

Enterasys K-Series

K10 Chassis

Hardware Installation 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.

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

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

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

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

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

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

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

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この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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AS/NZS CISPR 22



Hazardous Substances

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

European Waste Electrical and Electronic Equipment (WEEE) Notice



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

1. The symbol above indicates that separate collection of electrical and electronic equipment is required and that this product was placed on the European market after August 13, 2005, the date of enforcement for Directive 2002/96/EC.
2. When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.
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4. It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated.

For information about the available collection system, please go to www.enterasys.com/support/ or contact Enterasys Customer Support at 353 61 705586 (Ireland).

Battery Notice

This product contains a battery used to maintain product information. If the battery should need replacement it must be replaced by Service Personnel. Please contact Technical Support for assistance.



Caution: There is an explosion risk if you replace the battery with the incorrect type. Dispose of expended battery in accordance with local disposal regulations.

Precaución: Hay riesgo de explosión si la batería se reemplaza con el tipo incorrecto. Deshágase de las baterías gastadas de conformidad con las regulaciones de eliminación local.

产品说明书附件

Supplement to Product Instructions

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

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

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

对销售之日的所售产品, 本表显示,
凯创供应链的电子产品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列出的部件。
This table shows where these substances may be found in the supply chain of Enterasys' electronic information products, as of the date of sale of the enclosed product. Note that some of the component types listed above may or may not be a part of the enclosed product.

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



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.

Safety Compliance

Warning: Fiber Optic Port Safety

**CLASS I
LASER DEVICE**

When using a fiber optic media expansion module, never look at the transmit laser while it is powered on. Also, never look directly at the fiber TX port and fiber cable ends when they are powered on.

Avertissement: Ports pour fibres optiques - sécurité sur le plan optique

**DISPOSITIF LASER
DE CLASSE I**

Ne regardez jamais le laser tant qu'il est sous tension. Ne regardez jamais directement le port TX (Transmission) à fibres optiques et les embouts de câbles à fibres optiques tant qu'ils sont sous tension.

Warnhinweis: Faseroptikanschlüsse - Optische Sicherheit

**LASERGERÄT
DER KLASSE I**

Niemals ein Übertragungslaser betrachten, während dieses eingeschaltet ist. Niemals direkt auf den Faser-TX-Anschluß und auf die Faserkabelenden schauen, während diese eingeschaltet sind.

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 Name: **Enterasys Networks, Ltd.**

European Representative Address: **Nexus House, Newbury Business Park**
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Conformance to Directive(s)/Product Standards: **EC Directive 2004/108/EC**
EN55022:2006
EN 55024:1998
A1:2001
A2:2003
EN 61000-3-2:2006
EN 61000-3-3:1995
A1:2001
A2:2005
EC Directive 2006/95/EC
EN 60950-1:2006
A11:2009
A1:2010
EN 60825-1:2007
EN 60825-2:2004
A1:2007

Equipment Type/Environment: **Information Technology Equipment, for use in a Commercial or Light Industrial Environment.**

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

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Contents

About This Guide

Who Should Use This Guide	xv
How to Use This Guide	xv
Related Documents	xvi
Typographical Conventions	xvi
Getting Help	xvii
Registering Your Product	xvii

Chapter 1: Introduction

Overview	1-1
Features	1-3
K-Series Fabric Cards	1-3
K-Series Line Cards	1-3
K-Series AC Power Supplies	1-3
Operating Status.....	1-3
Auto-Ranging Input Voltage and Frequency	1-4
Hot Swapping	1-4
The K10-FAN Chassis Cooling System	1-4
Standalone or Rack Mountable Chassis	1-4
Power over Ethernet (PoE)	1-4
Chassis Management	1-4

Chapter 2: Installation Requirements and Guidelines

Site Guidelines	2-1
Restrictions	2-2
Precautions	2-2

Chapter 3: Chassis Setup

Required Tools	3-2
Unpacking the K Chassis	3-2
Installing the K Chassis	3-3
Order of Installation	3-3
Installing Rubber Feet	3-4
Installing the Mid-mount Brackets	3-4
Rack Mounting the K Chassis	3-5
Front Mounting a K Chassis	3-6
Mid-Mounting a K Chassis.....	3-7
Installing the Cable Management Clips	3-8
Chassis Bonding and Grounding	3-10
Attaching the Electrostatic Discharge Wrist Strap	3-12
Installing and Removing a Power Supply	3-12
Power Supply Planning	3-13
Unpacking a Power Supply	3-13
Installing a Power Supply	3-14
Removing a Power Supply	3-16
Installing the Power Cord Clip Assembly	3-17
Installing and Removing a Fan Tray	3-18
Installing a Fan Tray	3-18
Removing a Fan Tray	3-20
Installing and Removing the Fabric Card	3-21

Required Tools	3-21
Preparation	3-21
Installing the Fabric Card	3-21
Removing the Fabric Card	3-24
Installing and Removing a Line Card	3-25
Required Tools	3-25
Preparation	3-25
Installing a Line Card	3-26
Removing a Line Card	3-28
Connecting Power	3-30
Connecting to the Fabric Card COM Port for Local Management	3-30
What Is Needed	3-30
Connecting to a PC or Laptop	3-31
Connecting to a VT Series Terminal	3-31
Adapter Wiring and Signal Assignments	3-32
Connecting the Fabric Card and Line Card to the Network	3-32
Connecting Category 5 UTP Ethernet Cables to the RJ45 Ports	3-33
Connecting Pluggable Transceivers to SFP and SFP+ Ports	3-33
Installing a Pluggable Transceiver.....	3-33
Removing a Pluggable Transceiver.....	3-34
Connecting to the Fabric Card USB Port	3-35
Completing the Installation	3-35
Completing the Installation of a New System	3-35
First-Time Log-In Using a Console Port Connection	3-36
Completing the Installation of a K-Series Fabric Card in an Existing Chassis	3-37
Logging in with an Administratively-Configured User Account	3-37

Chapter 4: Troubleshooting

LEDs	4-1
Fabric Card LEDs	4-1
Fabric Card Port LEDs	4-2
Line Card Port LEDs	4-3
Power Supply LEDs	4-5
Troubleshooting Checklist	4-6
Using the OFFLINE/RESET Button	4-7
Recommended Shutdown Procedure Using OFFLINE/RESET Button	4-7
Last Resort Shutdown Procedure Using OFFLINE/RESET Button	4-7

Appendix A: Specifications and Regulatory Compliance

K10 Chassis Specifications	A-1
Power Supply Specifications	A-1
K-AC-PS	A-1
K-AC-PS-1400W	A-2
K10-FAN Fan Tray Specifications	A-2
Fabric Card Specifications	A-2
Line Card Specifications	A-2
Torque Values	A-3
COM Port Pinout Assignments	A-3
Regulatory Compliance	A-4

Appendix B: About PoE (Power over Ethernet)

Overview	B-1
Proprietary PD Detection	B-1
PoE Port Status LEDs	B-2
Allocation of PoE Power to Devices	B-2

Management of PoE Power to PDs	B-2
--------------------------------------	-----

Appendix C: Mode Switch Bank Setting and Memory Replacement

Required Tools	C-1
Setting the Mode Switches	C-1
Memory Location and Replacement Procedure	C-3
Location of DIMM	C-3
Replacement Procedure	C-3

Appendix D: Purchasing Mini-RJ21 Cables

Mini-RJ21 to Mini-RJ21	D-2
Mini-RJ21 Angled to Mini-RJ21 Angled	D-2
Mini-RJ21 to Mini-RJ21 Angled	D-3
Mini-RJ21 to RJ45	D-3
Mini-RJ21 Angled to RJ45	D-4
Distributors	D-4

Appendix E: Environmental Guidelines

Temperature and Humidity Guidelines	E-1
Operating Temperatures	E-1
Inlet Air Temperature Measurement	E-1
Cooling Air	E-1
Power Conditioning	E-1
Airflow Concerns for Closed Racks	E-2
Airflow Concerns for Open Racks	E-3
Dust Mitigation and Prevention	E-5
Airborne Chemicals and Prevention	E-6

Figures

1-1	K10 Chassis Front View	1-2
1-2	K10 Chassis Rear View	1-2
3-1	Attaching the Mid-mount Brackets to the Sides of the Chassis	3-4
3-2	Attaching the Mid-mount Brackets to the Front of the Chassis	3-5
3-3	Front Mounting the K10 Chassis in a Rack	3-6
3-4	Mid-Mounting the K10 Chassis in a Rack	3-7
3-5	Installing a Cable Management Clip in the Left Mounting Bracket	3-8
3-6	Removing the Swing Arm from the Bottom Cable Management Clip	3-8
3-7	Closing a Cable Management Clip	3-9
3-8	K10 Chassis with Cable Management Clips	3-9
3-9	Opening a Cable Management Clip	3-10
3-10	Telcordia GR-1089 Grounding Hole Pattern	3-11
3-11	ESD Grounding Receptacle	3-12
3-12	Correct Orientation of an Installed K-Series AC Power Supply	3-14
3-13	Installing a K-Series AC Power Supply	3-15
3-14	Removing a Coverplate from a Power Supply Slot	3-16
3-15	Installing the Power Cord Clip Assembly in the Power Supply	3-17
3-16	Installing the Fan Tray	3-19
3-17	Removing the Fan Tray	3-20
3-18	Inserting the Fabric Card into the Chassis	3-22
3-19	Engaging the Fabric Card Ejector Handles	3-23
3-20	Releasing the Fabric Card Ejector Handles	3-24
3-21	Removing the Fabric Card	3-25
3-22	Removing a Cover Plate from a Line Card Slot	3-26
3-23	Inserting a Line Card into the Chassis	3-27

3-24	Engaging the Line Card Ejector Handles	3-27
3-25	Line Card Offline Button	3-28
3-26	Disengaging the Line Card Ejector Handle	3-28
3-27	Removing a Line Card	3-29
3-28	Line Card Cover Plate Key	3-29
3-29	Fabric Card COM Port	3-30
3-30	Fabric Card USB Port	3-35
3-31	K-Series Startup Screen Example	3-36
4-1	Fabric Card LEDs	4-1
4-2	Fabric Card Port LEDs	4-2
4-3	Line Card Port LEDs (RJ45, SFP, and SFP+)	4-3
4-4	Line Card Port LEDs (Mini-RJ21)	4-4
4-5	Power Supply LEDs	4-5
4-6	Fabric Card OFFLINE/RESET Button	4-7
C-1	Mode Switch Location on the Fabric Card	C-2
C-2	DIMM Location on K-Series Fabric Card	C-3
D-1	Mini-RJ21 to Mini-RJ21	D-2
D-2	Mini-RJ21 Angled to Mini-RJ21 Angled	D-2
D-3	Mini-RJ21 to Mini-RJ21 Angled	D-3
D-4	Mini-RJ21 to RJ45	D-3
D-5	Mini-RJ21 Angled to RJ45	D-4
E-1	Closed Rack Ideal Configuration	E-2
E-2	Open Rack Ideal Configuration	E-3
E-3	Non-ideal Open Rack Configuration	E-4
E-4	Mitigated Non-ideal Open Rack Configuration	E-4
E-5	Another Mitigated Non-ideal Open Rack Configuration	E-5

Tables

3-1	Accessories That Ship with the K-Series Chassis	3-2
3-2	Contents of K-Series AC Power Supply Carton	3-13
3-3	COM Port Adapter Wiring	3-32
3-4	VT Series Port Adapter Wiring	3-32
4-1	Fabric Card LEDs	4-1
4-2	Fabric Card Port LEDs	4-3
4-3	Line Card Port LEDs	4-4
4-4	RJ45 Port LEDs—PoE Mode	4-4
4-5	Power Supply LED Status Definitions	4-5
4-6	Troubleshooting Checklist	4-6
A-1	K10 Chassis Specifications	A-1
A-2	K-AC-PS Power Supply Specifications	A-1
A-3	K-AC-PS-1400W Power Supply Specifications	A-2
A-4	K10-FAN Fan Tray Specifications	A-2
A-5	Recommended Torque Values by Screw Size	A-3
A-6	COM Port Pin Assignments	A-3
A-7	Compliance Standards	A-4
B-8	Powered Device Classifications	B-1
E-1	Airborne Dust Specification for Enterasys Equipment — Airborne Dust Maximum Values	E-6

About This Guide

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys K-Series K10 chassis

Who Should Use This Guide



Electrical Hazard: Only qualified personnel should install or service this unit.

Riesgo Electrico: Nada mas personal capacitado debe de instalar o darle servicio a esta unida.

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

This guide is intended for a network administrator who is responsible for installing and setting up the K-Series chassis.

How to Use This Guide

Read through this guide completely to familiarize yourself with its contents and to gain an understanding of the features and capabilities of the K10 chassis. A general working knowledge of data communications networks is helpful when setting up this chassis.

This preface provides the following:

- An overview of this guide and the K-Series manual set
- A brief summary of each chapter
- Definitions of the conventions used in this document
- Instructions regarding 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 K10 chassis	Chapter 1, Introduction
Network requirements that must be met before installing the K10 chassis	Chapter 2, Installation Requirements and Guidelines
Instructions to install the K10 chassis hardware	Chapter 3, Chassis Setup
Information on port, system, and power supply LEDs and how to restart or shut down the K10 chassis using the OFFLINE/RESET button.	Chapter 4, Troubleshooting
Specifications, environmental requirements, and physical properties of the K10 chassis	Appendix A, Specifications and Regulatory Compliance
An overview of PoE on K-Series devices.	Appendix B, About PoE (Power over Ethernet)
Information on how to reset the K-Series fabric card mode switches.	Appendix C, Mode Switch Bank Setting and Memory Replacement





Related Documents

Additional K-Series documentation can be obtained at the following site:

<https://extranet.enterasys.com/downloads/>

Typographical Conventions

The following typographical conventions and icons are used in this document.

blue type	Indicates a hypertext link. When reading this document online, click the text in blue to go to the referenced figure, table, or section.
Lowercase x	Indicates the general use of an alphanumeric character.
	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.
	Warning: Warns against an action that could result in personal injury or death. Advertencia: Advierte contra una acción que pudiera resultar en lesión corporal o la muerte. Warnhinweis: Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!
	Electrical Hazard: Warns against an action that could result in personal injury or death 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!

Getting Help

For additional support related to the Enterasys K10 chassis or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	http://www.enterasys.com/support
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-978-684-1888 For the Enterasys Networks Support toll-free number in your country: http://www.enterasys.com/support
Email	support@enterasys.com To expedite your message, please type [K-Series] in the subject line.

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

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

Registering Your Product

Be sure to register your K10 chassis for warranty support at:

www.enterasys.com/support/register-your-product.aspx

Registering your K10 chassis is an important part of the warranty process. Registering tells Enterasys that the warranty or maintenance agreement is active, as well as other important information that ensures Enterasys can provide support in a fast, efficient, and effective manner.

Warranty information for the K10 chassis is located online at:

www.enterasys.com/support/warranty.aspx

www.enterasys.com/company/literature/enterasys-lw-ds.pdf

Introduction

Overview

The K10 chassis design provides ten slots for K-Series line cards and one slot for a K-Series fabric card. All K-Series cards installed in the K10 chassis operate as a system with a single IP address. The K10 chassis supports the following:

- Hot-swappable K-Series line cards and fabric card
- Field-replaceable fan tray
- Redundant power supplies
- IEEE 802.3af and 802.3at Power over Ethernet (PoE)

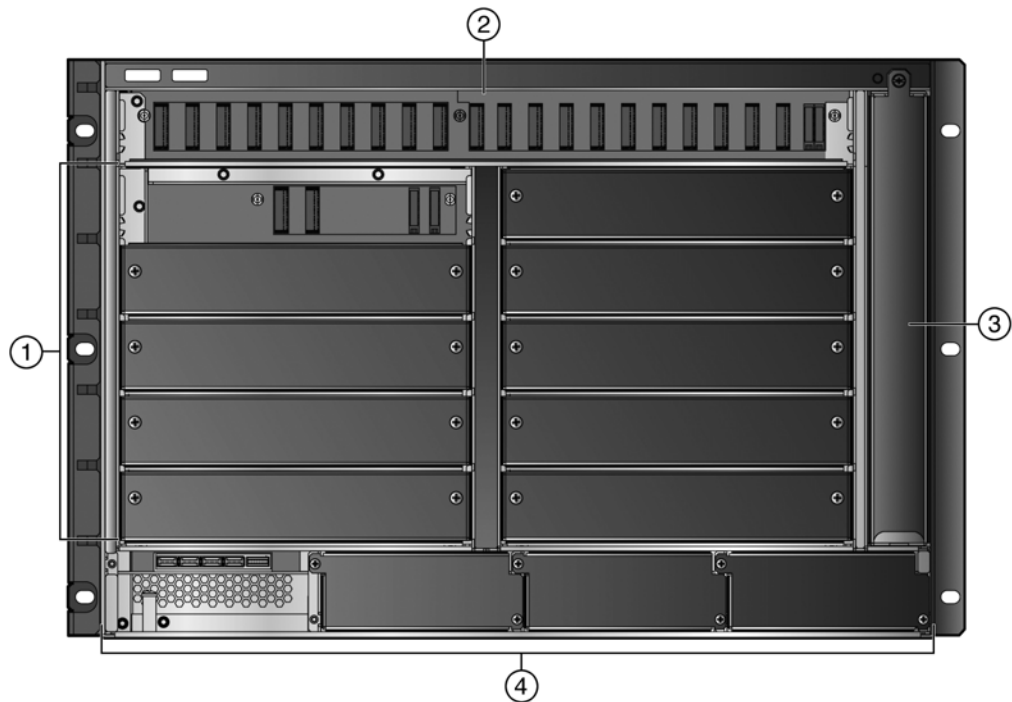
The K10 chassis can be installed as a freestanding unit or installed into a standard 48.26-centimeter (19-inch) rack.

All chassis components (power supplies, fan tray, fabric card, and line cards) are installed from the front of the chassis for ease of maintenance. All LED indicators are observable from the front of the chassis to aid in monitoring network operational status and performing maintenance.

The K10 chassis can be installed by itself or with a K-POE-4BAY PoE shelf to provide additional PoE power.

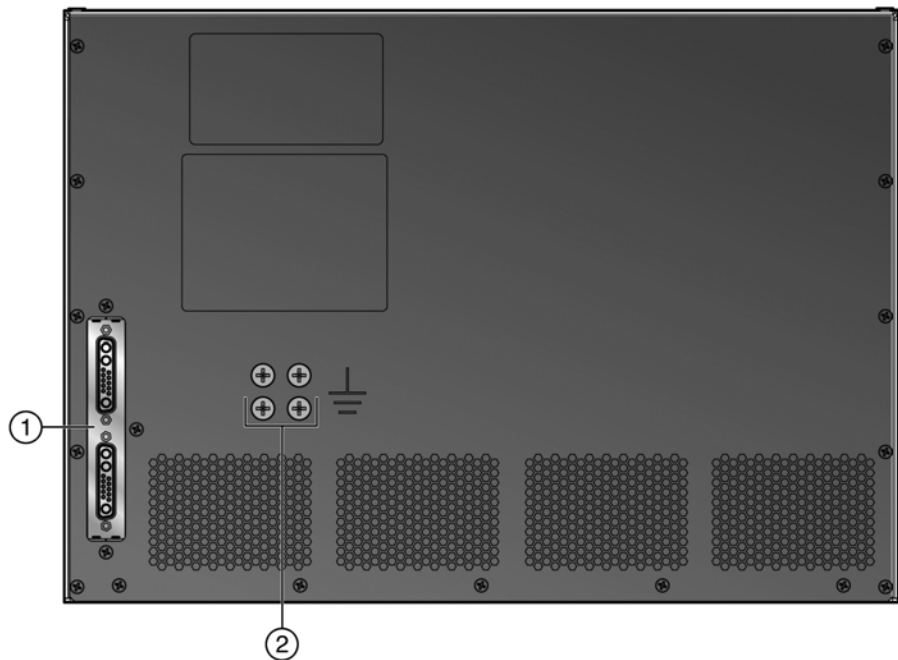
Figure 1-1 shows the K10 chassis with slots for one fabric card, ten line cards, and four 1400 watt, dual output, redundant power supplies. Figure 1-2 shows rear of the K10 chassis.

Figure 1-1 K10 Chassis Front View



- | | | | |
|---|------------------|---|--------------------|
| 1 | Line card slots | 3 | Fan slot |
| 2 | Fabric card slot | 4 | Power supply slots |

Figure 1-2 K10 Chassis Rear View



- | | | | |
|---|-------------------------------------|---|------------------|
| 1 | PoE connectors for K-POE-4BAY shelf | 2 | Grounding screws |
|---|-------------------------------------|---|------------------|

Features

K-Series Fabric Cards

You must install a fabric card for the K10 chassis to be operational.

K-Series Line Cards

Port options on the K-Series line cards are 10/100/1000BASE-TX RJ45 ports, 10/100/1000BASE-T mini-RJ21 ports, 1000BASE-X SFP ports, and 10GBASE-X SFP+ ports. IEEE 802.3af and 802.3at Power over Ethernet (PoE) is supported on the 10/100/1000BASE-TX RJ45 ports.

You can install up to ten line cards in the K10 chassis.



Note: Slot 10 supports only a four port 10G line card.

K-Series AC Power Supplies

The K-Series AC power supply is a 1400 watt power supply, which has one front-panel AC input power connector. The type of power cord shipped with the unit is country-dependent. Each power cord must be plugged into an independent power circuit.



Note: Each power cord must be connected to an independent AC power source to handle the input power requirements.

The K-Series AC power supply provides up to 1400W (600W of 12V chassis power/400W of 54V PoE power @ 120V; 600W of 12V chassis power, 800W of 54V PoE power @ 240V). Depending upon your power requirements, you can install up to four K-Series AC power supplies in the K10 chassis. The second, third, and fourth power supplies provide load sharing and redundancy.

The K-Series AC power supply is capable of load sharing the K10 chassis power load. If a power supply fails, the other power supplies support the entire load of the chassis without interruption to network traffic. Refer to [“Site Guidelines”](#) on page 2-1 for power outlet requirements.

For additional PoE power, you can connect additional K-Series AC power supplies to the K10 chassis using the K-POE-4BAY shelf.

Operating Status

The K-Series AC power supplies report information regarding their present operating status. This information includes the following:

- Power supply ID (PS1, PS2, PS3, PS4)
- Power supply status (normal/fault/not installed)
- Power supply redundancy indication (redundant/not available)

Refer to the *Enterasys K-Series Configuration Guide* for instructions on how to access power supply status information using Local Management.

Auto-Ranging Input Voltage and Frequency

The K-Series AC power supplies automatically adjust to the input voltage and frequency, which allows for an input voltage of 100 to 240 Vac, and a frequency between 50 and 60 Hz. See the operating specifications in [Appendix A, Specifications and Regulatory Compliance](#). No additional adjustments are necessary. For installations in North America one 15 A power cord is required. See “[Installing a Power Supply](#)” on page 3-14 for more details.

Hot Swapping

To reduce network downtime, a power supply may be hot swapped. When multiple power supplies are installed, this allows the removal of one power supply without powering down the chassis and interrupting network traffic.

The K10-FAN Chassis Cooling System

The K10 chassis features a removable fan tray that is accessible from the front of the chassis. This fan tray is hot swappable, which allows it to be replaced without powering down the chassis. The FAN LED on the K-Series fabric card indicates the status of the fan tray (normal/fault/not installed). Refer to “[Fabric Card LEDs](#)” on page 4-1 for a full description of the FAN LED states.

Standalone or Rack Mountable Chassis

The K10 chassis can be installed as a freestanding unit on a shelf or table. The K10 chassis can also be mounted into a standard 48.26-centimeter (19-inch) equipment rack. In a rack installation, the K10 chassis can be either front mounted or mid-mounted. To mid-mount a K10 chassis, you must use the K-Series mid-mount brackets that are available separately. Refer to [Chapter 2, Installation Requirements and Guidelines](#) for requirements on ventilation and cooling.

Power over Ethernet (PoE)

Each K-Series AC power supply installed in the K10 chassis provides 400 watts (at 120V) and 800 watts (at 240V) for PoE to powered devices (PDs). For additional PoE power, you can also connect two more K-Series AC power power supplies, installed in the K-POE-4BAY PoE shelf, to the K10 chassis.

Chassis Management

The K10 chassis is managed through the COM port on the K-Series fabric card.

Use the USB port on the K-Series fabric card to upgrade the chassis and upload and download files, such as configuration files and firmware images.

Installation Requirements and Guidelines

This chapter describes the following:

For more information about:	Refer to page...
Site Guidelines	2-1
Restrictions	2-2
Precautions	2-2



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.

Site Guidelines

You must follow the guidelines listed below when a site is selected for the K10 chassis. If you do not follow the guidelines, unsatisfactory network performance may result.

- To install the K10 chassis as a freestanding unit on a shelving unit, the shelf must be able to support 113.4 kilograms (250 pounds) of static weight.
- If you are mid-mounting the K10 chassis, you must bolt the rack to the floor or ensure that the rack is supported in such a way that the mid-mounted K10 chassis does not create a tipping hazard.
- To install the K10 chassis as a rack mounted unit, care must be taken to ensure that the rack used will support the unit and that the rack remains stable.

To allow proper air flow and cooling within the rack, ensure the following:

- If multiple products are installed in the rack, the rack must contain products with similar air flow.
- There must be 5.08 centimeters (2 inches) of clearance behind the K10 chassis and on either side of the K10 chassis.
- If you are installing a K10 chassis at the bottom of an enclosed rack, leave at least 5.08 centimeters (2 inches) between the floor of the rack and the K10 chassis to ensure proper air flow and cooling; otherwise, you risk the modules overheating.
- The K-Series AC power supply requires one three-pronged power receptacle capable of delivering the current and voltage specified in [“Power Supply Specifications”](#) on page A-1. One AC outlet on an independently fused circuit is required for each power supply, and must be located within three meters (9.84 feet) of the site. The power cord used and type of outlet is dependent on the country.

- Ambient temperature at the installation site must be maintained between 5° and 45°C (41° to 113°F). Temperature changes must be maintained within 10°C (18°F) per hour.
- To keep your K10 chassis running at the proper temperature, you may have to vacuum any accumulated dust periodically from the vent holes on the right side of the K10 chassis.

Refer to [Appendix E, Environmental Guidelines](#), for more information.

Restrictions

- The K10 chassis supports a maximum of twelve 10G ports. This maximum includes 10G ports installed on both the fabric card and line cards.
- Slot 10 supports only a four-port 10G line card.

Precautions

If you are installing a K-POE-4BAY PoE shelf to use with a K10 chassis, you must install both the K-POE-4BAY PoE shelf and the K10 chassis in a restricted access location. Ensure that you have read and understood the installation and operation precautions before installing your equipment.



Warning: Install the Enterasys K-POE-4BAY PoE shelf 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 el K-POE-4BAY en un lugar de Acceso Restringido. Acceso al equipo debe ser restringido mediante el uso de una herramienta o candado o cualquier otro método de seguridad y debe ser controlado por el responsable del lugar.

Warnhinweis: Installieren Sie das K-POE-4BAY nur in einer zugangsgeschützten Umgebung. Der Bereich zu den Komponenten sollte durch ein Schloß, einen Schlüssel oder sonstigen Sicherungen geschützt und durch einen Verantwortlichen kontrolliert werden.

Chassis Setup

This chapter contains instructions on setting up the K10 chassis.



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.

For information about...	Refer to page...
Required Tools	3-2
Unpacking the K Chassis	3-2
Installing the K Chassis	3-3
Attaching the Electrostatic Discharge Wrist Strap	3-12
Installing and Removing a Power Supply	3-12
Installing and Removing a Fan Tray	3-18
Installing and Removing the Fabric Card	3-21
Installing and Removing a Line Card	3-25
Connecting Power	3-30
Connecting to the Fabric Card COM Port for Local Management	3-30
Connecting the Fabric Card and Line Card to the Network	3-32
Connecting to the Fabric Card USB Port	3-35
Completing the Installation	3-35

Important Notice

Read the Release Notes specific to the firmware image running in the chassis to check for any exceptions to the supported features and operation documented in this guide.

Required Tools

- ESD wrist strap (included with the K10 chassis)
- Phillips screwdriver

A Phillips screwdriver is needed to install the unit in a 48.26-centimeter (19-inch) equipment rack. Refer to [Chapter 2, Installation Requirements and Guidelines](#), for installation guidelines.

Unpacking the K Chassis



Note: Unpack the K10 chassis components only as needed. Leave the components in their respective shipping cartons until you are ready to install that component. Save all shipping materials in the event that the chassis has to be repacked.

The K10 chassis is packed and shipped in a box without a skid. Before unpacking the chassis, examine the outside packaging for obvious damage.

To unpack the K10 chassis:

1. Open the box.
2. Remove and save the accessory package, documents, and cable from the top of the styrofoam cap. See [Table 3-1](#).
3. Lift and remove the styrofoam cap from the top of the chassis.
4. Open the top of the shipping bag covering the unit, then pull the bag down around the chassis.
5. Lift and remove the chassis from the box.

Save all shipping materials for future reshipping, if necessary.

6. Inspect the chassis for any signs of physical damage.

If there are any signs of damage, DO NOT install the chassis; instead, contact Enterasys Networks. Refer to “[Getting Help](#)” on page xvii for details.

Table 3-1 Accessories That Ship with the K-Series Chassis

Item
Electrostatic discharge (ESD) wrist strap
Installation documentation
Rubber feet and screws
RJ45 console port cable
RJ45-to-DB9 adapter
Cable management clips

The following peripherals ship separately:

- Line cards
- Fabric cards
- K-Series AC power supplies and 15 Amp line (inlet) cords (one per power supply)
- Mid-mount brackets (2)
- K-POE-4BAY PoE shelf
- K-POE-CBL-2M cable
- K-POE-4BAY-RAIL rail kit

Installing the K Chassis

The following sections describe the procedures that you must follow to complete the installation of the K10 chassis.

Order of Installation

Once you have chosen a suitable site, you can install the K10 chassis as a freestanding or rack mounted unit. If you are installing a K10 chassis with a K-POE-4BAY PoE shelf, ensure that you have read the precautions in [“Precautions”](#) on page 2-2.

1. For a freestanding installation, install the rubber feet ([“Installing Rubber Feet”](#) on page 3-4).
If you are rack mounting the K10 chassis, start at [step 2](#).
2. (Optional) Install the mid-mount brackets ([“Installing the Mid-mount Brackets”](#) on page 3-4).
3. Mount the chassis in a 48.26-centimeter (19-inch) rack or other secure location ([“Rack Mounting the K Chassis”](#) on page 3-5).
4. (Optional) Install the cable management clips ([“Installing the Cable Management Clips”](#) on page 3-8).
5. Attach the electrostatic discharge wrist strap ([“Attaching the Electrostatic Discharge Wrist Strap”](#) on page 3-12).
6. Install the AC power supplies ([“Installing a Power Supply”](#) on page 3-14).
7. Install the fabric card ([“Installing the Fabric Card”](#) on page 3-21).
8. Install the line cards ([“Installing a Line Card”](#) on page 3-26).
9. Power up the K10 chassis ([“Connecting Power”](#) on page 3-30).
10. Connect to the COM port ([“Connecting to the Fabric Card COM Port for Local Management”](#) on page 3-30).
11. Connect to the network ([“Connecting the Fabric Card and Line Card to the Network”](#) on page 3-32).

If you are using external K-Series AC power supplies, installed in the K-POE-4BAY PoE shelf, for additional PoE power, refer to the *K-POE-4BAY PoE Shelf Hardware Installation Guide* for information on installing the PoE shelf, installing the power supplies, and powering up the power supplies in the PoE shelf.

Installing Rubber Feet

To install the rubber feet in the K10 chassis for freestanding installation:

1. Place the chassis on its side on a sturdy flat surface to access the bottom of the chassis.
2. Remove the four rubber feet/screw assemblies from their plastic bag in the shipping box.
3. Locate the four tapped holes in the four corners on the bottom of the chassis.
4. Screw and hand tighten each of the four rubber feet into the four tapped holes.

Installing the Mid-mount Brackets



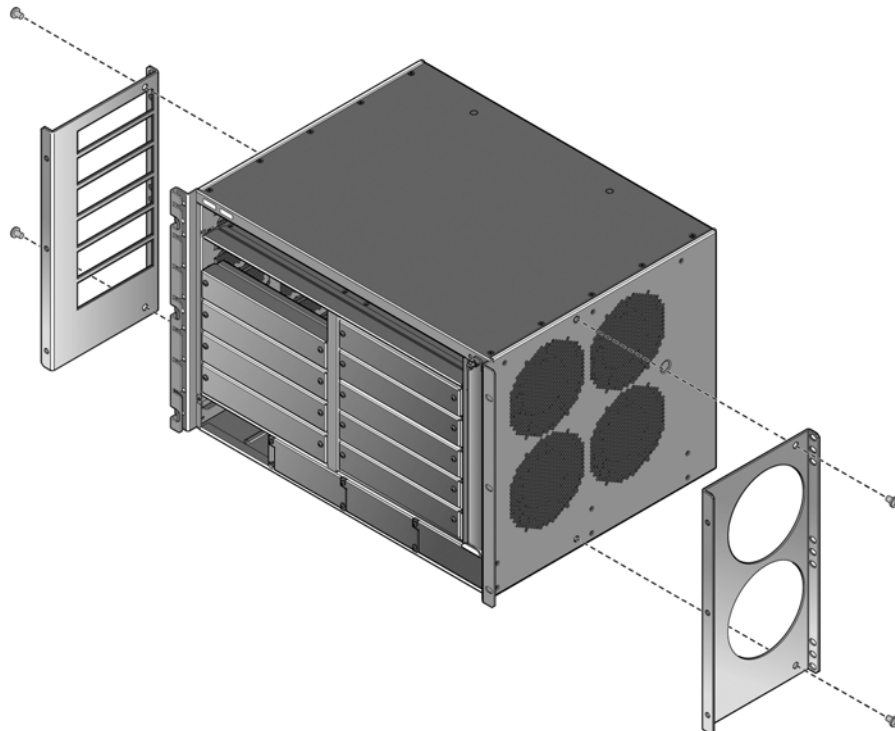
Note: The mid-mount bracket kit (K10-MID-KIT), which you must order separately, ships separately from the K10 chassis.

To install the mid-mount brackets on the K10 chassis:

1. Attach the mid-mount brackets to each side of the K10 chassis with the four zinc 1/4-20 pan head screws supplied with the mid-mount bracket kit (two screws for each bracket). See [Figure 3-1](#).

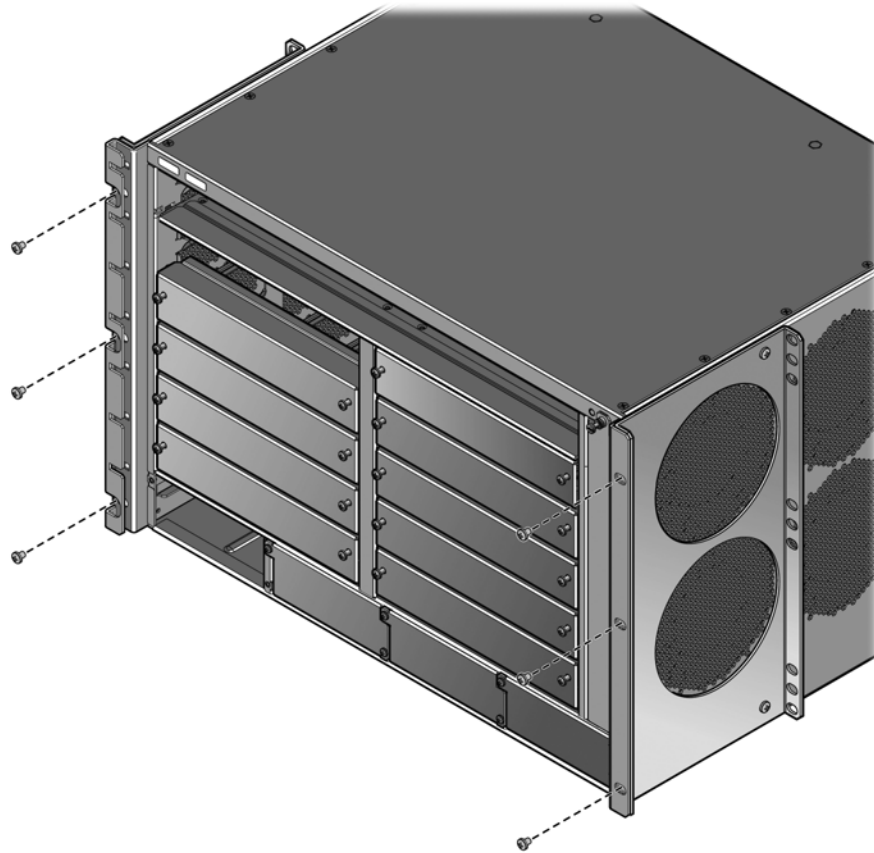
The cutouts on each bracket match the airflow holes on the K10 chassis. The right bracket has circular cutouts; the left bracket has rectangular cutouts.

Figure 3-1 Attaching the Mid-mount Brackets to the Sides of the Chassis



2. Attach the mid-mount brackets to the front of the K10 chassis with the six black 10-32 pan head screws supplied with the mid-mount bracket kit (three screws for each bracket). See [Figure 3-2](#).

Figure 3-2 Attaching the Mid-mount Brackets to the Front of the Chassis



Continue to “[Mid-Mounting a K Chassis](#)” on page 3-7 for the mid-mounting rack installation procedure.

Rack Mounting the K Chassis

The K10 chassis can be mounted in two ways in a standard 48.26-centimeter (19-inch) equipment rack:

- [Front Mounting a K Chassis](#)
- [Mid-Mounting a K Chassis](#)

Ensure that there is at least 60 centimeters (24 inches) of clearance in front of the rack for chassis installation.



Warning: If the rack is not secured to the floor, it is recommended that you install the chassis in the bottom half of the rack. This helps prevent the rack from being top heavy.

Advertencia: Si el rack no está asegurado al piso, es recomendable que instales el chasis en la parte de abajo del rack. Esto ayuda a prevenir que el rack esté demasiado pesado en la parte superior.

Warnhinweis: Falls das Rack nicht mit Schrauben am Boden gesichert wird, sollte das Chassis in der unteren Hälfte des Racks installiert werden, um ein kippen des Racks zu vermeiden.



Caution: Read [Chapter 2](#) before completing the following procedure to ensure that all installation guidelines are met.

Precaución: Antes de llevar a cabo el siguiente procedimiento, lea [Chapter 2](#) para y asegúrese de cumplir con todos los requisitos de instalación.

Front Mounting a K Chassis

To install the K10 chassis in a rack using the K10 chassis front mounting brackets:



Warning: To help prevent personal injury, at least two people are required to lift the chassis into the rack.

Advertencia: Para ayudar a prevenir alguna lesión personal , al menos dos personas son requeridas para levantar el chasis y meterlo al rack.

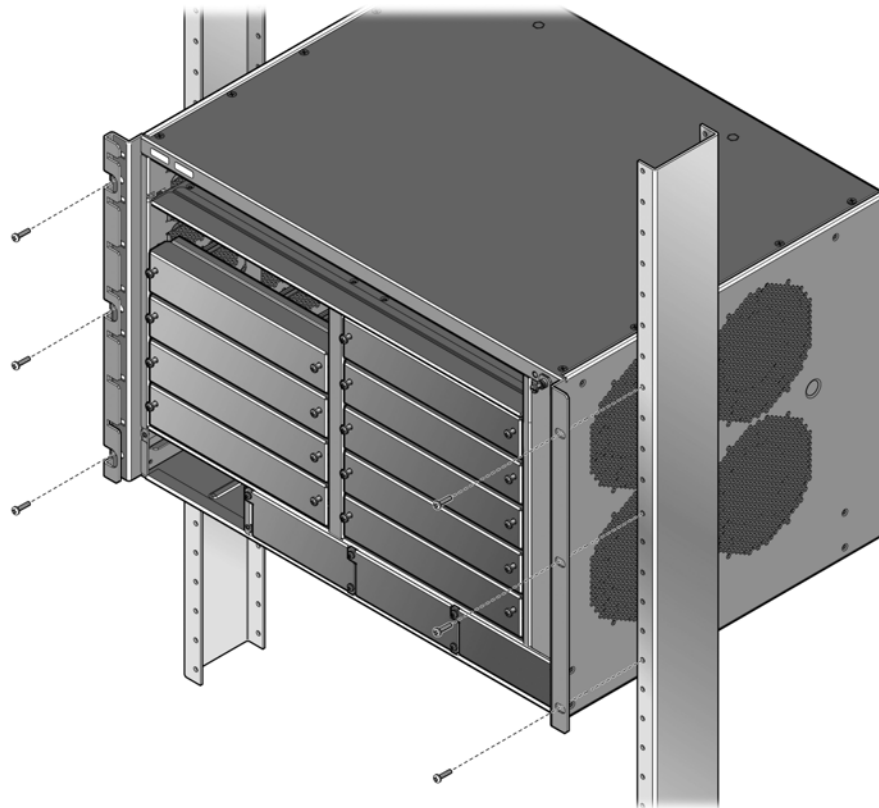
Warnhinweis: Zum Schutz vor körperlichen Schäden, sollten sie mit min. zwei Personen das Chassis in das Rack heben.

1. Lift the chassis and slide it all the way into the rack until the front mounting brackets are against the front of the rack posts.
2. Use 6 screws (3 per side) to secure the chassis to the rack, starting with the bottom holes and working toward the top of the chassis. See [Figure 3-3](#).



Note: Refer to [Table A-5](#) on page A-3 for recommended torque values to use when installing the K10 chassis using standard threaded fastener machine screws and bolts.

Figure 3-3 Front Mounting the K10 Chassis in a Rack



Mid-Mounting a K Chassis



Note: You must install the mid-mounting brackets on the K10 chassis before installing the K10 chassis in the rack. See “[Installing the Mid-mount Brackets](#)” on page 3-4.

To install the K10 chassis in a rack using the mid-mounting brackets:



Warning: To help prevent personal injury, at least two people are required to lift the chassis into the rack.

Advertencia: Para ayudar a prevenir alguna lesión personal , al menos dos personas son requeridas para levantar el chasis y meterlo al rack.

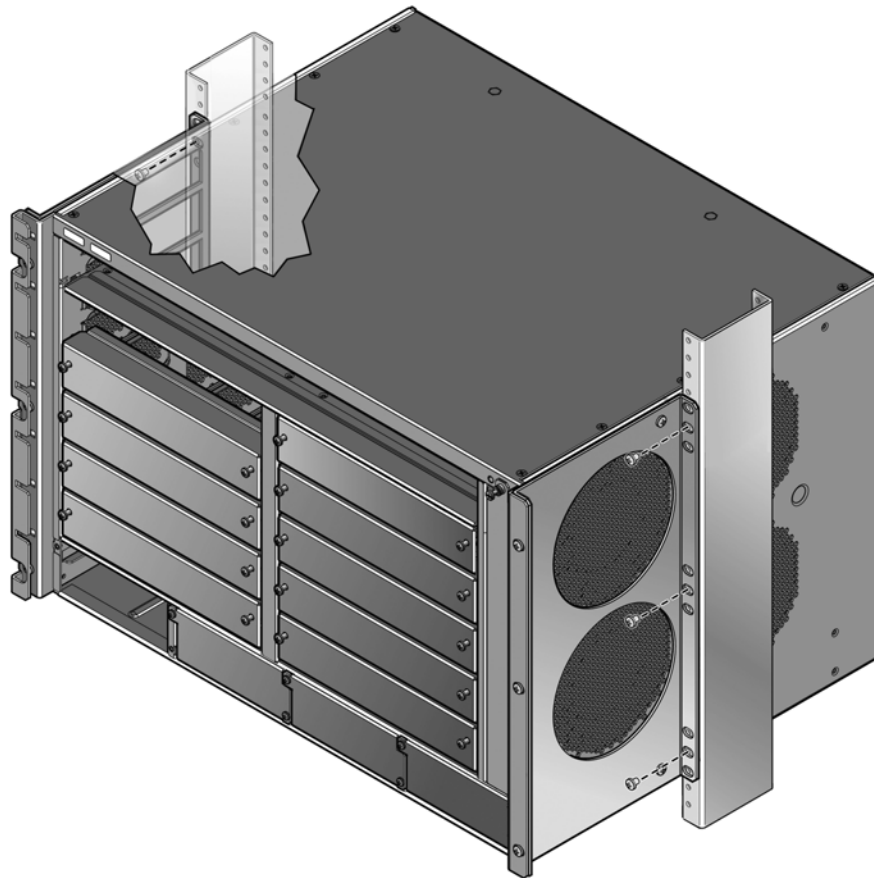
Warnhinweis: Zum Schutz vor körperlichen Schäden, sollten sie mit min. zwei Personen das Chassis in das Rack heben.

1. Lift the chassis and slide it all the way into the rack until the mid-mounting brackets are against the front of the rack posts.
2. Use 6 screws (3 per side) to secure the chassis to the rack, starting with the bottom holes and working toward the top of the chassis. See [Figure 3-4](#).



Note: Refer to [Table A-5](#) on page A-3 for recommended torque values to use when installing the K10 chassis using standard threaded fastener machine screws and bolts.

Figure 3-4 Mid-Mounting the K10 Chassis in a Rack



Installing the Cable Management Clips



Note: Installing the cable management clips is optional. If your installation location does not have the space needed for installing the cable management clips (for example, in an enclosed rack), do not install the cable management clips.

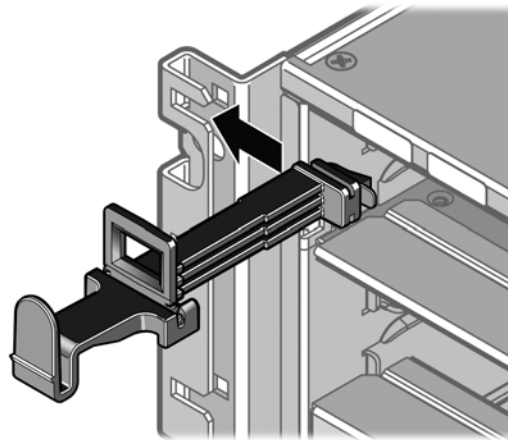
You can keep K-Series fabric card and line card cables neat and secure by installing the cable management clips that are included with the K10 chassis. Using the cable management clips ensures that cables are bundled close to the chassis and that cabling is not accidentally loosened or disconnected from the chassis during operation.

The K10 chassis ships with seven cable management clips, which you install on the left front mounting bracket of the chassis after you have installed the chassis. A completed installation creates six separate cable management spaces, one for the fabric card and each row of cards.

To install the cable management clips:

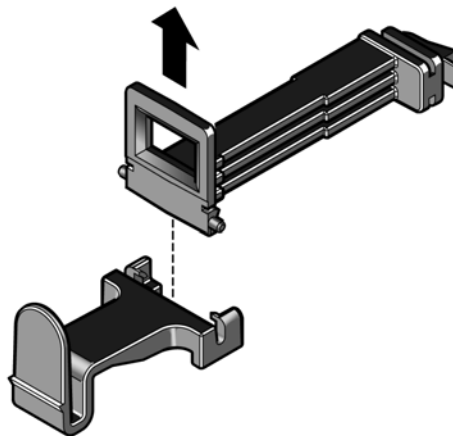
1. Slip each clip into the slots on the left mounting bracket. See [Figure 3-5](#).

Figure 3-5 Installing a Cable Management Clip in the Left Mounting Bracket



2. Before installing the bottom cable management clip, remove its swing arm. See [Figure 3-6](#).

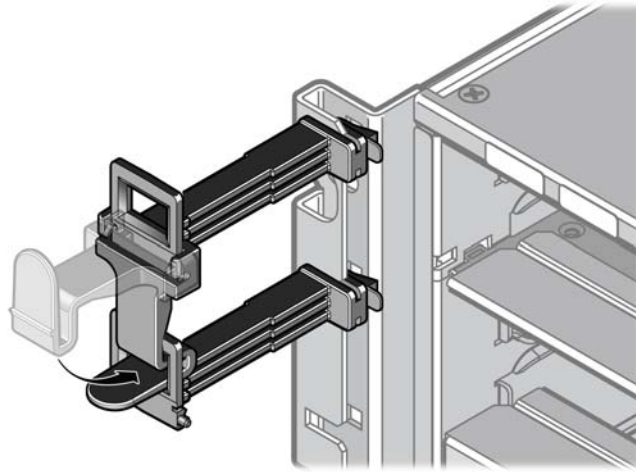
Figure 3-6 Removing the Swing Arm from the Bottom Cable Management Clip



3. Install the bottom cable management clip on the left mounting bracket.

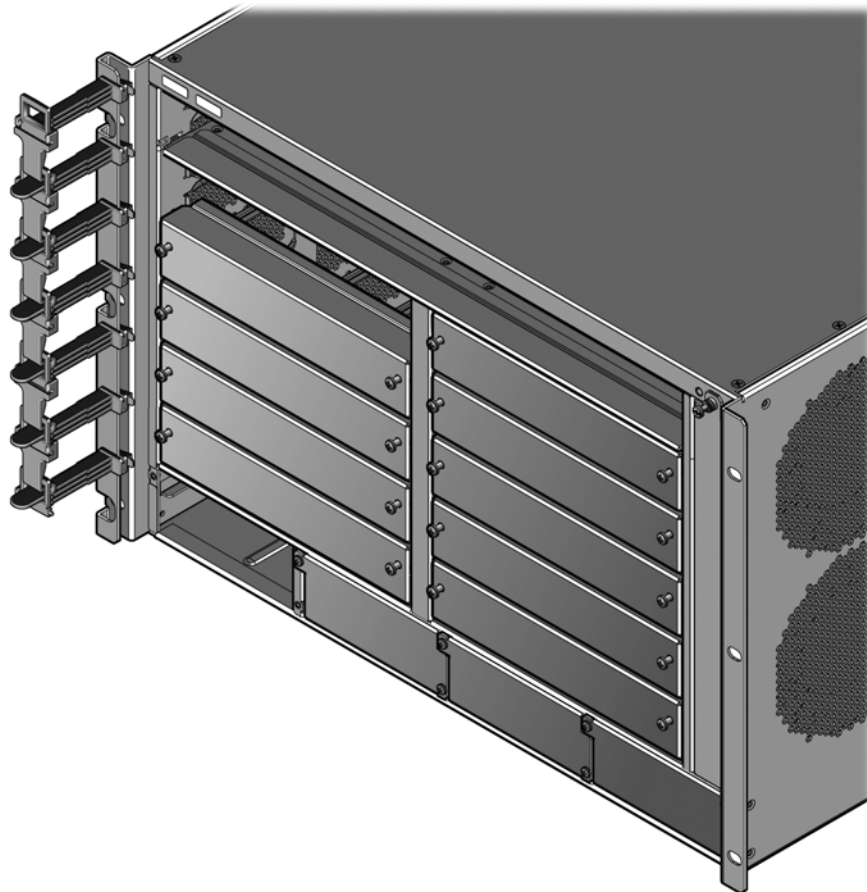
4. Close each cable management clip by snapping its swing arm into the cable management clip below. See [Figure 3-7](#).

Figure 3-7 Closing a Cable Management Clip



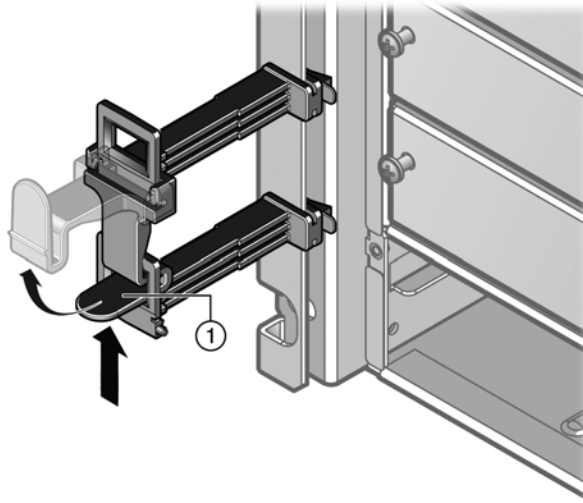
[Figure 3-8](#) shows the completed installation.

Figure 3-8 K10 Chassis with Cable Management Clips



5. Once you have installed and cabled a K-Series fabric card or line card, open the appropriate cable management clip by pushing up on the latch of its swing arm where it attaches to the cable management clip below. See [Figure 3-9](#).

Figure 3-9 Opening a Cable Management Clip

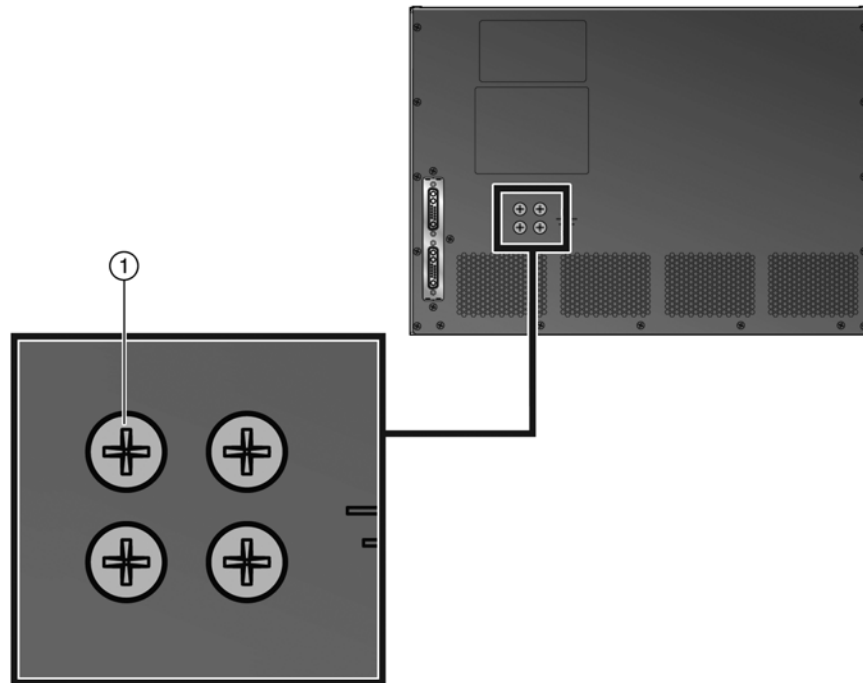


- 1 Push up on the swing arm latch to open the cable management clip
-

6. Place the bundled cables in the cable management clip.
7. Close the cable management clip.

Chassis Bonding and Grounding

Installing the chassis as described in this chapter meets the protective earth grounding requirements of the National Electrical Code (NEC) UL 60950 and IEC 60950 standards. However, in some cases it is necessary to use an alternative grounding method at installation sites that must meet the Telcordia GR-1089 Section 9, Bonding and Grounding Requirements, or national deviations. To meet these requirements, use the four tapped holes located on the rear of the chassis. These holes meet the hole grounding bolt pattern requirements, as shown in [Figure 3-10](#) on page 3-11.

Figure 3-10 Telcordia GR-1089 Grounding Hole Pattern

1 Ground screws

Alternate grounding requirements when a connection is needed between the chassis and the enclosure metalwork, a nearby point on the Central Office (CO) Ground system, or earth ground. The connection is made using one or more grounding wires (as needed) fabricated from an 8 AWG (6²mm) stranded copper wire. To fabricate and install a grounding wire, proceed as follows:

1. Cut an 8 AWG (6²mm) stranded-copper wire to length, long enough to reach from the grounding location of the chassis to the selected grounding location on the CO Ground, earth ground, or enclosure metalwork.
2. Install a listed two-hole compression-type connector on both ends of the grounding wire.
3. Apply a suitable antioxidant to the chassis grounding location and unpainted surface grounding location on the CO Ground or enclosure metalwork.
4. Connect one ground cable two-hole connector to the chassis using two of the 1/4-20 screws shipped with the chassis. Connect the two-hole connector at the other end of the cable to the CO Ground or enclosure metalwork using user-supplied screws.
5. Torque screws to 67 inch pounds ($\pm 5\%$).

National Deviations:

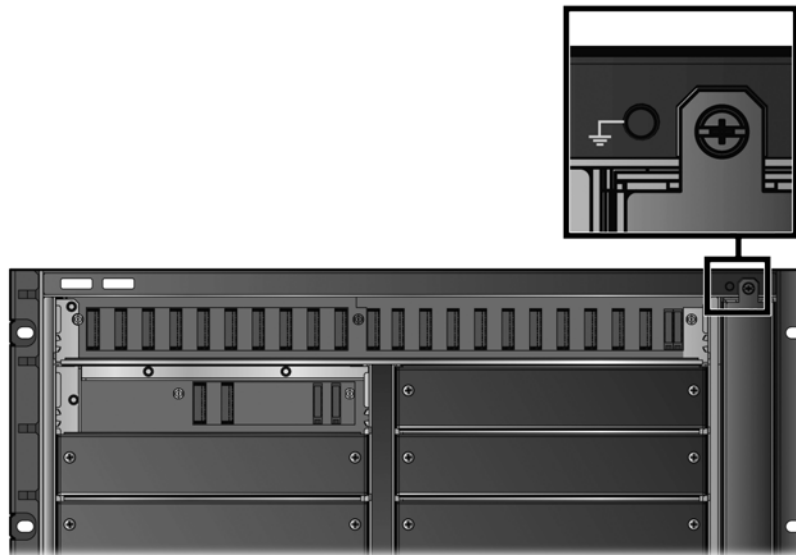
- In Norway, Sweden, and Finland, the same procedure can be used for a permanent protective earth ground connection as required by their national deviation to IEC 60950, Section 5.1.7.
- In Denmark, the chassis must be installed utilizing a Type B grounded plug.

Attaching the Electrostatic Discharge Wrist Strap

The Electrostatic Discharge (ESD) wrist strap must be attached before handling the power supplies, fan tray, fabric card, and line cards used in the K10 chassis. In addition, observe all precautions when handling these modules to prevent damage from electrostatic discharge.

Place the ESD wrist strap on your wrist and plug the other end into the grounding receptacle, at the top right corner of the chassis, shown in [Figure 3-11](#).

Figure 3-11 ESD Grounding Receptacle



Installing and Removing a Power Supply

K-Series AC power supplies provide two power output levels relative to the input power source. The power supplies draw either 120 Vac 12A or 240 Vac 10A service. Each K-Series AC power supply requires a dedicated 100–240 Vac, 15 Amp earth-grounded circuit. Power cords shipped with this unit are country-dependent. Each power cord must be plugged into an independent power circuit.

As you add line cards to the K10 chassis, you may be required to install more power supplies. Additional power supplies can be installed to provide redundancy. This would require incremental power be added to the base power requirements of the chassis and its components, depending on the power redundancy you want to support.

In a redundant power configuration, when at least two power supplies are installed, the power from each is evenly distributed. If one power supply fails, the second power supply assumes the load. Additional power supplies share the load as required.

Be aware that when you receive your K10 chassis, a coverplate will be in place over all power supply slots except PS1.

Power Supply Planning

Although each power supply requires its own circuit, when planning the K10 chassis power budget you have the option of drawing from one or more sources by either the N + 1 or 1 + 1 method, respectively.

The N + 1 method protects the K10 chassis against the failure of a single power supply although not against an outage by that source. In a scheme where three power supplies are installed, you can assign all three power supplies to one source. This is the most common approach to power supply planning.

Alternately, the 1 + 1 method has the advantage of protecting the K10 chassis against an outage by one of the power sources as well as the failure of one or as many as half of your power supplies. However, this method requires either a backup battery or another power source separate from the first power source.

The number of power supplies required in a K10 chassis is determined by the number and types of line cards installed in the chassis.

Unpacking a Power Supply

The K-Series AC power supply modules are shipped in boxes separate from the K-Series chassis. To unpack a power supply:

1. Unpack the power supply by removing it from the shipping box and sliding the two foam end caps off the unit.
Save the shipping box and materials in the event the unit must be reshipped.
2. Verify the contents of the box using [Table 3-2](#) as appropriate.
3. Remove the power supply from its protective plastic bag.
4. Examine the power supply carefully, checking for damage.

If any damage is noted, DO NOT install the power supply. Contact Enterasys Networks immediately. Refer to [“Getting Help”](#) on page xvii for details.

Table 3-2 Contents of K-Series AC Power Supply Carton

Item	Quantity
K-Series AC power supply	1
Type of power cord is dependent on country of installation. For USA shipments: NEMA Power Cord 5-15, C13, R/A, SHLD Each K-Series AC power supply accepts (X) IEC320 C13 power cord plugs.	1
Power cord clip assembly	1
NOTICE Card	1

Installing a Power Supply

You must install at least one K-Series AC power supply in the K10 chassis. Depending on your module configuration, one power supply may provide sufficient power to the chassis, but multiple power supplies can be installed to provide a redundant, load sharing power source. When you receive your K10 chassis, a cover plate will be in place over power supply slots PS2, PS3, and PS4.

The power supplies must be installed in the slots labeled PS1, PS2, PS3, and PS4 at the bottom of the chassis. If you intend to install a single power supply, you must install it in the power supply slot labeled PS1.

[Figure 3-12](#) shows the correct installation orientation of the K-Series AC power supply, with the AC power socket on the left and the LEDs on the right.

Figure 3-12 Correct Orientation of an Installed K-Series AC Power Supply

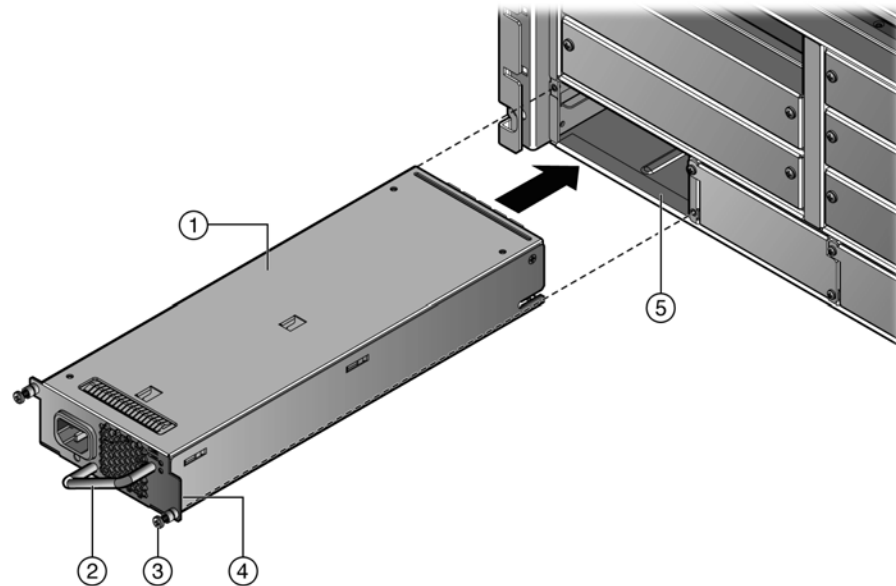


To install the K-Series AC power supplies:

1. Attach the anti-static wrist strap as described in [“Attaching the Electrostatic Discharge Wrist Strap”](#) on page 3-12 before handling the power supply.
2. Hold the power supply in the correct installation orientation with one hand on the handle located on the front panel and the other hand supporting the power supply.

3. Align the power supply with the bottom of the opening of the PS1 slot. See [Figure 3-13](#).

Figure 3-13 Installing a K-Series AC Power Supply



- | | | | |
|---|--|---|-------------------|
| 1 | Mandatory power supply installed in slot PS1 | 4 | Faceplate |
| 2 | Power supply handle | 5 | Power supply slot |
| 3 | Captive screw | | |

4. With the power supply properly inserted into the PS1 slot, carefully slide the supply forward until it is connected to the backplane.

The front panel should be flush with the face of the K10 chassis. If significant resistance is encountered before the front panel is flush, remove and reinsert the power supply. Do not force the power supply into place.



Caution: Forcing a misaligned power supply into place can damage the power supply and/or the chassis backplane.

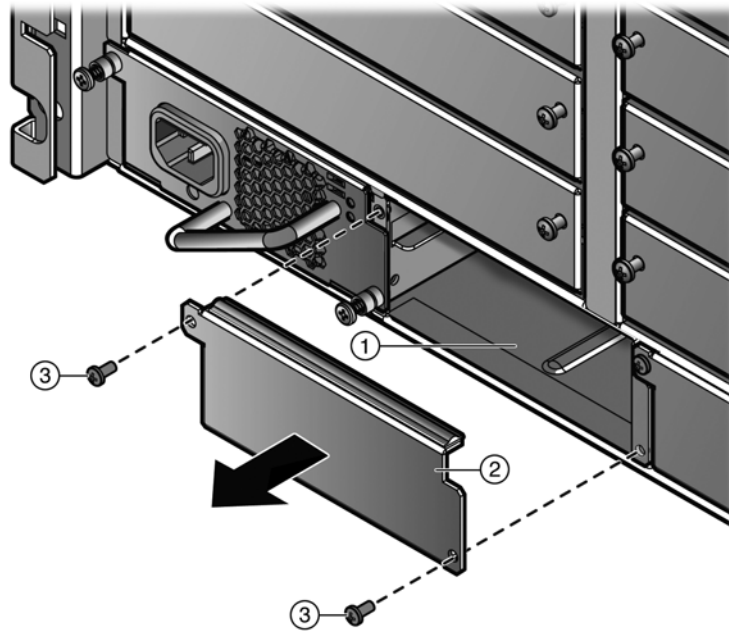
Precaución: Colocar de manera forzada una fuente de poder o no colocarla bien alineada podría dañarla y/o maltratar el panel posterior del chasis.

5. Secure the power supply to the chassis by screwing the captive screws into the chassis.

6. If you are installing more than one power supply, remove the coverplates from the applicable number of power supply slots, as shown in [Figure 3-14](#).

Keep the coverplates in the event you need to remove the power supplies.

Figure 3-14 Removing a Coverplate from a Power Supply Slot



- 1 Power supply slot
- 2 Coverplate

- 3 Captive screw

Removing a Power Supply

Whenever possible, you should install a replacement power supply before removing a power supply.

To remove a K-Series AC power supply:

1. Attach the anti-static wrist strap as described in “[Attaching the Electrostatic Discharge Wrist Strap](#)” on page 3-12 before handling the power supply.
2. Unplug the power cord from the dedicated AC outlet.
3. Unplug the power cord from the AC power connector of the power supply.
4. Unscrew the captive screws to release the power supply from the chassis.
5. Grasp the power supply handle and pull the power supply straight out of the chassis.
6. Place the power supply on an antistatic surface or in an antistatic bag for future use.



Caution: If you plan to operate the chassis with only one power supply, make sure to install the coverplate in place of the removed power supply to reduce Electromagnetic Interference.

Precaución: Si desea trabajar sólo con una fuente de poder, no olvide colocar la tapa en el compartimiento de la fuente de poder que haya eliminado, para reducir la interferencia electromagnética.

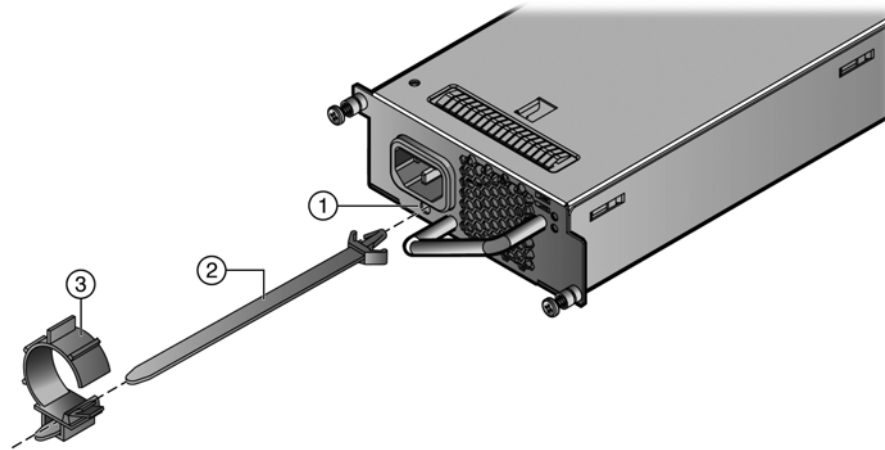
Installing the Power Cord Clip Assembly

The K-Series AC power supply comes with a two-piece power cord clip assembly.

To install the power cord clip assembly:

1. Holding the strap piece with the smooth side up, insert the strap piece into the hole in the K-Series AC power supply. See [Figure 3-15](#).

Figure 3-15 Installing the Power Cord Clip Assembly in the Power Supply



- 1 Insert the strap piece in this hole
- 2 Strap piece, smooth side up

3 Clamp piece

2. Slide the clamp piece onto the strap piece with the tab on the clamp piece facing out. See [Figure 3-15](#).
3. Insert the power cord in the open clamp.
4. Close the clamp piece.

To open the clamp piece, push down the tab.

Installing and Removing a Fan Tray

The K10 chassis is equipped at the factory with one removable fan tray that allows for easy periodic cleaning and/or replacement if a problem occurs with fan operation.



Caution: The fan assembly is hot-swappable. However, do not run the chassis for any extended periods of time without an operating fan assembly, as the chassis will quickly overheat and cause damage.

Precaución: El sistema de ventilación se puede reemplazar cuando la unidad está encendida. Sin embargo, no utilice el chasis durante largos períodos sin contar con un sistema de ventilación porque podría sobrecalentarse y dañarse.

Installing a Fan Tray

To install a fan tray:

1. Attach the anti-static wrist strap as described in “[Attaching the Electrostatic Discharge Wrist Strap](#)” on page 3-12 before handling the fan tray.
2. Hold the handle of the fan tray with one hand and the bottom of the fan tray with the other hand.

You should hold the fan so that the handle is at the bottom of the fan.

3. Line up the top and bottom of the fan tray with the slot guides on the chassis.

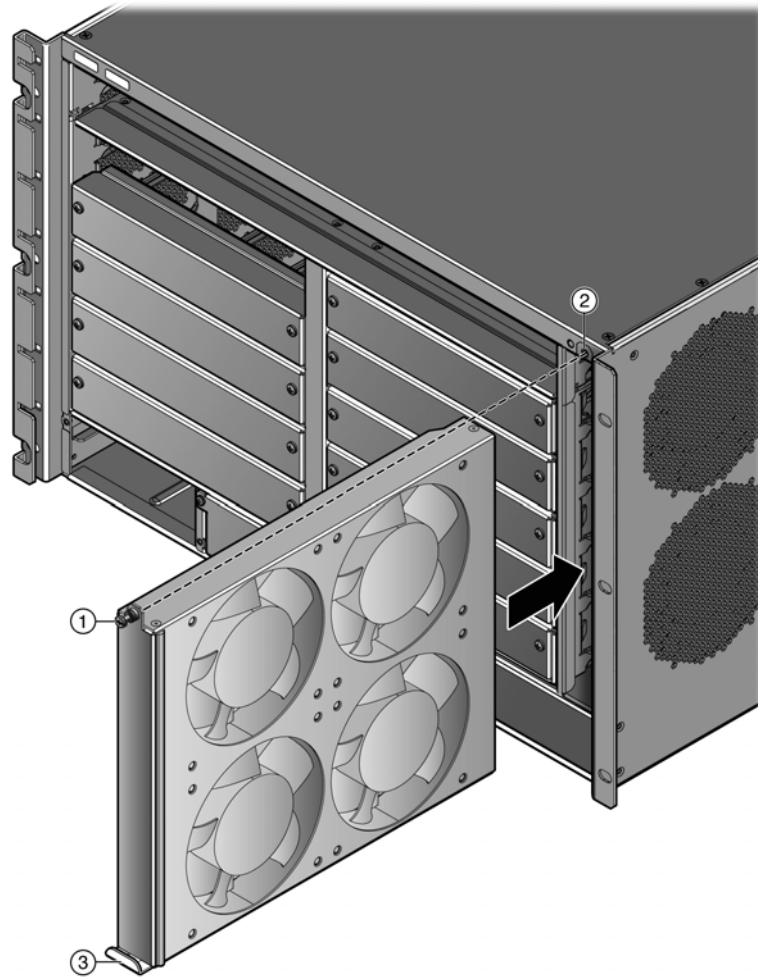


Caution: In the following step, ensure that you do not force the fan assembly into place as it may damage the self-aligning power/control connector in the chassis.

Precaución: En el siguiente paso, tenga cuidado de no colocar de manera forzada el sistema de ventilación, porque puede dañar el conector de control de corriente con autoalineación del chasis.

4. Slide the fan tray into the chassis until the faceplate of the tray is flush with the face of the K10 chassis. See [Figure 3-16](#) on page 3-19.

If there is any strong resistance, remove the fan tray and reinsert it.

Figure 3-16 Installing the Fan Tray

- 1 Captive screw
- 2 Chassis screw hole

- 3 Fan tray handle

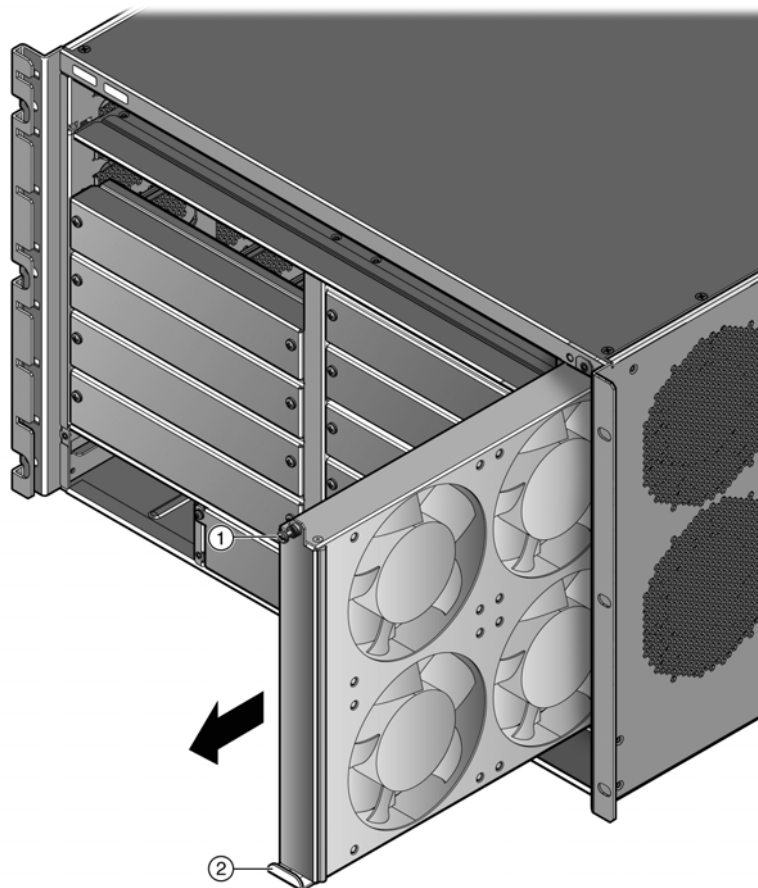
5. Tighten the captive screw to secure the fan tray to the K10 chassis.

Removing a Fan Tray

To remove a fan tray:

1. Attach the anti-static wrist strap as described in “[Attaching the Electrostatic Discharge Wrist Strap](#)” on page 3-12 before handling the fan tray.
2. Loosen the captive screw located at the top of the fan tray.
3. Slowly slide the fan tray out of its slot in the chassis. See [Figure 3-17](#).

Figure 3-17 Removing the Fan Tray



1 Captive screw

2 Fan tray handle

Installing and Removing the Fabric Card

You must install a fabric card for the K10 chassis to be operational.

Required Tools

This installation requires the following tools:

- Anti-static wrist strap
- Phillips screwdriver

Preparation

1. Remove the fabric card from the shipping box.
Save the box and packing materials in the event the fabric card needs to be reshipped.
2. 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.
3. Remove the fabric card from the plastic bag.
Observe all precautions to prevent damage from Electrostatic Discharge (ESD). Save the bag in the event the fabric card must be reshipped.
4. Examine the fabric card for damage.
If any damage exists, DO NOT install the fabric card. Immediately contact Enterasys Networks. Refer to [“Getting Help”](#) on page xvii.

Installing the Fabric Card



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.



Caution: Failure to observe static safety precautions could cause damage to the K-Series 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.

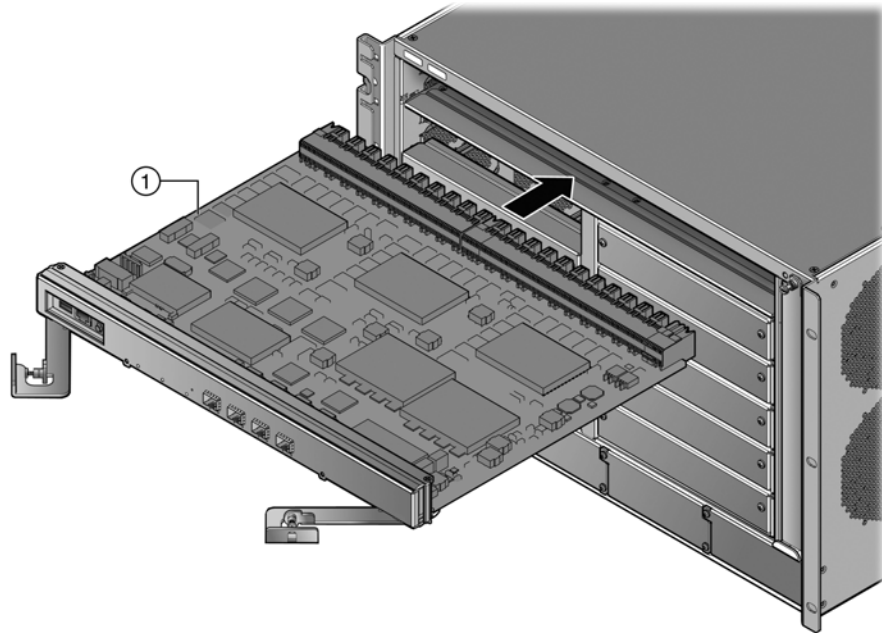
To install a K-Series fabric card:

1. Open the ejector handles of the fabric card.

The open position is approximately a 45° angle away from the fabric card faceplate. The ejector handles must be open when inserting the fabric card to allow the fabric card to be installed properly.

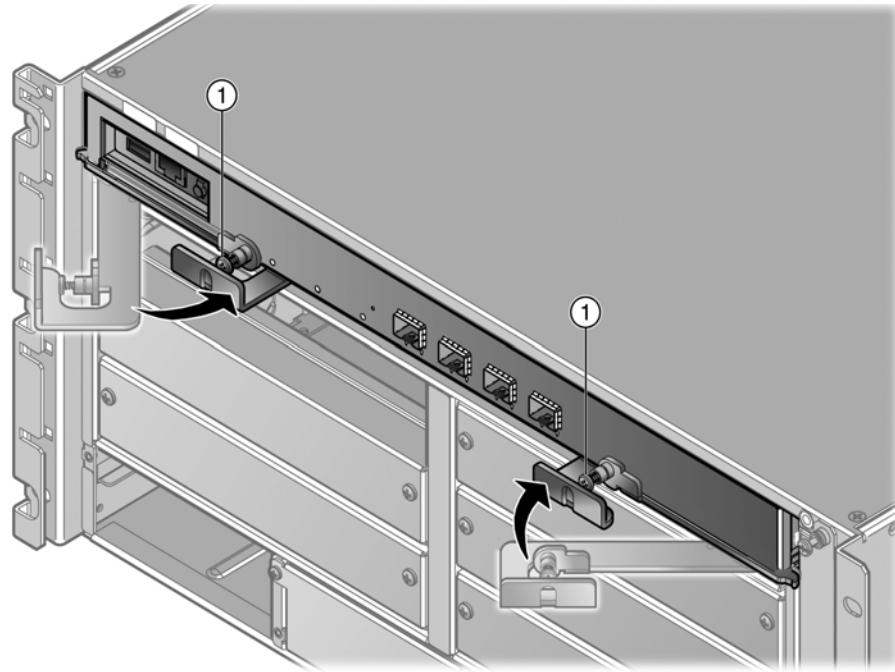
2. Insert the fabric card in the chassis. See [Figure 3-18](#).

Figure 3-18 Inserting the Fabric Card into the Chassis



- 1 Fabric card

3. Gently slide the fabric card into the slot until the fabric card engages the connector on the backplane.
4. Push the ejector handles toward the center of the fabric card, as shown in [Figure 3-19](#), until the fabric card locks into place and is flush with the chassis.

Figure 3-19 Engaging the Fabric Card Ejector Handles

1 Captive screw

5. Tighten the captive screws on the fabric card's ejector handles.

Removing the Fabric Card

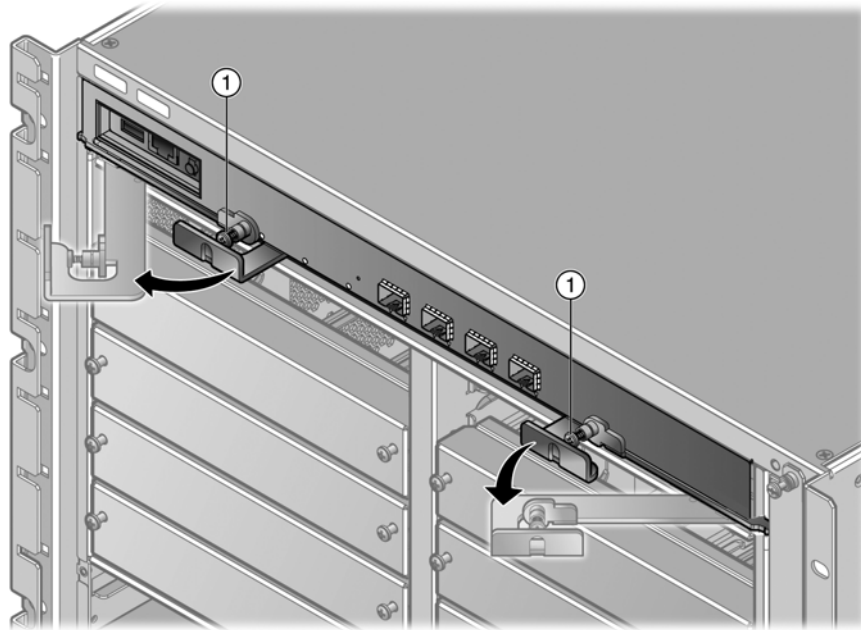
To remove the fabric card from the chassis:

1. Loosen the captive screws on the fabric card's ejector handles.
2. Press the OFFLINE/RESET button. (Refer to [Figure 4-6](#) on page 4-7 for the location of the OFFLINE/RESET button and CPU LED.)

The CPU LED changes from solid green to blinking green and amber to solid amber.

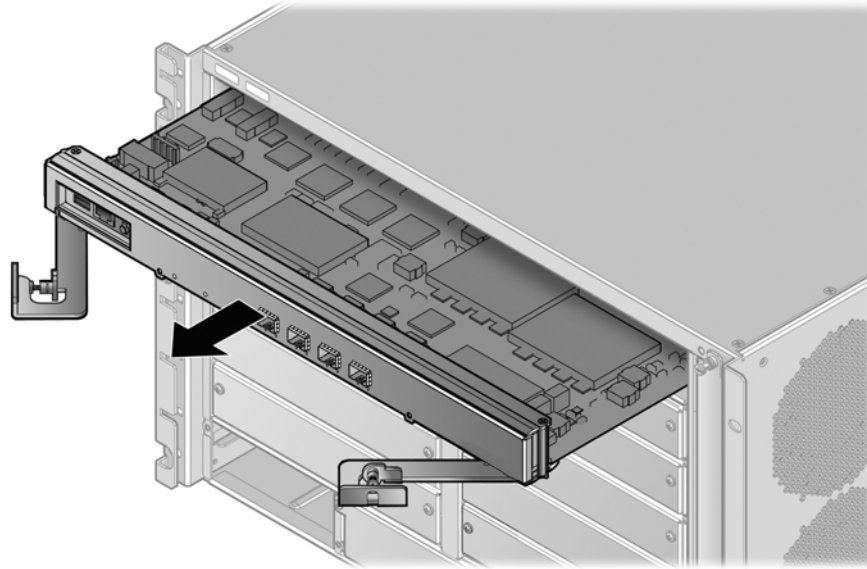
3. Open the fabric card ejector handles to a 45° angle. See [Figure 3-20](#).

Figure 3-20 Releasing the Fabric Card Ejector Handles



1 Captive screw

4. Slide the fabric card out of the chassis. See [Figure 3-21](#) on page 3-25.

Figure 3-21 Removing the Fabric Card

Installing and Removing a Line Card

Required Tools

This installation requires the following tools:

- Anti-static wrist strap
- Phillips screwdriver

Preparation

1. Remove the line card from the shipping box.
Save the box and packing materials in the event the line card needs to be reshipped.
2. 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.
3. Remove the line card from the plastic bag.
Observe all precautions to prevent damage from Electrostatic Discharge (ESD). Save the bag in the event the line card must be reshipped.
4. Examine the line card for damage.
If any damage exists, DO NOT install the line card. Immediately contact Enterasys Networks. Refer to [“Getting Help”](#) on page xvii.

Installing a Line Card



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.



Caution: Failure to observe static safety precautions could cause damage to the K-Series 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.

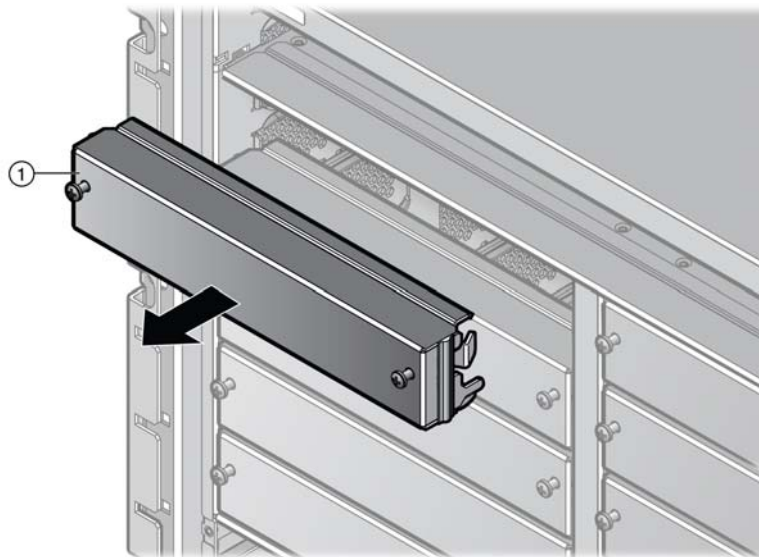


Note: Slot 10 supports only a four port 10G line card.

To install a K-Series line card:

1. If a coverplate is installed in the line card slot, loosen the coverplate's two captive screws approximately half an inch. Pull on one of the captive screws to remove the coverplate. See [Figure 3-22](#).

Figure 3-22 Removing a Cover Plate from a Line Card Slot



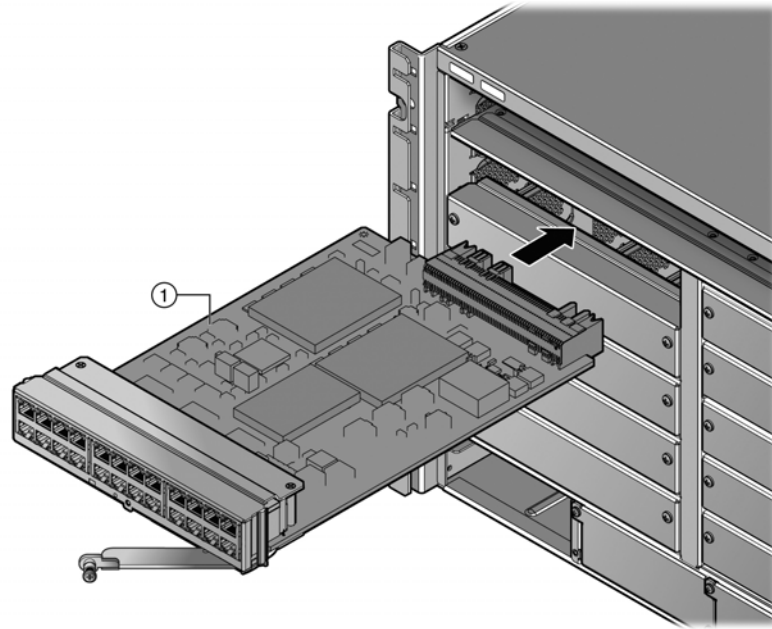
1 Line card cover plate

2. Open the ejector handle of the line card.

The open position is approximately a 45° angle away from the line card faceplate. The ejector handle must be open when inserting the line card to allow the line card to be installed properly.

3. Insert the line card in the chassis. See [Figure 3-23](#).

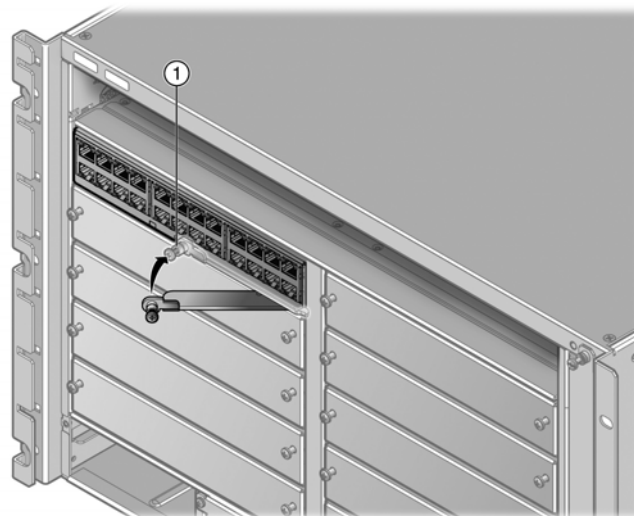
Figure 3-23 Inserting a Line Card into the Chassis



- 1 Line card

4. Gently slide the line card into the slot until the line card engages the connector on the backplane.
5. Push the ejector handle toward the center of the line card, as shown in [Figure 3-24](#), until the line card locks into place and is flush with adjacent coverplates or line card faceplates.

Figure 3-24 Engaging the Line Card Ejector Handles



- 1 Captive screw

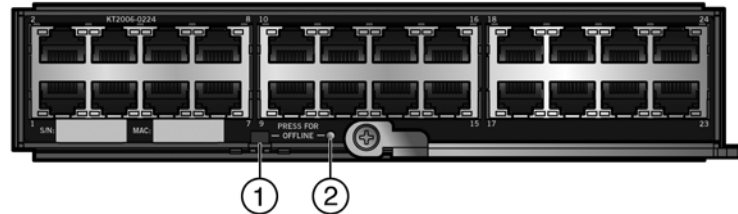
6. Tighten the captive screw on the line card's ejector handle.

Removing a Line Card

1. Press the OFFLINE button and wait for the STATUS LED to change from green to amber to off. See [Figure 3-25](#).

When the STATUS LED goes off, you can safely remove the K-Series line card from the chassis.

Figure 3-25 Line Card Offline Button



1 OFFLINE button

2 STATUS LED

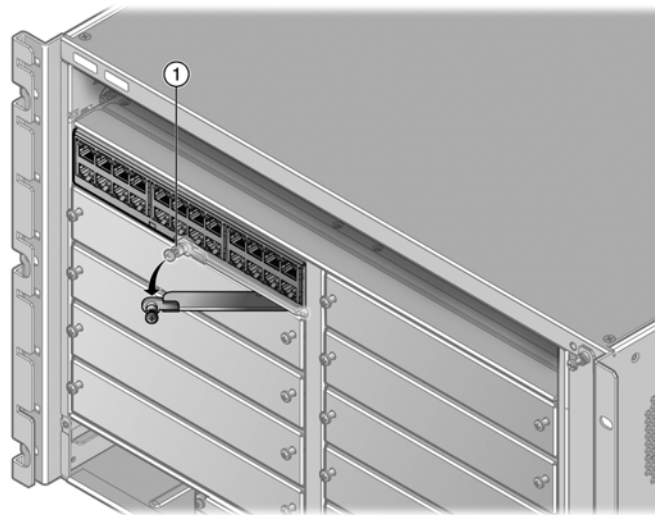


Caution: DO NOT remove a line card without first pressing the OFFLINE button. If you remove a line card before pressing the OFFLINE button, service may be interrupted.

Precaución: NO retire un módulo sin antes presionar el botón OFFLINE. Si se quita un módulo antes de pulsar el botón OFFLINE, el servicio puede ser interrumpido.

2. Loosen the captive screw on the line card's ejector handle.
3. Open the line card ejector handle to a 45° angle. See [Figure 3-26](#).

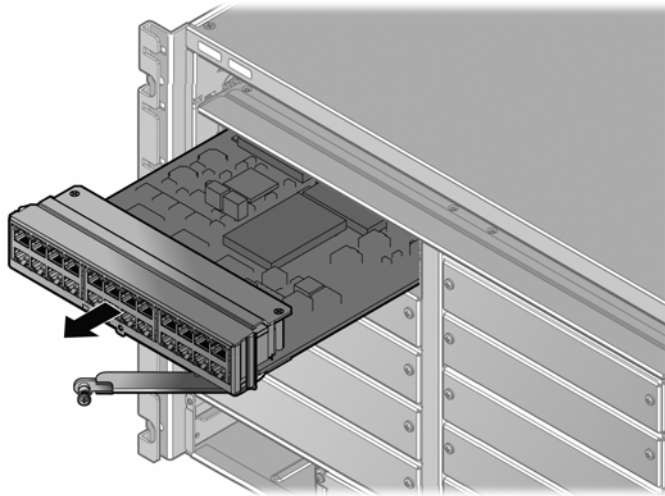
Figure 3-26 Disengaging the Line Card Ejector Handle



1 Captive screw

- Slide the line card out of the chassis. See [Figure 3-27](#).

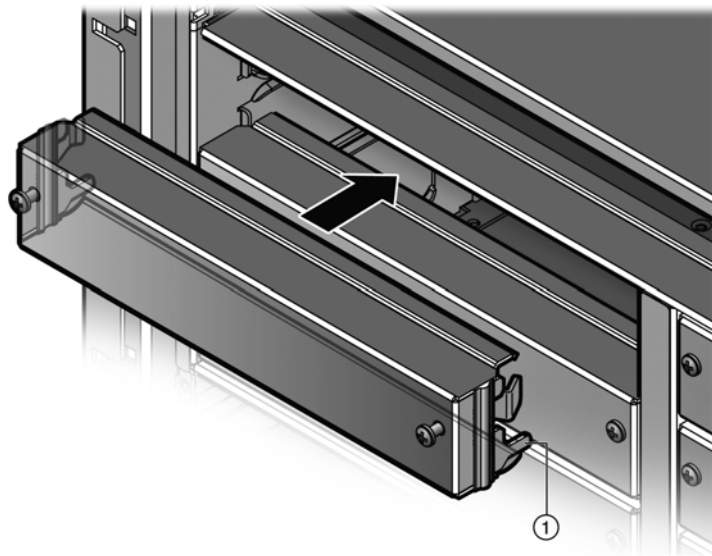
Figure 3-27 Removing a Line Card



- If you are not installing another line card in the slot, install a line card cover plate over the slot to ensure proper airflow.

Orient the line card cover plate so that the key on the cover plate is at the bottom. See [Figure 3-28](#).

Figure 3-28 Line Card Cover Plate Key



- Line card cover plate key

Connecting Power

To power up the K10 chassis with K-Series AC power supplies:



Note: If multiple power supplies are installed, repeat the following procedure for each supply. For redundancy using multiple K-Series AC power supplies, each of the power cords from the power supplies must be connected to dedicated 15 A AC power circuits.

1. Plug one end of each power cord (supplied with the power supply) into the AC power socket on the front panel of the power supplies.
2. Plug each of the power cords into separate dedicated 15 A/120 Vac receptacles.
3. Ensure that the AC OK and DC OK LEDs on each power supply are green.

For more information on the power supply LEDs, refer to “[Power Supply LEDs](#)” on page 4-5.

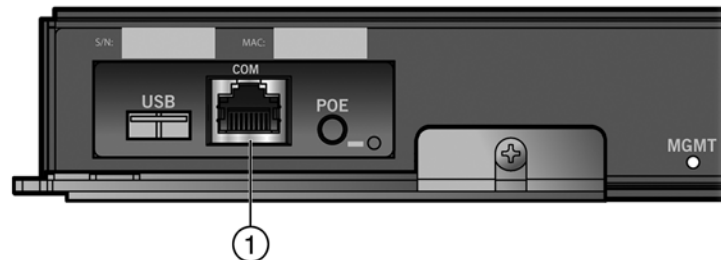
4. Ensure that all fans in the fan tray are operating properly when power is received from the power supplies. If the fans are operating properly, the FAN LED on the fabric card will be green.

If you experience any problems with this installation, contact Enterasys Networks for assistance.

Connecting to the Fabric Card COM Port for Local Management

This section describes how to install a UTP cable with RJ45 connectors and optional adapters to connect a PC or VT series terminal to an Enterasys Networks device to access Local Management. This section also details adapter pinout assignments.

Figure 3-29 Fabric Card COM Port



1 COM port

What Is Needed

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

- RJ45-to-DB9 female adapter (supplied with the K10 chassis)
- UTP cable with RJ45 connectors (supplied with the K10 chassis)
- RJ45-to-DB25 female adapter (customer-supplied)

Using the UTP cable with RJ45 connectors and the RJ45-to-DB9 adapter, you can connect to a K10 chassis RJ45 COM port to a PC running a VT series emulation software package.

Using the UTP cable and an optional RJ45-to-DB25 female adapter, you can connect to a K10 chassis RJ45 COM port to a VT series terminal or VT type terminals running emulation programs for the VT series.

Connecting to a PC or Laptop

To connect a PC or laptop running the VT terminal emulation to the fabric card COM port:

1. Connect the RJ45 connector at one end of the cable to the COM port on the fabric card.
2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB9 adapter.
3. Connect the RJ45-to-DB9 adapter to the communications port on the PC.
4. Configure the VT emulation package on your PC or laptop as follows:

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 [“Completing the Installation”](#) on page 3-35 for further information.

Connecting to a VT Series Terminal

To connect a VT Series terminal to the fabric card COM port, use a UTP cable with RJ45 connectors and an **optional** RJ45-to-DB25 female adapter.

1. Connect the RJ45 connector at one end of the cable to the COM port on the fabric card.
2. Plug the RJ45 connector at the other end of the 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 VT terminal and access the Setup Directory.
5. Set the following parameters:

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

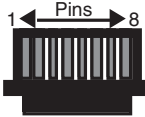
When these parameters are set, the Local Management password screen will display. Refer to the [“Completing the Installation”](#) on page 3-35 for further information.

Adapter Wiring and Signal Assignments

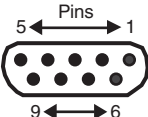
Table 3-3 shows the COM port adapter wiring and signal diagram. Table 3-4 shows the VT series port adapter wiring and signal diagram.

Table 3-3 COM Port Adapter Wiring

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



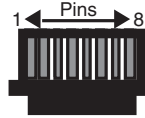
RJ45 Connector (Female)



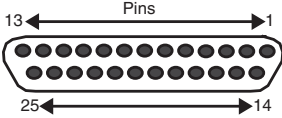
DB9 Connector (Female)

Table 3-4 VT Series Port Adapter Wiring

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



RJ45 Connector (Female)



DB25 Connector (Female)

Connecting the Fabric Card and Line Card to the Network

This section provides procedures for connecting the following:

- Category 5 unshielded twisted pair (UTP) segments to the K-Series line cards
- SFP and SFP+ pluggable transceivers to the K-Series line cards
- SFP+ pluggable transceivers to the K-Series fabric card



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

Connecting Category 5 UTP Ethernet Cables to the RJ45 Ports

The RJ45 connections of the K-Series line cards are 10/100/1000 Mbps ports. They have internal crossovers and support automatic-polarity sensing which eliminates the need for a crossover cable, regardless of whether the connection is to another network device or a workstation.



Note: All RJ45 front panel ports on the K-Series line cards support Category 5 Unshielded Twisted Pair (UTP) cabling with an impedance between 85 and 111 ohms. You can use Category 3 cable only for 10 Mbps connections.

1. Ensure that the far-end device connected to the other end of the segment is powered ON.
2. Connect the far-end device's twisted pair segment into the appropriate K-Series line card RJ45 port connector.
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:

- a. Verify that cabling is Category 5 UTP with an impedance between 85 and 111 ohms. If the port is to operate at 100 Mbps or 1000Mbps, you must use Category 5 cabling.
- b. Verify that the device at the other end of the twisted pair segment is on and properly connected to the segment.
- c. Verify that the RJ45 connectors on the twisted pair segment have the proper pinouts and check the cable for continuity.

If a link is not established, refer to [Chapter 4, Troubleshooting](#), for details.

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

Connecting Pluggable Transceivers to SFP and SFP+ Ports

Installing a Pluggable Transceiver

This section describes how to install the following:

- An SFP or SFP+ pluggable transceiver in any of the K-Series line card SFP or SFP+ ports
- An SFP+ pluggable transceiver in the K-Series fabric card SFP+ ports

For a list of supported SFP and SFP+ pluggable transceivers and their specifications, refer to the K-Series firmware *Release Notes* for the latest compatibility matrix for SFP and SFP+ pluggable transceivers. You can also refer to the datasheet located at the following URL:

<http://www.enterasys.com/company/literature/transceivers-ds.pdf>



Warning: Fiber-optic SFPs and SFP+s use Class 1 lasers. 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.

Advertencia: Los transmisores receptores de fibra óptica SFP y SFP+ conectables utilizan sistemas de láser clase 1. No emplee instrumentos ópticos para ver la salida del láser. Hacerlo podría incrementar el riesgo de daño en los ojos. Cuando se revise el puerto óptico de salida, deberá cortarse la energía del adaptador de red.

Warnhinweis: Faseroptische, steckbare Transceiver der Typen SFP und SFP+ verwenden Laser der Klasse 1. Zur Ansicht der Laserausgabe dürfen keine optischen Geräte verwendet werden, da hierdurch die Wahrscheinlichkeit einer Gefährdung der Augen erhöht wird. Vor der Inspektion des optischen Ausgangsanschlusses muss das Stromkabel des Netzwerkadapters herausgezogen werden.



Caution: Carefully follow the instructions in this manual to avoid damaging the SFP, SFP+, and module.

The SFP, SFP+, and module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the SFP, SFP+, and module. Always leave the SFP or SFP+ in the antistatic bag or an equivalent antistatic container when not installed.

Precaución: Siga las instrucciones del manual para no dañar el SFP, SFP+ ni el módulo, puesto que son muy sensible a las descargas de electricidad estática.

Utilice la pulsera antiestática y tome todas las precauciones necesarias durante este procedimiento. Si no lo hace, podría dañar el SFP, SFP+ o el módulo. Mientras no esté instalado, mantenga el SFP o SFP+ en su bolsa antiestática o en cualquier otro recipiente antiestático.

Preparation

Before installing the pluggable transceiver, proceed as follows:

1. Put on the antistatic wrist strap and plug the cable from the antistatic wrist strap into the ESD grounding receptacle at the upper right corner of the chassis before removing the pluggable transceiver from the anti-static packaging. Refer to the instructions in the anti-static wrist strap package.
2. Remove the pluggable transceiver from the packaging.
3. If there is a protective dust cover on the pluggable transceiver, do not remove it at this time.

Installing the Pluggable Transceiver

To install an SFP or SFP+ pluggable transceiver in a K-Series line card or fabric card:

1. Hold the pluggable transceiver so that the connector will seat properly.
2. Carefully align the pluggable transceiver with the port.
3. Push the pluggable transceiver into the port until the pluggable transceiver clicks and locks into place.

Removing a Pluggable Transceiver

To remove a pluggable transceiver from a port:



Caution: Do NOT remove an SFP or SFP+ from a slot without releasing the locking tab located under the front bottom end of the SFP or SFP+. This can damage the SFP or SFP+.

The SFP, SFP+, and module are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the SFP, SFP+, and module. Always leave the SFP or SFP+ in the antistatic bag or an equivalent antistatic container when not installed.

Precaución: NO quite el SFP o SFP+ de la ranura sin antes abrir la traba ubicada en la parte frontal del el SFP o SFP+.

Utilice la pulsera antiestática y tome todas las precauciones necesarias durante este procedimiento. Si no lo hace, podría dañar el SFP, SFP+ o el módulo. Mientras no esté instalado, mantenga el SFP o SFP+ en su bolsa antiestática o en cualquier otro recipiente antiestático.

1. Put on the antistatic wrist strap and plug the cable from the antistatic wrist strap into the ESD grounding receptacle at the upper right corner of the chassis before removing the pluggable transceiver from the anti-static packaging. Refer to the instructions in the anti-static wrist strap package.
2. Remove the cables connected to the pluggable transceiver.
3. Release the pluggable transceiver from the port.

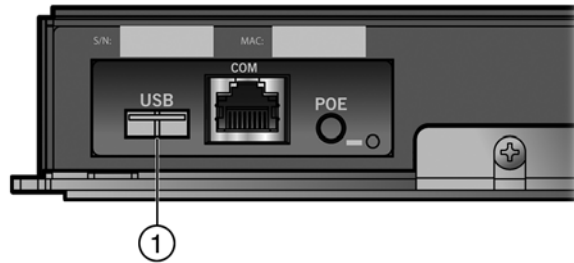
4. Grasp the sides of the pluggable transceiver and pull it straight out of the port.

If storing or shipping the pluggable transceiver, insert its dust protector to protect its fiber-optic ports.

Connecting to the Fabric Card USB Port

The fabric card has one USB port. See [Figure 3-30](#). The USB port allows you to use a USB drive to upgrade the chassis and upload and download files, such as configuration files and firmware images.

Figure 3-30 Fabric Card USB Port



1 USB port

Completing the Installation

Completing the K-Series fabric card installation depends on if the fabric card is being installed in:

- a new K-Series chassis (refer to [Completing the Installation of a New System](#)), or
- an established, operating K-Series chassis (refer to “[Completing the Installation of a K-Series Fabric Card in an Existing Chassis](#)” on page 3-37).

Completing the Installation of a New System

In a K-Series chassis, the installed fabric card is set to the factory default values on chassis power up. A complete list of the factory default values are provided in the *Enterasys K-Series Configuration Guide*.

After installing the K-Series fabric card into the host chassis and making the connections to the network, proceed to “[First-Time Log-In Using a Console Port Connection](#)” on page 3-36 to access the chassis 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 K-Series module 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 the *Enterasys K-Series Configuration Guide*.

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

1. Connect a terminal to the local console port as described in “[Connecting to the Fabric Card COM Port for Local Management](#)” on page 3-30. The startup screen, [Figure 3-31](#), 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 fabric card information and K Chassis prompt displays as shown in [Figure 3-31](#).

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

The *Enterasys K-Series Configuration Guide* is available online at:

<https://extranet.enterasys.com/downloads/>

If you require assistance, contact Enterasys Networks using one of the methods described in “[Getting Help](#)” on page xvii.

Figure 3-31 K-Series Startup Screen Example

```
login: admin
Password:

K10
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. 2009

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

K Chassis(su)->
```

Completing the Installation of a K-Series Fabric Card in an Existing Chassis

When you install a new K-Series fabric card into a K-Series chassis with an existing configured user account, the current system settings in that account are already recognized by the new K-Series fabric card 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 the Fabric Card COM Port for Local Management](#)” on page 3-30 to access system management, or use a Telnet connection to access the K-Series fabric card system management as described in the *Enterasys K-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 K Chassis prompt displays as shown back in [Figure 3-31](#).



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 the *Enterasys K-Series Configuration Guide*.

Troubleshooting

This chapter provides information concerning the following:

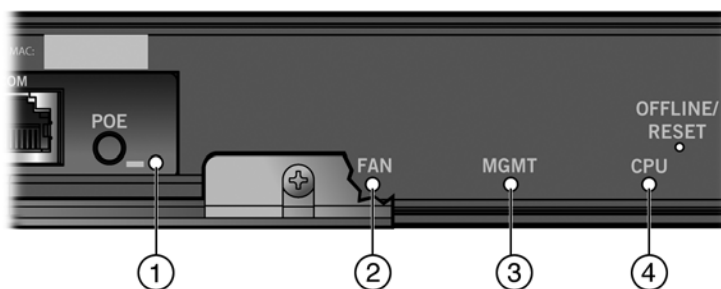
For information about...	Refer to page...
LEDs	4-1
Troubleshooting Checklist	4-6
Using the OFFLINE/RESET Button	4-7

LEDs

Fabric Card LEDs

[Figure 4-1](#) shows the LEDs on the K-Series fabric cards.

Figure 4-1 Fabric Card LEDs



- | | |
|-----------|------------|
| 1 POE LED | 3 MGMT LED |
| 2 FAN LED | 4 CPU LED |

Table 4-1 Fabric Card LEDs

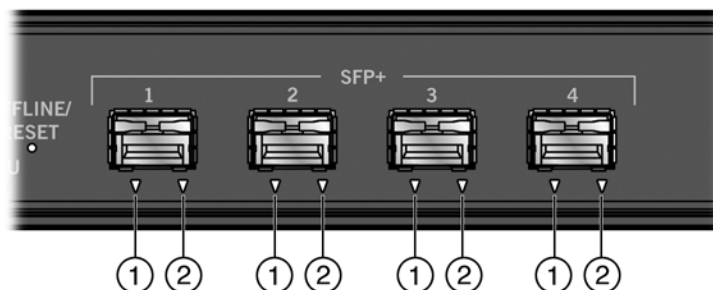
LED	Color	Status
POE	Green	The RJ45 port LEDs on the line cards are in PoE mode. You can switch the LED mode by pressing the red POE button next to the POE LED. If you change the LED mode to PoE, the RJ45 port LEDs remain in PoE mode for 60 seconds and then return to RX/TX mode. See Table 4-4 on page 4-4 for RJ45 port LED indications in PoE mode.
	None	The RJ45 ports LEDs on the line cards are in RX/TX mode. You can switch the LED mode by pressing the red POE button next to the POE LED. See Table 4-3 on page 4-4 for RJ45 port indications in RX/TX mode.

Table 4-1 Fabric Card LEDs (continued)

LED	Color	Status
FAN	None	Fan tray is off or booting up.
	Green	All fans in the fan tray are operating normally.
	Amber	One fan in the fan tray has failed. Caution: If a fan in the fan tray fails, you must replace the fan tray as soon as possible to ensure the proper and continued operation of the chassis. Precaución: Si uno de los ventiladores en la bandeja de ventiladores falla, debe reemplazarse la bandeja completa tan pronto como sea posible, para asegurar el funcionamiento continuo y adecuado del chasis.
	Red	One or more of the following conditions has occurred: <ul style="list-style-type: none"> • Temperature is out of range. • The fan controller has failed. • Two or more fans have failed.
MGMT	Green	Solid. The fabric card is operating properly.
	Amber	Blinking. The fabric card is saving data.
CPU	None	Power off.
	Amber	Blinking. Device in bootup process.
		Solid. Testing.
	Green	Blinking. Image starts running.
		Solid. Functional.
	Red	Solid. Processor in reset.
	Green and Amber	Blinking. Indicates that the module is in the process of shutting down.
	Amber and off	Alternating (67% on, 33% off). Indicates a shutdown is complete. The indication will hold for 60 seconds then automatically restart.

Fabric Card Port LEDs

You can view the receive and transmit activity on the RX and TX LEDs for the fabric card SFP+ ports. See [Figure 4-2](#).

Figure 4-2 Fabric Card Port LEDs

1 SFP+ RX LED

2 SFP+ TX LED

Table 4-2 describes the LED indications for the RX and TX LEDs for the fabric card SFP+ ports and provides recommended actions.

Table 4-2 Fabric Card Port LEDs

LED	Color	State	Recommended Action
RX (Receive)	None	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.
TX (Transmit)	None	Port enabled, but no activity.	If you know the port should be active and is not, contact Enterasys Technical Support.
	Green	Flashing. Indicates data transmission activity. Flashing frequency indicates the data rate.	None.
	Amber	Solid. Fault or error (collision).	None, unless activity is high; in which case, check for network configuration problems or a defective device.

Line Card Port LEDs

You can view the receive and transmit activity on the RX and TX LEDs for the line card RJ45, SFP, SFP+, and mini-RJ21 ports. See Figure 4-3 and Figure 4-4.

Figure 4-3 Line Card Port LEDs (RJ45, SFP, and SFP+)

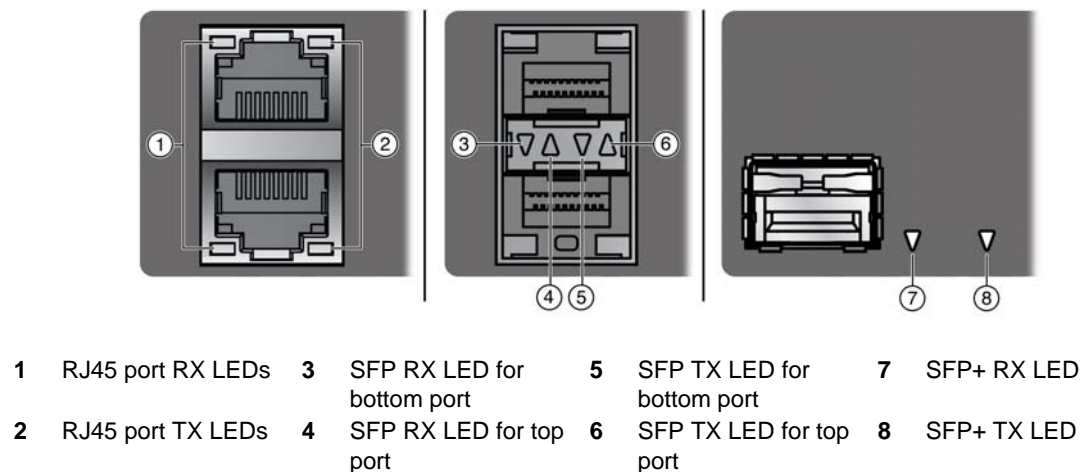
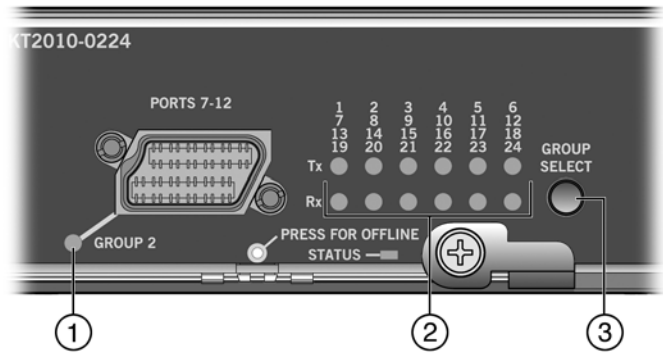


Figure 4-4 Line Card Port LEDs (Mini-RJ21)



- 1 GROUP LED
- 2 TX and RX LEDs
- 3 GROUP SELECT button

For K-Series line cards with mini-RJ21 ports, you can view the receive and transmit activity for only one group of ports at a time. The lit GROUP LED indicates the group of the ports for which the RX and TX LEDs are currently reporting activity.

To view the receive and transmit activity for a group of ports, press the GROUP SELECT button one or more times until the corresponding GROUP LED lights up.

Table 4-3 describes the LED indications for the RX and TX LEDs for the RJ45, SFP, SFP+, and mini-RJ21 ports and provides recommended actions.

Table 4-3 Line Card Port LEDs

LED	Color	State	Recommended Action
RX (Receive)	None	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.
TX (Transmit)	None	Port enabled, but no activity.	If you know the port should be active and is not, contact Enterasys Technical Support.
	Green	Flashing. Indicates data transmission activity. Flashing frequency indicates the data rate.	None.
	Amber	Solid. Fault or error.	None, unless activity is high; in which case, check for network configuration problems or a defective device.

Table 4-4 describes the LED indications for the RJ45 port RX and TX LEDs in PoE mode.

Table 4-4 RJ45 Port LEDs—PoE Mode

RX LED Color	TX LED Color	State
Green	None	There is a connection to the PD and there is 48VDC at the RJ45 connector.
None	Amber	Port is off due to overload (attached PD exceeded maximum load).

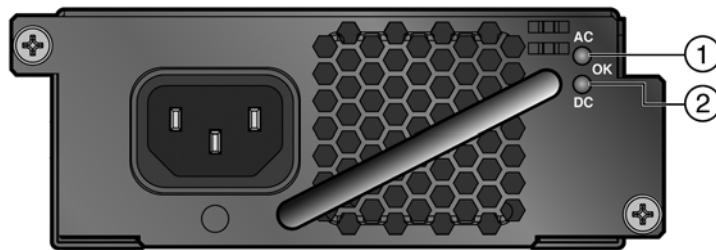
Table 4-4 RJ45 Port LEDs—PoE Mode (continued)

RX LED Color	TX LED Color	State
Amber	None	Port is off due to PoE power management.
None	None	Port is off due to another reason.

The POE LED, described in [Table 4-1](#) on page 4-1, indicates whether the RJ45 port LEDs are in PoE or RX/TX mode.

Power Supply LEDs

There are two LEDs on each K-Series AC power supply: a DC OK LED indicating the operational status of outgoing power and an AC OK LED indicating incoming AC line voltage is sufficient or has fallen below operational limits. Refer to [Figure 4-5](#) for the location of the power supply LEDs. [Table 4-5](#) describes the different states of the power supply LEDs.

Figure 4-5 Power Supply LEDs

1 AC OK LED

2 DC OK LED

Table 4-5 Power Supply LED Status Definitions

LED	LED Color	Status
AC OK	Green	Sufficient AC power supply (influx) Note: If the AC OK LED is green but the output of either the show system or the show system hardware CLI command indicates that the power supply is not installed, check the power supply to determine if it has been installed upside down. Figure 3-12 on page 3-14 shows the correct orientation of an installed power supply.
	Off	Power supply malfunctioning or unplugged
DC OK	Green	Power supply successfully providing 12 VDC to the system
	Off	Power supply malfunctioning, unplugged, or installed upside down

Troubleshooting Checklist

If the K10 chassis is not working properly, refer to [Table 4-6](#) for a checklist of problems, possible causes, and recommended actions to resolve the problem.

Table 4-6 Troubleshooting Checklist

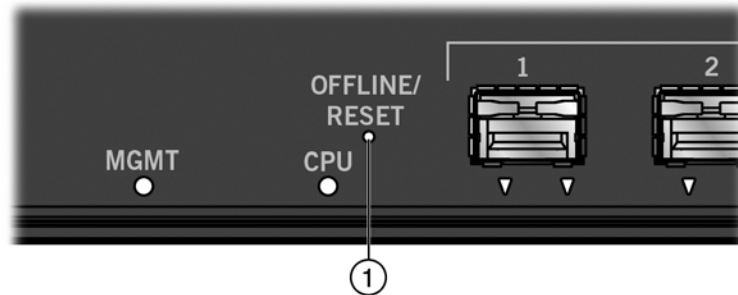
Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Ensure the K10 chassis was installed properly according to the installation instructions in Chapter 3, Chassis Setup , and that the chassis has power.
No Local Management Password screen.	Incorrect terminal setup.	Refer to the K-Series <i>Configuration Guide</i> for proper setup procedures.
	Improper console cable pinouts.	Refer to Appendix A, Specifications and Regulatory Compliance for proper COM port pinouts.
	Corrupt firmware image or hardware fault.	If possible, attempt to download the image to the K10 chassis again. Refer to Appendix C, Mode Switch Bank Setting and Memory Replacement 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 Appendix C, Mode Switch Bank Setting and Memory Replacement for instructions on how to set the mode switch to reset the username/password combination to the default values.
Cannot contact the K10 chassis through in-band management.	IP address not assigned.	See K-Series <i>Configuration Guide</i> for instructions to assign an IP address.
	Port is disabled.	Enable port. See K-Series <i>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 K-Series <i>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 K10 chassis are valid and operating. If the problem continues, contact Enterasys Networks for technical support.
Port(s) goes into standby for no apparent reason.	Loop condition detected.	Verify that Spanning Tree is enabled. Refer to the K-Series <i>Configuration Guide</i> for the instructions to set the type of STA. Review the network design and delete loops. If the problem continues, contact Enterasys Networks for technical support.
User parameters (IP address, device and device name, etc.) were lost when the K10 chassis power was cycled or the OFFLINE/RESET button was pressed.	Position of Mode switch (7), Persistent Data Reset, was changed sometime before either cycling power or pressing the RESET button, causing the user-entered parameters to reset to factory default settings. Clear Persistent Data that was set through Local Management.	Reenter the lost parameters as necessary. Refer to the K-Series <i>Configuration Guide</i> for the instructions to configure the device. If the problem persists, contact Enterasys Networks for technical support.

Using the OFFLINE/RESET Button

You can shut down K10 chassis using the OFFLINE/RESET button, shown in [Figure 4-6](#), which is on the K-Series fabric card. There are two procedures to shut down an K10 chassis:

- [Recommended Shutdown Procedure Using OFFLINE/RESET Button](#)
- [Last Resort Shutdown Procedure Using OFFLINE/RESET Button](#) (This procedure is not recommended)

Figure 4-6 Fabric Card OFFLINE/RESET Button



1 OFFLINE/RESET button

Recommended Shutdown Procedure Using OFFLINE/RESET Button

Before shutting off power to a K10 chassis, **press or tap** on its OFFLINE/RESET button for less than one second.

The fabric card CPU LED changes from solid green to blinking between green and amber, indicating that the K10 chassis 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 system is in a halt state. At this time it is safe to restart the K10 chassis.

When you initiate a controlled shutdown with the OFFLINE/RESET button, you have 60 seconds from the time the CPU LED starts flashing amber/off until the device automatically restarts.

Last Resort Shutdown Procedure Using OFFLINE/RESET Button



Caution: This method of shutting down a K10 chassis is not recommended except as a last resort, because all processes currently running on the K10 chassis will be interrupted resulting in loss of frames.

Precaución: No se recomienda utilizar este método para apagar un chasis K10. Recurra a él sólo como último recurso, puesto que interrumpe todos los procesos del chasis K10 en funcionamiento, lo que podría resultar pérdidas de frames.

To reset a K10 chassis without it performing an orderly shutdown routine, **press and hold** the OFFLINE/RESET button for approximately 6 seconds.



Specifications and Regulatory Compliance

This appendix provides operating specifications for the K10 chassis. Enterasys Networks reserves the right to change the specifications at any time without notice.

For MTBF information, refer to the following Enterasys Networks support Web site:

<http://secure.enterasys.com/support/mtbf/>

K10 Chassis Specifications

Table A-1 K10 Chassis Specifications

Item	Specification
Dimensions	48.13 cm W x 36.12 cm D x 31.00 cm H (7U) (18.95" W x 14.219" D x 12.219" H)
Weight	16.86 kg (37.20 lb)
Environmental Requirements	
Operating Temperature	5°C to 45°C (41°F to 113°F)
Storage Temperature	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity	5% to 90% (non-condensing)

Power Supply Specifications

K-AC-PS

Table A-2 K-AC-PS Power Supply Specifications

Item	Specification
Electrical	
Input Frequency	50 to 60 Hz
Input	100 to 120Vac 12A @ 12Vdc 50A/54Vdc14.8A 200 to 240Vac 10A @ 12Vdc 50A/54Vdc14.8A
Physical	
Weight	1.66 kg (3.65 lb)

K-AC-PS-1400W

Table A-3 K-AC-PS-1400W Power Supply Specifications

Item	Specification
Electrical	
Input Frequency	50 to 60 Hz
Input	100 to 120Vac 12A @ 12Vdc 50A/54Vdc14.8A 200 to 240Vac 10A @ 12Vdc 50A/54Vdc14.8A
Physical	
Weight	1.66 kg (3.65 lb)

K10-FAN Fan Tray Specifications

Table A-4 K10-FAN Fan Tray Specifications

Item	Specification
Weight	1.56 kg (3.45 lb)

Fabric Card Specifications

Refer to the data sheet for the specifications of the currently available K-Series fabric cards:

<http://www.enterasys.com/company/literature/k-ds.pdf>

Line Card Specifications

Refer to the data sheet for the specifications of the currently available K-Series line cards:

<http://www.enterasys.com/company/literature/k-ds.pdf>

Torque Values

[Table A-5](#) describes the recommended torque values to use when using standard threaded fastener machine screws and bolts.

Table A-5 Recommended Torque Values by Screw Size

Screw Size		Torque in Pounds			Bit Size
English	Metric	-%5	Nominal	+%5	
N/A	N/A	1.42	1.5	1.57	0
2 – 56	1.5	2.85	3.0	3.15	0
4 – 40	2.5	4.75	5.0	5.25	0/1
6 – 32	3.5	8.55	9.0	9.45	1
8 – 32	4.5	17.10	18.0	18.90	2
10 – 32	5	30.40	32.0	33.60	2
1/4 – 20	6.5	63.65	67.0	70.35	3

COM Port Pinout Assignments

The COM port is an RJ45 communications port for local access to local management. Refer to the [Table A-6](#) for the COM port pin assignments.

Table A-6 COM Port Pin Assignments

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

Regulatory Compliance

This product meets the safety, electromagnetic compatibility (EMC), and environmental requirements listed in [Table A-7](#).

Table A-7 Compliance Standards

Regulatory Compliance	Standard
Safety	UL 60950-1, FDA 21 CFR 1040.10 and 1040.11, CAN/CSA C22.2 No. 60950-1, EN 60950-1, EN 60825-1, EN 60825-2, IEC 60950-1, 2006/95/EC (Low Voltage Directive)
Electromagnetic Compatibility (EMC)	FCC 47 CFR Part 15 (Class A), ICES-003 (Class A), EN 55022 (Class A), EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZ CISPR-22 (Class A). VCCI V-3. CNS 13438 (BSMI), 2004/108/EC (EMC Directive)
Environmental	2002/95/EC (RoHS Directive), 2002/96/EC (WEEE Directive), Ministry of Information Order #39 (China RoHS)

About PoE (Power over Ethernet)

This appendix provides an overview of Power over Ethernet technology and how it is implemented in relation to the K-Series devices.

Overview

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

The K-Series chassis are fully compliant with the IEEE 802.3af and 802.3at standards. They support the standard resistor-based detection method, as well as AC disconnect capability.

Each PD has a PDC (Powered Device Classification) that is transmitted to the K-Series chassis for power management purposes. [Table B-8](#) lists the classifications and the associated power ranges.

Table B-8 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	Reserved	12.95 to 25.50 watts

Proprietary PD Detection

K-Series devices support a subset of the currently deployed proprietary PoE methods. This includes support for Cisco PDs, including a proprietary capacitor based detection scheme.

PoE Port Status LEDs

The PoE port status of each 10/100/1000 Mbps RJ45 port on a K-Series line card 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 K-Series line card from the default RX/ TX Status Mode to the PoE Port Status Mode using the red POE button on the K-Series fabric card.

Allocation of PoE Power to Devices

You can install up to four K-Series AC power supplies in the K10 chassis. Each K-Series AC power supply installed in the K10 chassis provides from 400 watts (at 120V) to 800 watts (at 240V) of PoE power to powered devices (PDs) attached to the 10/100/1000 Mbps RJ45 ports on the installed K-Series line cards.

For additional PoE power, you can connect two K-Series AC power supplies, installed in a K-POE-4BAY PoE shelf, to the K10 chassis. Each of these K-Series AC power supplies also provide from 400 watts (at 120V) to 800 watts (at 240V) of additional PoE power for powered devices (PDs) attached to the 10/100/1000 Mbps RJ45 ports on the installed K-Series line cards.

The K-Series firmware determines the power available for PoE based on power supply status and power supply redundancy mode. When any change is made to the power supply status or redundancy mode, the firmware recalculates the power available for PoE.

The power available for PoE is distributed based on the configured allocation mode:

- **Automatic** mode (default), in which available power is distributed evenly. Any change in available power, due to a change in power supply status or redundancy mode, will trigger an automatic redistribution of power.
- **Manual** mode, in which the power budget is manually configured, using either CLI commands or the MIBs. The wattage configured cannot exceed the total power available on the switch for PoE.

The configured wattage assignment is used to calculate the total available PoE power. If the total available PoE power changes, a redistribution of available power will occur, applying the calculated percentage.

If the PoE power needed or requested exceeds the power available, the system will generate a trap to notify the system manager.

For more information on configuring allocation mode, see the *Enterasys K-Series CLI Reference*.

Management of PoE Power to PDs

You can configure how the K-Series chassis makes power available to attached PDs:

- **Real-time** mode (default), in which the PoE controller calculates the power needed by a PD based on the actual power consumption of the attached devices.
- **Class** mode, in which the PoE controller manages power based on the IEEE 802.3at definition of the class limits advertised by the attached devices. In this mode, the maximum amount of power required by a device in the advertised class is reserved for the port, regardless of the actual amount of power being used by the device.

For more information on configuring power management mode, see the *Enterasys K-Series CLI Reference*.

Mode Switch Bank Setting and Memory Replacement



Electrical Hazard: Only qualified personnel should perform installation procedures.

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

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

This appendix covers the following items:

For information about...	Refer to page...
Required Tools	C-1
Setting the Mode Switches	C-1
Memory Location and Replacement Procedure	C-3

Required Tools

Use an ESD wrist strap to perform the procedures provided in this appendix.



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 C-1](#) on page C-2 shows the location of the mode switches on the fabric card. These switches are set at the factory and rarely need to be changed.

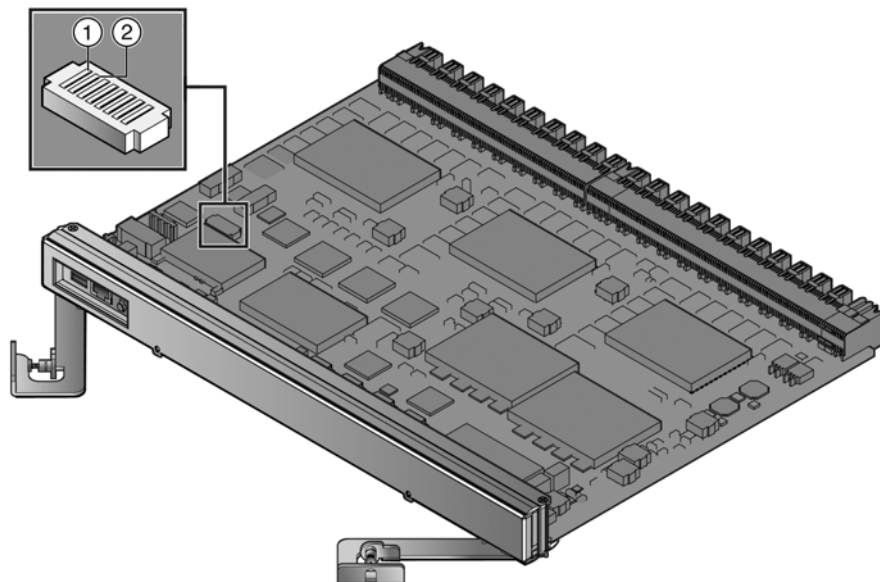
Switch definitions and positions are as follows:

- Switches 1–6: 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, system name, and so on, are reset to the factory default settings. Once the system 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 system. 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 C-1 Mode Switch Location on the Fabric Card



1 Switch 8

2 Switch 7

Before setting the mode switches, you must power down the fabric card and remove it from the K-Series chassis. See [“Installing and Removing the Fabric Card”](#) on page 3-21 for more information.

To set the mode switches:

1. Put on the ESD wrist strap and attach it to ground.
2. Power down and remove the fabric card from the chassis.
3. Place the fabric card on an anti-static pad on a sturdy, flat surface.
4. Reset the appropriate switch.
5. Reinstall the fabric card.

Memory Location and Replacement Procedure

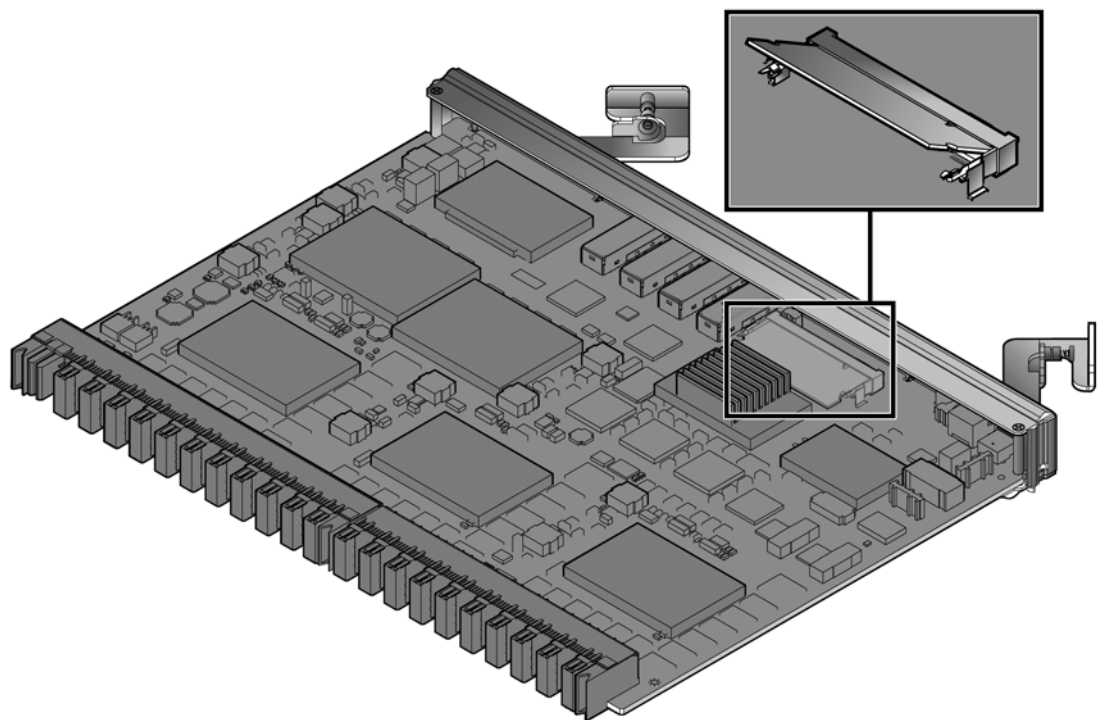
In the event that the Dual In Line Memory Module (DIMM) on the K-Series fabric card needs to be replaced, the following sections describe how to locate and replace the DIMM. If you have questions concerning the replacement of the memory module, refer to [“Getting Help”](#) on page xvii for details on how to contact Enterasys Networks.

Before replacing the memory module, you must power down the fabric card and remove it from the K-Series chassis. See [“Installing and Removing the Fabric Card”](#) on page 3-21 for more information.

Location of DIMM

[Figure C-2](#) shows the location of the Dual In Line Memory Module (DIMM) on the fabric card.

Figure C-2 DIMM Location on K-Series Fabric Card



Replacement Procedure

To remove and replace the existing DIMM:

1. Put on the ESD wrist strap and attach it to ground.
2. Power down and remove the fabric card from the chassis.
3. Place the fabric card on an anti-static pad on a sturdy, flat surface.
4. Push the connector arms away from the DIMM. The assembly pops up at an angle, as shown in [Figure C-2](#).
5. Remove the existing DIMM.
6. Gently push the new DIMM into the connector until the connector arms pull in toward the DIMM and the module locks into place.

7. Push down on the assembly to return it to its horizontal position flat on the board.
8. Reinstall the fabric card.

Purchasing Mini-RJ21 Cables

Enterasys Networks does not supply mini-RJ21 cables for the mini-RJ21 ports on the KT2010-0224 line card. You must purchase mini-RJ21 cables separately.

Enterasys Networks has approved Tyco and Belfuse mini-RJ21 cables for use with the KT2010-0224 line card. The following cables types are available:

- [Mini-RJ21 to Mini-RJ21](#)
- [Mini-RJ21 Angled to Mini-RJ21 Angled](#)
- [Mini-RJ21 to Mini-RJ21 Angled](#)
- [Mini-RJ21 to RJ45](#)
- [Mini-RJ21 Angled to RJ45](#)

Refer to the appropriate section for the Tyco and Belfuse part numbers for each cable type.

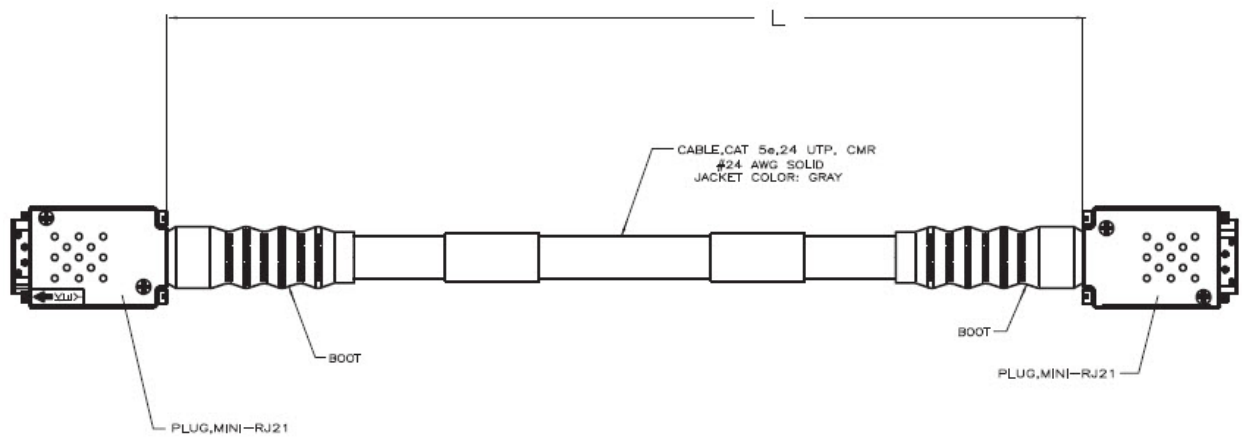


Note: In the Belfuse part numbers, the XXXX is a placeholder for the cable length in meters in 0.5 meter increments. For example, MRJ0060DD-A is a 6-meter mini-RJ21 to mini-RJ21 cable.

For information on how to find a Tyco or Belfuse distributor, see “[Distributors](#)” on page D-4.

Mini-RJ21 to Mini-RJ21

Figure D-1 Mini-RJ21 to Mini-RJ21

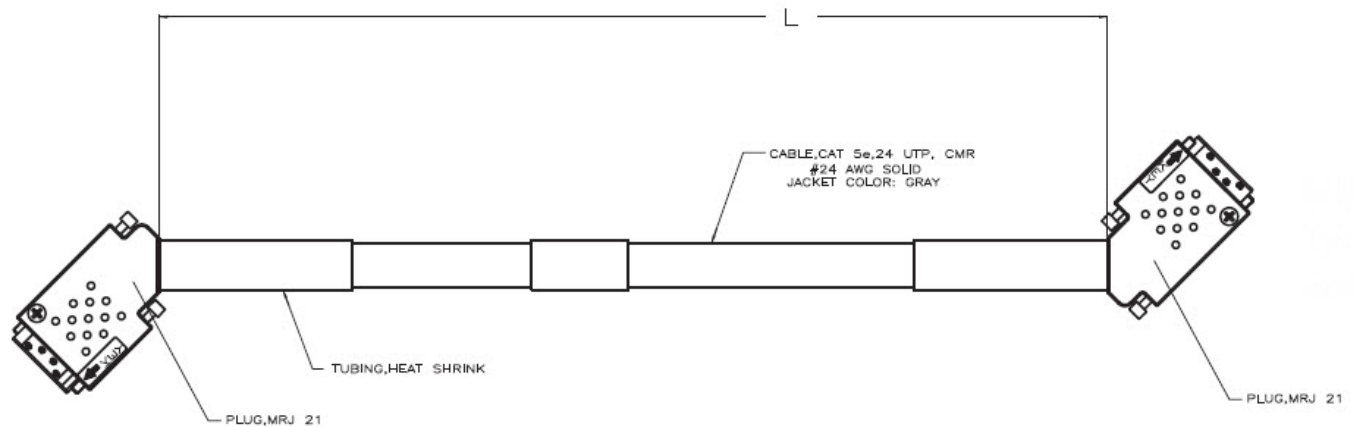


The following part numbers are approved:

- Tyco: TE 6812553-X
- BelFuse: MRJXXXXDD-A

Mini-RJ21 Angled to Mini-RJ21 Angled

Figure D-2 Mini-RJ21 Angled to Mini-RJ21 Angled

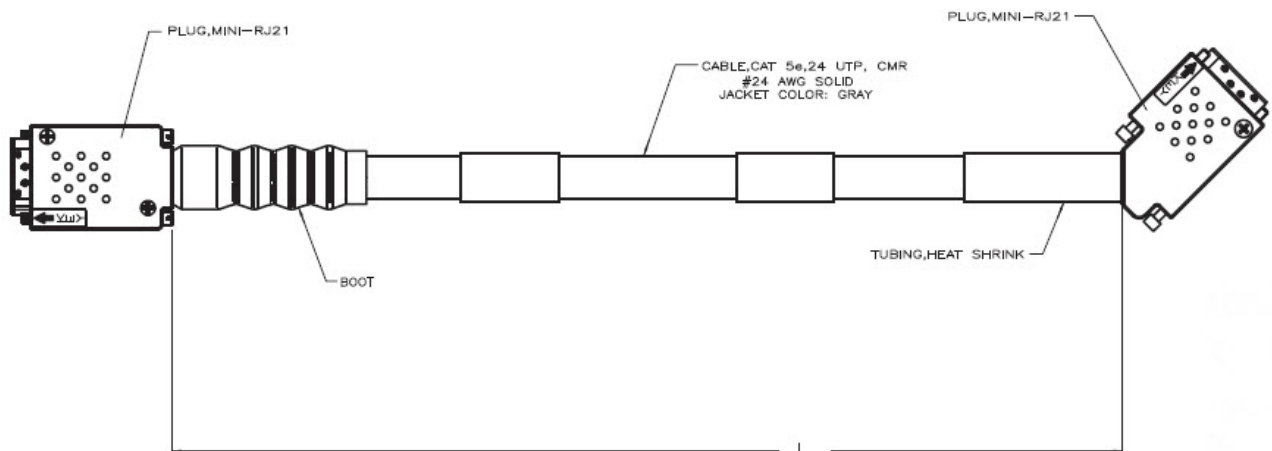


The following part numbers are approved:

- Tyco: TE 6751386-X
- BelFuse: MRJXXXXFF-A

Mini-RJ21 to Mini-RJ21 Angled

Figure D-3 Mini-RJ21 to Mini-RJ21 Angled

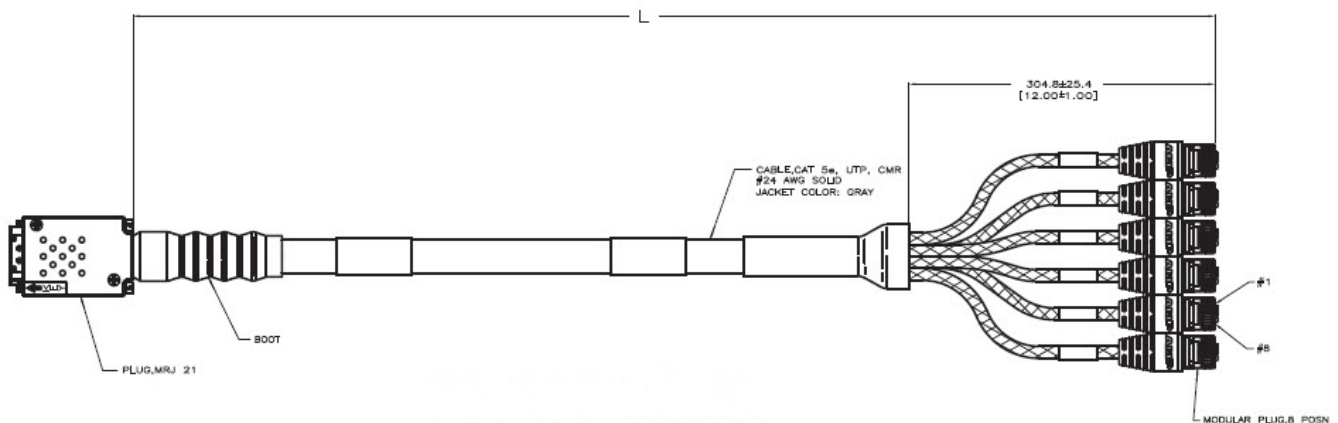


The following part numbers are approved:

- Tyco: TE 6837058-X
- BelFuse: MRJXXXXDF-A

Mini-RJ21 to RJ45

Figure D-4 Mini-RJ21 to RJ45

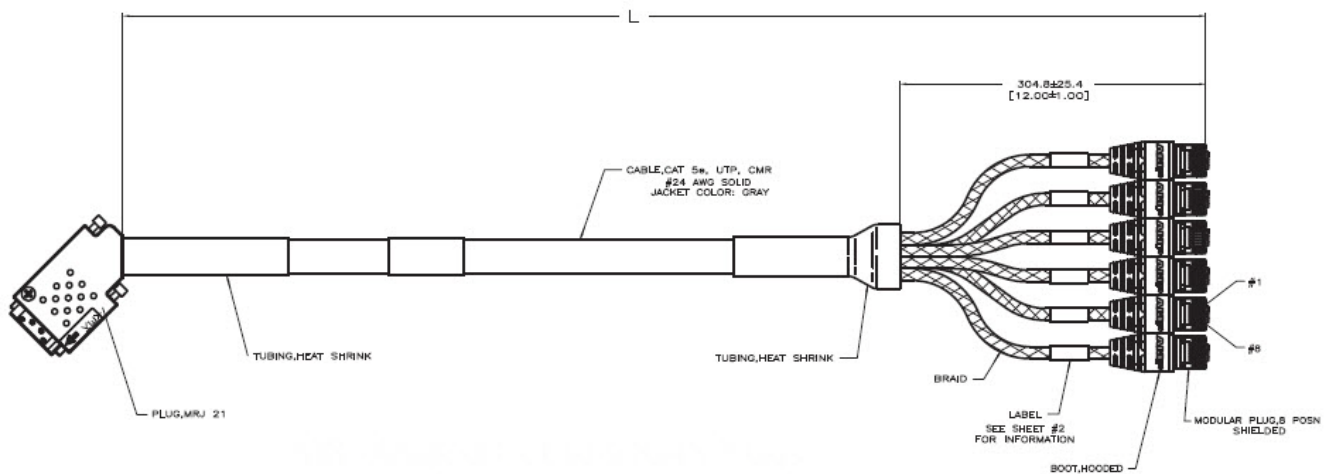


The following part numbers are approved:

- Tyco: TE 1499520-X
- BelFuse: MRJXXXXAD-A

Mini-RJ21 Angled to RJ45

Figure D-5 Mini-RJ21 Angled to RJ45



The following part numbers are approved:

- Tyco: TE 6713358-X
- BelFuse: MRJXXXXAF-A

Distributors

For more information about purchasing mini-RJ21 cables, contact a Tyco or Belfuse distributor.

- Tyco: <http://www.ampnetconnect.com/resources/>
- Belfuse: <http://www.belfuse.com/FindARep.asp>



Environmental Guidelines

Enterasys Networks provides high quality and reliable products. To ensure customer satisfaction and the continued reliable operation of our products, installation and operation must comply with the environmental guidelines as described in our product documentation. This document references limits on operating temperature and humidity. Failure to operate the equipment in these prescribed ranges can result in reduced performance and damaged equipment. Failure to comply with these limits and guidelines may void the product warranty and it may also exclude the equipment from support entitlements of any applicable maintenance contract agreements. The following information describes these limits and recommendations in further detail.

Temperature and Humidity Guidelines

Operating Temperatures

All equipment must operate within the prescribed temperature and humidity ranges specified in Enterasys documentation. Operation of the equipment outside these limits may result in damaged equipment and/or reduced performance and reliability. This may require reliable, monitored and 24x7 operation of climate control systems (heating and air conditioning).

Inlet Air Temperature Measurement

Operating temperature maximums and minimums are limits on the ambient air temperature entering the switching equipment. This area is located within 1 inch of the main equipment inlet. This is not necessarily the same air temperature throughout the room.

Cooling Air

Many Enterasys switches utilize a side to side airflow method for cooling. Careful consideration is needed when mounting this equipment. Proper inlet and exit spaces must be allowed to get fresh, cool air into the equipment and to allow hot exhaust air to exit away from the equipment. Blocked venting can result in an overheating condition that can damage the equipment. Pay close attention to cable ingress and egress routing to verify that cabling is not blocking venting.

Power Conditioning

Enterasys products are rated to be used with internationally accepted AC input parameters. It is important that these parameters are monitored and verified to operate as expected for the ratings that apply to the equipment installed. Surges and excessive noise outside of these prescribed ranges in the power circuits feeding this equipment may cause permanent damage to the equipment installed and must be monitored and prevented.

Airflow Concerns for Closed Racks

When placing Enterasys switches into enclosed racks, rack exhaust fans must be considered if the rack does not contain adequate inlet and exit venting. These fans may be needed to help exhaust hot air from the rack. They must be sized properly to exhaust the collective volumetric flow from all equipment within the rack.

Figure E-1 illustrates the ideal configuration for a fully vented closed rack. All panels are vented, and side-to-side cooled sub-systems are flowing in the same direction.

Cool air ingress through the bottom of the rack must be carefully allowed to enhance overall system airflow and prevent stagnant air recirculation. This may need to be confirmed through thermal testing at the installation site.

Figure E-1 Closed Rack Ideal Configuration

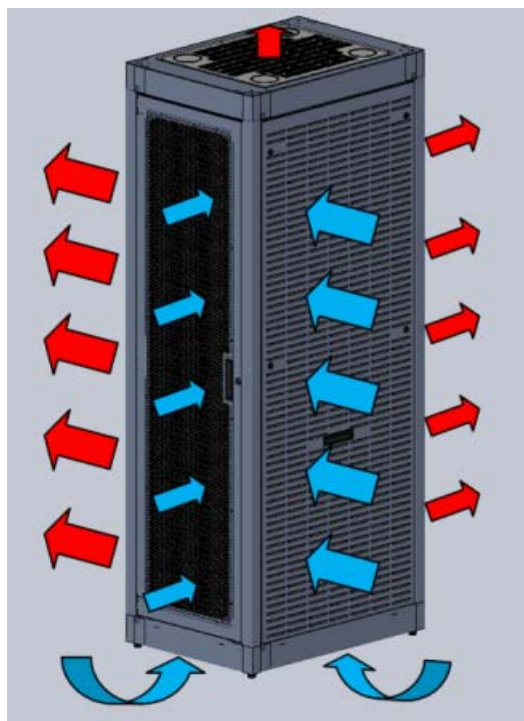


Figure Key



Blue arrows indicate cool air ingress



Red arrows indicate hot air egress



White arrows indicate airflow through the system

Airflow Concerns for Open Racks

Equipment with different air flow cooling patterns, such as front to back or side to side, can present special concerns. Recirculation of heated air through equipment is unwanted because it increases the inlet temperature which causes the equipment components to operate at elevated temperatures. Likewise, equipment in neighboring racks must be planned to prevent hot air exhaust from one system being pulled into the inlet of an adjacent system.

Figure E-2 illustrates the ideal configuration for an open rack. All sub-systems flow in the same direction, as shown by the white arrows.

Figure E-2 Open Rack Ideal Configuration

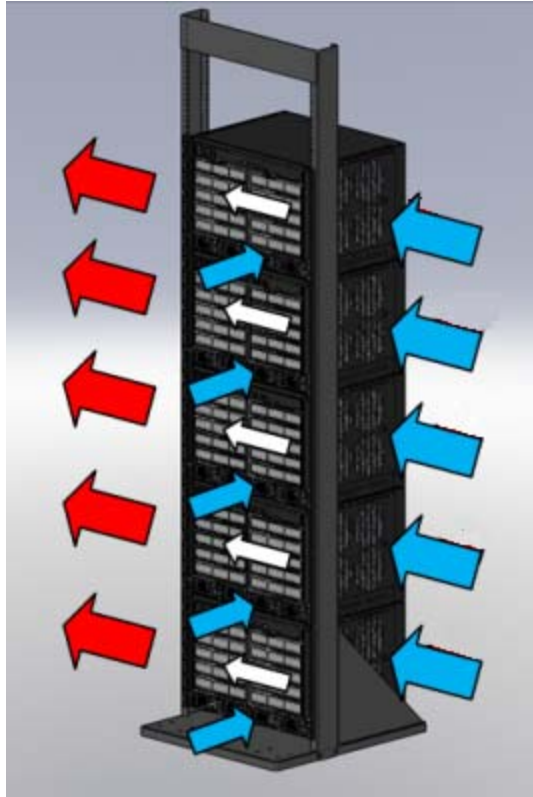
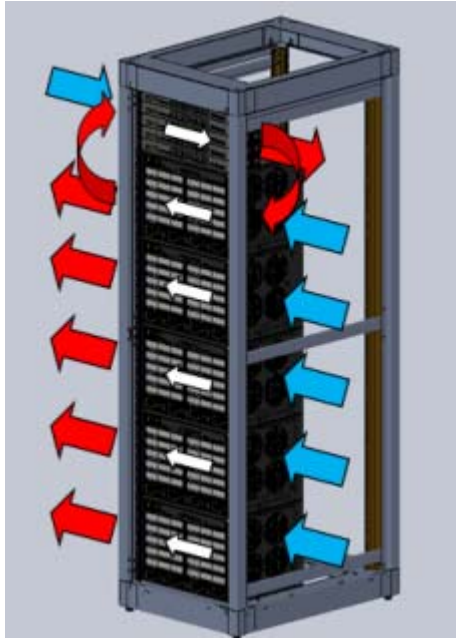


Figure E-3 on page E-4 below shows a non-ideal configuration for an open rack, where sub-systems with mixed flow directions (white arrows) are combined in one rack. Circular red arrows show potential for hot air recirculation.

Figure E-3 Non-ideal Open Rack Configuration



Non-ideal flows should be avoided or mitigated and confirmed through thermal testing.

Figure E-4 below shows a non-ideal open rack configuration containing sub-systems with mixed flow directions (white arrows). This configuration shows mitigation of potential hot air recirculation by leaving a gap in the rack population.

Figure E-4 Mitigated Non-ideal Open Rack Configuration

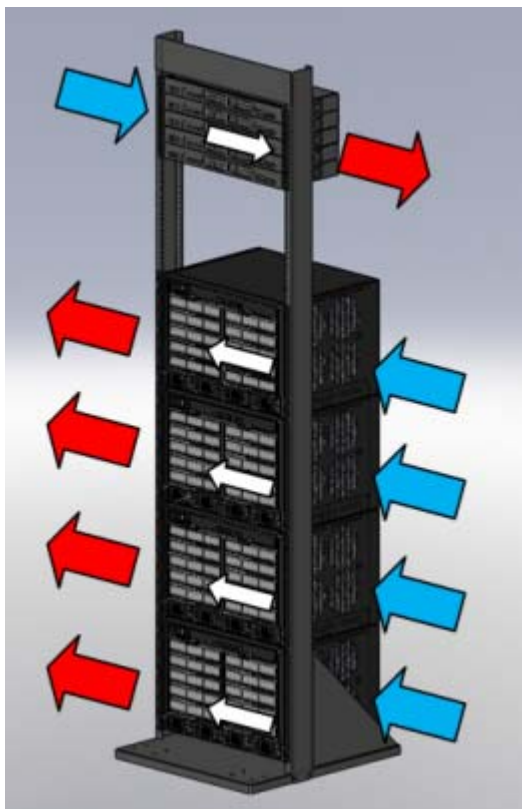
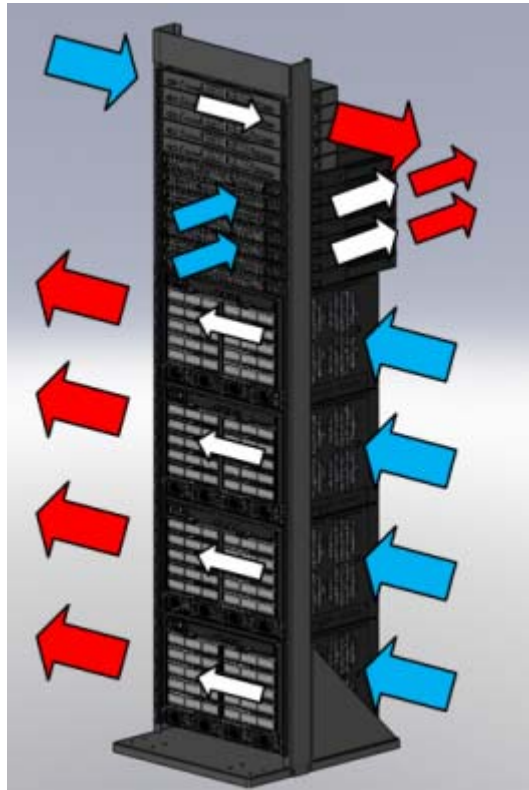


Figure E-5 below shows another mitigation strategy for open racks containing sub-systems with mixed flow direction. Mitigation of potential hot air recirculation is achieved by separating unlike systems with products having front to back airflow patterns.

Figure E-5 Another Mitigated Non-ideal Open Rack Configuration



Dust Mitigation and Prevention

Dust accumulation on inlet and exit venting is not uncommon after prolonged use. In dustier environments this accumulation can be much quicker.

Enterasys strongly recommends routine maintenance to check for clean inlet and exit vents on this equipment. Over time, dust accumulation can create vent blockages, thereby decreasing airflow and increasing component temperatures, resulting in reduced reliability. Recommended maintenance should start with monthly inspections and be adjusted based on dust accumulation levels.

Table E-1 on page E-6 notes the maximum dust and debris accumulation limits for room environments as a reference.

Table E-1 Airborne Dust Specification for Enterasys Equipment — Airborne Dust Maximum Values

Dust	Guidelines
All/Total Airborne Particles (TSP-Dichot 15): ¹	20 µg/m ³
PM10/Coarse Particles (2.5 to 15 microns): ^{1,2}	Preferred ¹ : <10 µg/m ³ Maximum ² : 20 µg/m ³
PM2.5/Fine particles (< 2.5 microns): ²	10 µg/m ³

1 Value from NEBs GR-63-CORE issue #3 table 4-12.

2 Recommended value by WHO (World Health Organization) for 2005 air quality.

3 TSP-Dichot 15 = Total Suspended Particulates as determined using a Dichotomous sampler with a 15 micron inlet.

4 µg/m³ = micro grams per cubic meter.

5 Note: The equipment will operate at higher levels than listed above. However, the higher levels can decrease the products' service life.

Dust removal from the equipment is a required part of maintenance. When removing dust:

- Use proper ESD precautions
- Use a vacuum that is properly grounded through a cord having an equipment-grounding conductor and grounding plug

Carefully vacuum the dust particles from the inlet and exit venting of the equipment to allow for proper air flow and ventilation.

Please contact Enterasys Technical Support for additional information about external filter options.

Airborne Chemicals and Prevention

Various airborne chemicals and contaminants can cause corrosion and thus decrease the service life of most vendors' equipment. To reduce the risk of such corrosion, locate the equipment only in areas that are safe for human occupation.

For more product information and documentation, go to:

<https://extranet.enterasys.com/downloads>