
Using LANVIEW	4-1
Troubleshooting Checklist	4-7
Overview of DFE Module Shutdown Procedure	4-9
Recommended Shutdown Procedure Using OFFLINE/RESET Switch	4-10
Last Resort Shutdown Procedure Using OFFLINE/RESET Switch	4-10

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

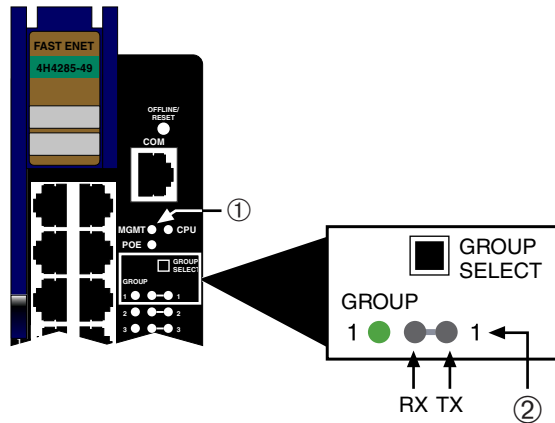
The MGMT LED (shown in [Figure 4-1](#)) indicates when the module is serving as the Management Module to control the management functions for all DFE-Gold modules in the chassis. The Management Module handles all IP requests to the chassis IP address, such as PING, Telnet, SNMP, HTTP, and more. The Management Module also handles the CLI configuration sessions through the console port. So, when you plug into a DFE-Gold module COM port to configure a DFE-Gold module in the chassis, it is handled by the Management Module regardless of the DFE-Gold module COM port that you use.

Viewing Receive/Transmit Activity

On the 4H4285-49 you can view the receive and transmit 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 attached segments, press the GROUP SELECT button (see [Figure 4-1](#)) to step to the group of interest (Groups 1 through 4). Each time the GROUP SELECT button is pressed, 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



1 MGMT LED

2 Group 1, Port 1 LEDs

Viewing the PoE Port Status

If the 4H4285-49 is installed in an N5 chassis or 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 two second. The 4H4285-49 will enter the PoE port status mode and the PoE LED turns green.
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 two second. This returns the 4H4285-49 to the default status mode to monitor RX (receive) and TX (transmit) activity and the PoE LED turns off.

[Table 4-1](#) describes the LED indications and provides recommended actions as appropriate.



Note: The terms **flashing**, **blinking**, **solid**, and **Alternately** used in [Table 4-1](#) indicate the following:

Flashing indicates an LED is flashing randomly.

Blinking indicates an LED is flashing at a steady rate (approximately 50% on, 50% off).

Solid indicates a steady LED light. No pulsing.

Alternately indicates an LED is flashing at a steady rate other than 50% on, 50% off.

Table 4-1 LANVIEW LEDs

LED	Color	State	Recommended Action
MGMT	Off	Off. This 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 module is saving data.	None.

Table 4-1 LANVIEW LEDs (continued)

LED	Color	State	Recommended Action
CPU	Off	Power off.	Ensure chassis has adequate power.
	Amber	Blinking. 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.
CPU (cont'd)	Green and Amber	Blinking. Indicates that the 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	Alternately (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-Gold 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.	<ol style="list-style-type: none"> 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
	Off/Off	Port is off for other reason.	<ol style="list-style-type: none"> 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 the power system 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](#) 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 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 <i>Matrix DFE-Gold Series Configuration Guide</i> 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 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.
Cannot contact the module through in-band management.	IP address not assigned.	Refer to the <i>Matrix DFE-Gold Series Configuration Guide</i> for the IP address assignment procedure.
	Port is disabled.	Enable port. Refer to the <i>Matrix DFE-Gold Series Configuration Guide</i> 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 <i>Matrix DFE-Gold Series Configuration Guide</i> 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 module are valid and operating. If the problem continues, contact Enterasys Networks for technical support.

Table 4-2 Troubleshooting Checklist (continued)

Problem	Possible Cause	Recommended Action
Port(s) goes into standby for no apparent reason.	Loop condition detected.	<p>Verify that Spanning Tree is enabled. Refer to the <i>Matrix DFE-Gold Series Configuration Guide</i> for the instructions to set the type of STA.</p> <p>Review the network design and delete unnecessary loops.</p> <p>If the problem continues, contact Enterasys Networks for technical support.</p>
User parameters (IP address, device and module name, and so forth) were lost when the module power was cycled, the front panel OFFLINE/RESET switch was pressed.	<p>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.</p> <p>Clear Persistent Data was set through Local Management.</p> <p>The module was moved either from slot-to-slot or from chassis-to-chassis.</p>	<p>Reenter the lost parameters as necessary. Refer to the <i>Matrix DFE-Gold Series Configuration Guide</i> for the instructions to configure the device.</p> <p>If the problem continues, contact Enterasys Networks for technical support.</p>

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.

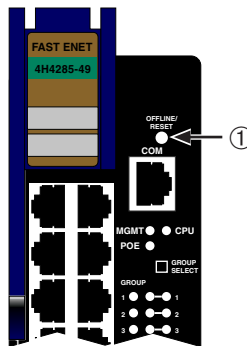
Precaución: Antes de retirar los módulos DFE del chasis en funcionamiento, lea las siguientes instrucciones y la información suministrada.

The DFE modules installed in a Matrix N3, N5, or 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 4-2](#). There are two procedures to shut down a DFE module.

- Recommended shutdown procedure (page 4-10)
- Last resort shutdown procedure (not recommended) (page 4-10)

Figure 4-2 OFFLINE/RESET Switch



1 OFFLINE/RESET switch

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 module is shutting down. At the end of the 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 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 alternately flashing amber/off until the device automatically restarts.



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

Last Resort Shutdown Procedure Using OFFLINE/RESET Switch



Caution: This method of shutting down a DFE-Gold 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- Gold. 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 alternately flashing amber/off.



Specifications

This appendix provides information about the following:

For information about...	Refer to page...
4H4285-49 Specifications	A-1
COM Port Pinout Assignments	A-3
Regulatory Compliance	A-3

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

4H4285-49 Specifications

[Table A-1](#) provides the I/O ports, processors and memory, physical, and environmental module specifications for DFE-Gold module 4H4285-49.

Table A-1 4H4285-49 Specifications

Item	Specification
4H4285-49	
Ports 1 through 48	Forty-eight, 10BASE-T/100BASE-TX compliant ports through 48, RJ45 connectors.
Option Slot	Supports an optional NEM
Optional Power Input	48 Vdc, 20 A Maximum power input connection from an Enterasys Matrix N-POE Power System.

Table A-1 4H4285-49 Specifications (continued)

Item	Specification
Chassis Backplane Connectivity	
E7, N3, N5, and N7 Chassis FTM Backplane Support	FTM2 only
48 Vdc power for PoE	Yes
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: 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 these products, 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-2](#) for the COM port pin assignments.

Table A-2 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 4H4285-49, 7G-6MGBIC, and 7G-6MGBIC-A meet the safety and electromagnetic compatibility (EMC) requirements listed in [Table A-3](#):

Table A-3 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.

Mode Switch Settings and Option Installations

This appendix covers the following items:

For information about...	Refer to page...
Required Tools	B-1
Setting the Mode Switches	B-2
Memory Locations and Replacement Procedures	B-3
Gaining Access to Memory Modules	B-4

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 to minimize ESD damage to the devices involved.

Precaución: Para llevar a cabo los procedimientos especificados en el apéndice deberá utilizar una pulsera antiestática. Esta pulsera sirve para minimizar los efectos de las descargas de electricidad estática.

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.

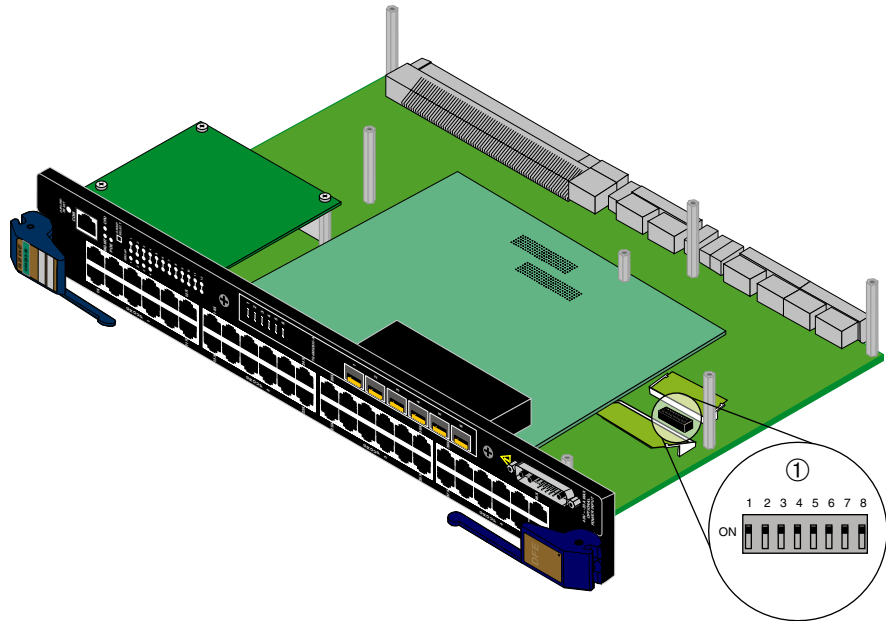
Figure B-1 shows the location of the mode switches and the switch settings for normal operation. These switches are set at the factory and rarely need to be changed.

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, and others, 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.



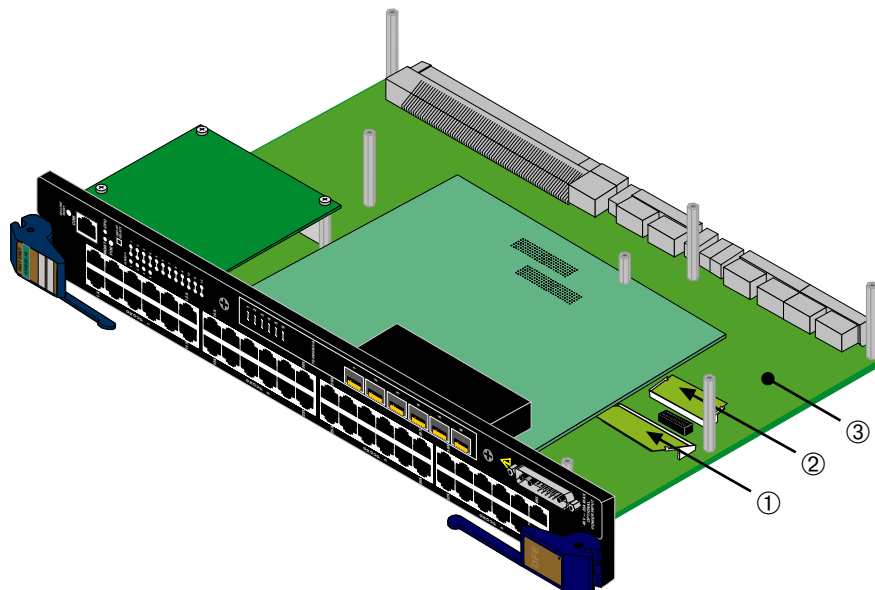
Note: Do not change the position of Switch 8 unless it is necessary to reset the admin password to its factory default setting.

Figure B-1 Mode Switch Location (4H4285-49 shown without safety cover)**1** Mode switch pack (4H4285-49 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 DRAM SIMM/DIMM Locations (4H4285-49 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 (NEM), if one is installed. To gain access to the DIMM, you only need to remove the safety cover.



Electrical Hazard: To prevent exposure to an energy hazard in a 4H4285-49 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 4H4285-49.

Riesgo Eléctrico: Para prevenir la exposición a un riesgo eléctrico en una tarjeta 7H4385-49 conectada a un sistema externo de energía 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 4H4285-49.

Elektrischer Gefahrenhinweis: Um den Schutz vor el. Schäden des Moduls (4H4285-49) zu gewährleisten, bei Verwendung der N-POE Systeme, sollte dies bevor man dieses entnimmt oder Servicearbeiten daran vornimmt, vom 48-Vdc Stecker getrennt werden.

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.

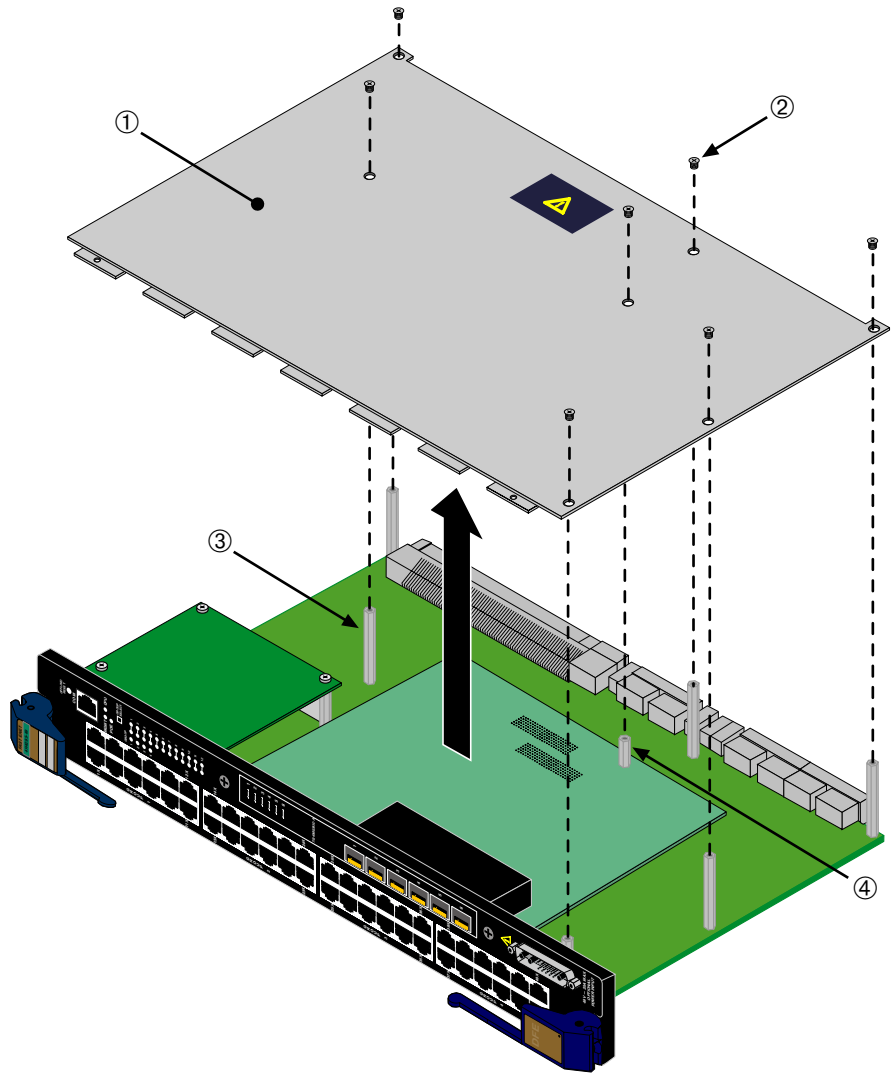
Advertencia: La cubierta de seguridad lo protege de exponerlo al riesgo de energía en exceso de 240 Volt-Amperes. Nunca se debe operar el modulo de DFE sin la cobertura de seguridad instalada.

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-Gold 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 are replacing the DRAM SIMM, proceed to “[DRAM SIMM Replacement Procedure](#)” on page B-7. If you need to replace the DIMM, proceed to “[DIMM Replacement Procedure](#)” on page B-10.

Figure B-3 Removing the Safety Cover



- | | |
|--------------------|---|
| 1 Safety cover | 3 Standoffs (7) |
| 2 Cover screws (7) | 4 Standoff/spacer screwed to standoff under the interface board |

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.

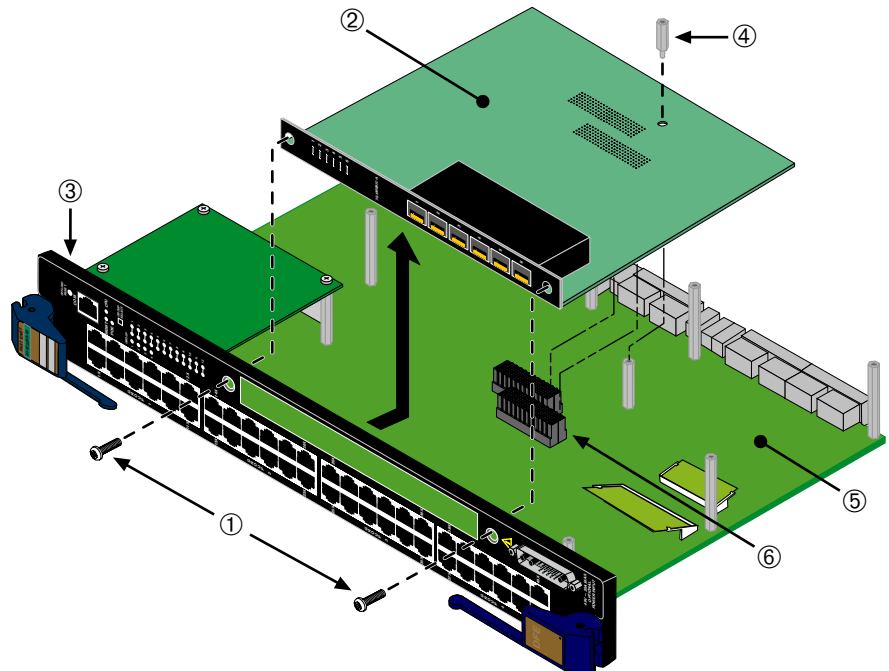
After you have removed the safety cover as described in “[Removing the Safety Cover](#)” on page B-5, proceed to “[Removing the Network Expansion Module \(NEM\)](#)”.

Removing the Network Expansion Module (NEM)

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 NEM
- 3 DFE Module front panel

- 4 Standoff
- 5 Main PC board
- 6 Main board connectors

2. Remove the two screws fastening the NEM to the DFE-Gold module front panel and remove the standoff fastening the NEM to the main board. Save the two screws and standoff for later use to reinstall the NEM.
3. Lift and remove the NEM off the two main PC board connectors. Now you have access to the DRAM SIMM. To replace the DRAM SIMM, proceed to “[Removing the DRAM SIMM](#)”.

Removing the DRAM SIMM

To remove the DRAM SIMM, refer to [Figure B-5](#) and proceed as follows.

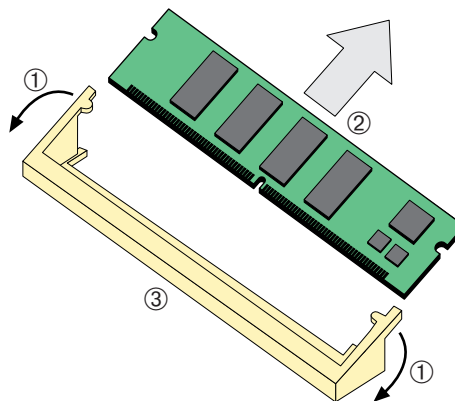
1. Refer to [Figure B-5](#). Push the connector arms away from the DRAM SIMM to release it from the connector.



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 DRAM SIMM from the connector.

Figure B-5 Removing the Existing DRAM SIMM



1 Connector arms

2 Memory module

3 Connector

Installing the DRAM SIMM



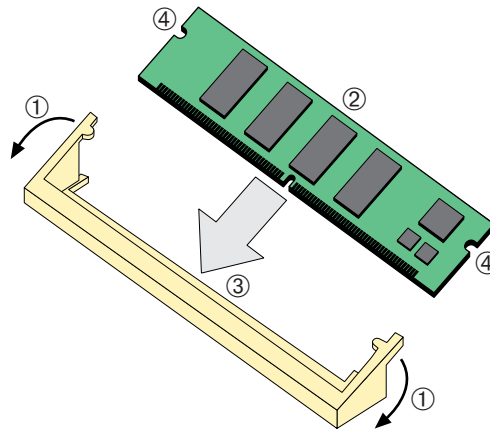
Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

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

To install the DRAM SIMM, refer to [Figure B-6](#) and proceed as follows:

1. With the connector arms set in the open position, insert the DRAM SIMM between the connector fingers and push the DRAM SIMM into the connector until the tabs on the two connector arms pull in towards the DRAM SIMM alignment notches.
2. Push the DRAM SIMM further into the connector until the two alignment notches and the tabs on the two connector arms lock the DRAM SIMM into place.
3. Reinstall the NEM. Refer to “[Reinstalling the Optional Network Expansion Module](#)” on page B-12 for instructions.
4. Reinstall the safety cover. Refer to “[Reinstalling the Safety Cover](#)” on page B-13 for instructions.

Figure B-6 Installing the DRAM SIMM



1 Connector arms
2 DRAM SIMM

3 Connector fingers
4 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 DIMM. If you have questions concerning the replacement of the DIMM, refer to “[Getting Help](#)” on page xviii for details on how to contact Enterasys Networks.

Removing the DIMM



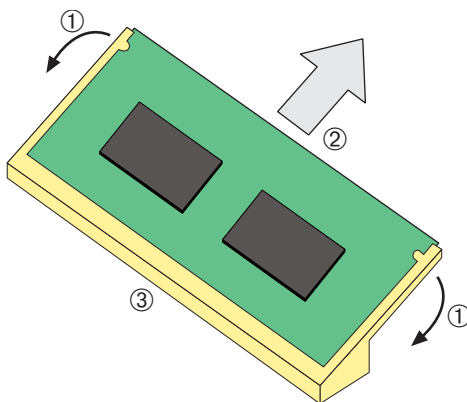
Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

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 4H4285-49.
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



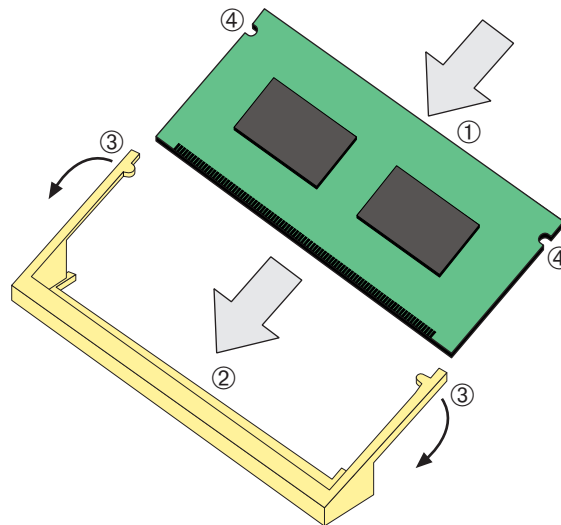
Caution: Observe all Electrostatic Discharge (ESD) precautions when handling sensitive electronic equipment.

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 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-13 for instructions.

Figure B-8 Installing the DIMM



1 DIMM

2 Connector fingers

3 Connector arms

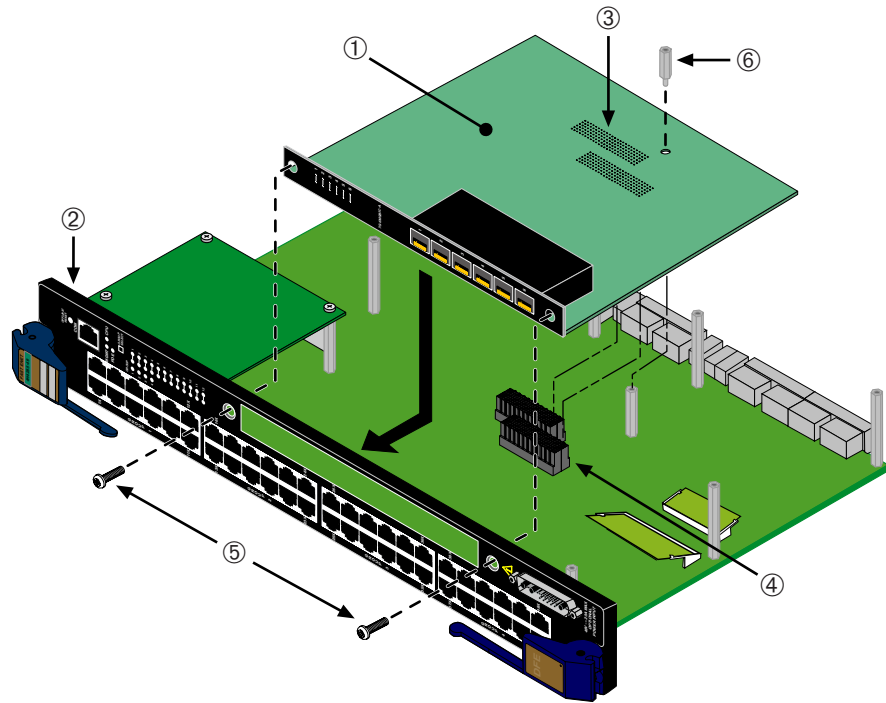
4 Alignment notches (2)

Reinstalling the Optional Network Expansion Module

Refer to [Figure B-9](#) and proceed as follows:

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

Figure B-9 Installing the Network Expansion Module



- | | | |
|---------------|-------------------------|-------------------------|
| 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 NEM to the DFE-Gold module front panel, but do not tighten screws at this time.
4. Insert the saved standoff through the NEM 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:



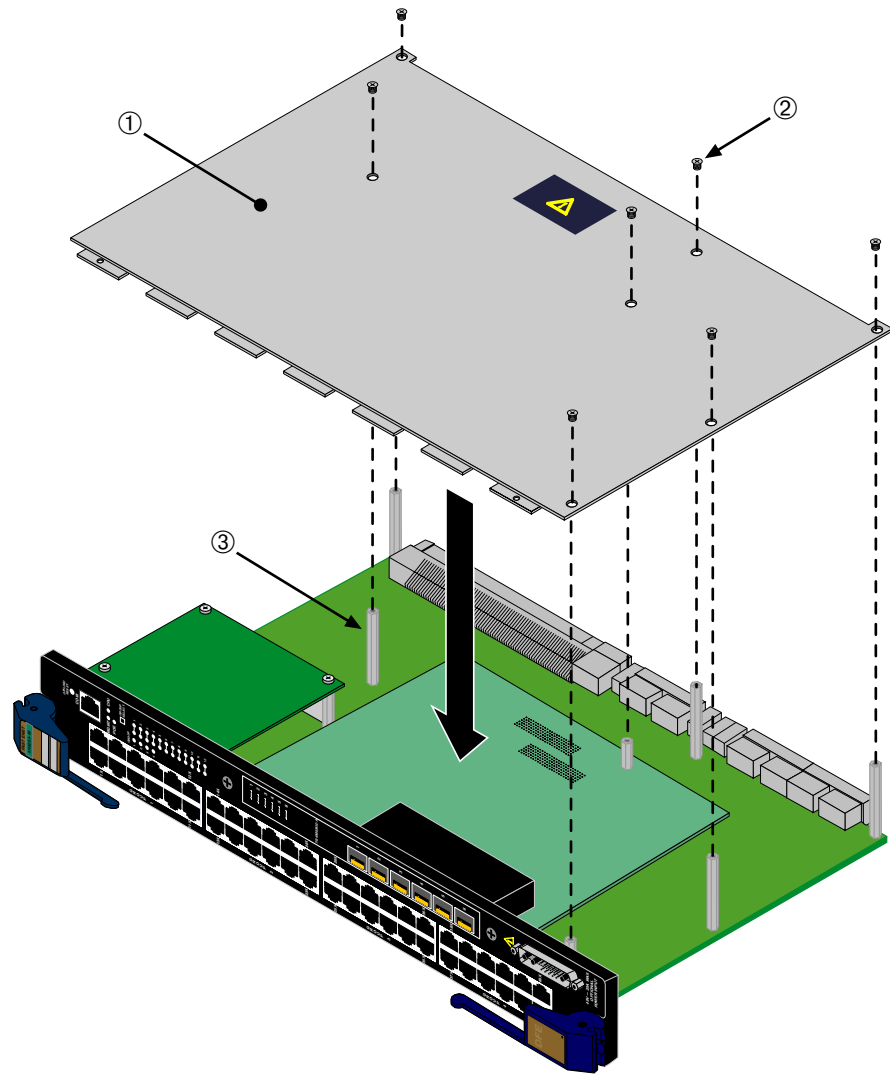
Warning: The safety cover protects you from exposure to an energy hazard in excess of 240 Volt-Amperes. Never operate the DFE module without the safety cover installed.

Advertencia: La cubierta de seguridad lo protege de exponerlo al riesgo de energía en exceso de 240 Volt-Amperes. Nunca se debe operar el módulo 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)



About PoE (Power over Ethernet)

This appendix provides an overview of Power over Ethernet Technology and how it is implemented in relation to the 4H4285-49.

Overview

Power over Ethernet (PoE) refers to the ability to provide operational power to a device connected to a data network using the same cabling that provides the data interface. Modern Ethernet implementations employ differential signals over twisted pair cables. This requires at 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 4H4285-49 is fully compliant with the IEEE 802.3af standard. It supports the standard resistor based detection method, as well as AC disconnect capability. The 4H4285-49 is 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](#) on page 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 4H4285-49 supports 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 4H4285-49 can interface to an external 48 Vdc supply that resides in a Matrix N5 chassis or from a separate Matrix N Series N-POE Power System.

Matrix N5 Backplane 48 Vdc Interface

The 4H4285-49 has a connector that interfaces with the backplane of the N5 chassis for 48 Vdc power. This power connection on the 4H4285-49 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 4H4285-49 front panel provides a power interface connection for an Enterasys Matrix N Series N-POE Power System, which provides the 48 Vdc power and return as well as the power supply status signals. The status signals indicate the presence and operating state of each power supply module in the N-POE Power System. 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 chasis 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 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 button. 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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