Enterasys® A4

Fast Ethernet Switch

Hardware Installation Guide

A4H124-24FX

A4H254-8F8T

P/N 9034608-01

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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Andover, MA 01810

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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.

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AS/NZS CISPR 22

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

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

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

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

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 explosion si la bateria se reemplaza con el typo 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.

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Safety Information
Class 1 Laser Transceivers

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

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

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

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

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

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

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

Safety Compliance

Warning: Fiber Optic Port Safety

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.

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

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

Warnhinweis: Faseroptikanschlüsse - Optische Sicherheit

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** **London Road, Newbury** **Berkshire RG14 2PZ, England**
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.**

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

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

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

Contents

Chapter 3: Troubleshooting

Appendix A: Specifications

Tables

Figures

About This Guide

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys® A4 Fast Ethernet switches.

For information about the Command Line Interface (CLI) set of commands used to configure and manage the A4 switches, refer to the *Enterasys A4 CLI Reference*.

This preface provides an overview of this guide and the A4 manual set, and explains the symbols used throughout this guide.

Who Should Use This Guide

This guide is intended for a network administrator responsible for installing and setting up the stackable switches.

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.

How to Use This Guide

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

This guide provides information about the following:

For...	Refer to...
An overview of the A4 features.	Chapter 1, **Introduction**
Instructions to install the A4 on a flat surface or in a standard 19-inch rack, and configure the A4 in a stacked configuration.	Chapter 2, **Installation**
Troubleshooting installation problems and diagnosing network/operational problems using the LEDs	Chapter 3, **Troubleshooting**
Specifications, environmental requirements, and physical properties of the A4 and optional pluggable transceivers	**Appendix A**, **Specifications**

Related Documents

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

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

- *Enterasys A4 CLI Reference* describes how to use the Command Line Interface (CLI) to set up and manage the switches.

- Enterasys *Feature Guides* describe how to configure some of the most important features of the switch firmware.

Conventions Used in This Guide

The following conventions are used in this guide:

Note: Calls the reader's attention to any item of information that may be of special importance.

Caution: Contains information essential to avoid damage to the equipment.

Precaución: Contiene información esencial para prevenir dañar el equipo.

Achtung: Verweißt auf wichtige Informationen zum Schutz gegen Beschädigungen.

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

Riesgo Electrico: Advierte contra una acción que pudiera resultar en lesión corporal o la muerte debido a un riesgo eléctrico.

Elektrischer Gefahrenhinweis: Warnung vor sämtlichen Handlungen, die zu Verletzung von Personen oder Todesfällen – hervorgerufen durch elektrische Spannung – führen können!

Warning: Warns against an action that could result in personal injury or death.

Advertencia: Advierte contra una acción que pudiera resultar en lesión corporal o la muerte.

Warnhinweis: Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!

Power Supply Replacement Part Numbers

The power supplies that can be used by the stackable switches are being transitioned to new part numbers. The following table lists the old part numbers and their direct replacement part numbers.

Old Part Number	Direct Replacement Part Number
C2RPS-PSM	STK-RPS-150PS
C2RPS-CHAS8	STK-RPS-150CH8
C2RPS-CHAS2	STK-RPS-150CH2
C2RPS-SYS	STK-RPS-150CH8 and STK-RPS-150PS
C2RPS-POE	None

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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: www.enterasys.com/support/
Email	support@enterasys.com To expedite your message, please type **[A-Series]** in the subject line.
	To send comments or suggestions concerning this document to the Technical Publications Department: techpubs@enterasys.com To expedite your message, include the document part number in the email message.

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

1

Introduction

This chapter introduces the Enterasys A4 Fast Ethernet stackable switches.

Overview

The A4 Fast Ethernet switches are store and forward stackable switches that can be adapted and scaled to help meet your network requirements. These stackable switches provide a management platform and an uplink to a network backbone for a stacked group of up to eight A4 switches.

You can also use a redundant power supply with these switches to help prevent downtime due to an internal power supply failure in the switch or AC power source.

You can install the stackable switch on a flat surface or into a standard 19-inch rack, and configure the stackable switch functions using the WebView™ application, CLI switching commands, and/or SNMP.

The A4 stackable switch can connect to Ethernet networks or workstations through RJ45 connectors, SFP ports, or Gigabit Ethernet ports, depending on your model's configuration. The SFP ports support optional pluggable transceivers, which are hot swappable. The 1000Base-T built-in RJ45 stacking ports on the A4 switches can be configured as standard 10/100/1000Base-T switch ports when the unit is in standalone mode (not stacked).

For pluggable transceiver compatibility and specifications, refer to the datasheet at http://www.enterasys.com/products/transceivers-ds.pdf.

Table 1-1 lists the number of ports and port types for the A4 switches.

Table 1-1 A4 Switch Port Types

A4 Model	Ports
A4H124-24FX (see Figure 1-1 on page 1-2)	• 24 100Base-FX MT-RJ ports • Two 10/100/1000Base-T RJ45 ports which can be used as stacking ports or as Ethernet uplink ports (labeled 25 and 26) • Two Gigabit Ethernet SFP ports (labeled 27 and 28)

Table 1-1 A4 Switch Port Types (continued)

A4 Model	Ports
A4H254-8F8T (see Figure 1-2 on page 1-2)	• Eight 10/100Base-T ports (labeled odd numbers 1 – 15) • Eight 100Base-FX MT-RJ ports (labeled even numbers 2 – 16) • Two 10/100/1000Base-T RJ45 ports which can be used as stacking ports or as Ethernet uplink ports (labeled 17 and 18) • Two Gigabit Ethernet SFP ports (labeled 19 and 20)

Notes: Each SFP port supports the installation of 1000BASE-SX, 1000BASE-LX, or 1000BASE-T SFP pluggable transceivers.

Figure 1-1 A4H124-24FX Front Panel

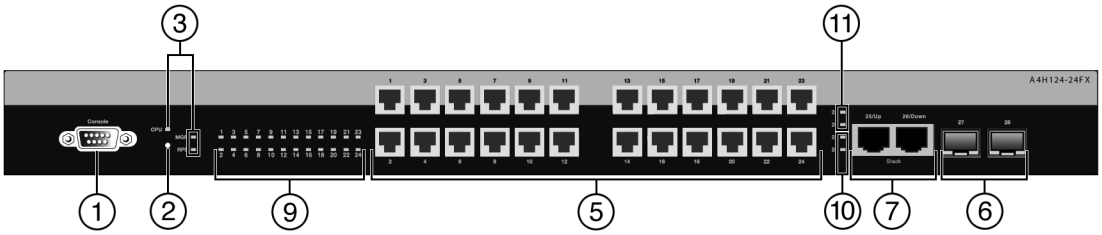
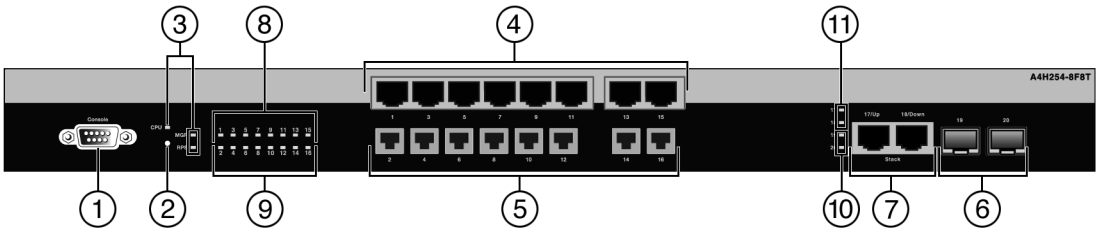


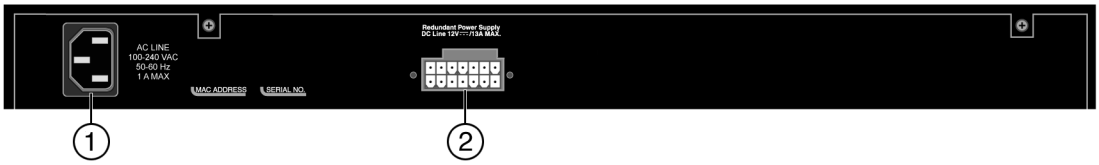
Figure 1-2 A4H254-8F8T Front Panel



1 Console port
2 Password reset button
3 Switch status LEDs
4 RJ45 10/100 Mbps ports
5 MT-RJ fiber optic ports
6 SFP slots
7 RJ45 10/100/1000 stack/uplink ports
8 RJ45 port status LEDs
9 MT-RJ port status LEDs
10 SFP port status LEDs
11 RJ45 stack/uplink port status LEDs

Figure 1-3 shows the back panel of the A4 switches.

Figure 1-3 A4 Switch Back Panel



1 AC power input connector
2 Redundant power supply connector

Features

Stack Connections

The switches have front panel RJ45 ports for connections in a stack configuration. The stacking cables used for the connections must be standard Category 5 or better UTP cable.

Redundant Power Supply Capability

The A4 has power supply redundancy capability when connected to an optional external redundant power supply:

- STK-RPS-150PS, a 150 watt DC power supply for redundant power for A4 switches.

If the internal power supply fails, the RPS automatically assumes the role of the internal power supply without interrupting network traffic. The internal power supply and RPS each have their own AC power connection, which enables the connection of each power supply to a different AC power circuit for additional AC power source redundancy.

Management

Management of the switch can be either in-band or out-of-band. In-band remote management is possible using Telnet, Enterasys Networks' NetSight® management application, or the WebView application. Out-of-band management is provided through the DB9 Console port connector on the front panel using a VT100 terminal or a VT100 terminal emulator.

Switch Configuration Using WebView

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

Switch Configuration Using CLI Commands

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

For CLI command set information and how to configure the module, refer to the *Enterasys A4 CLI Reference*.

Standards Compatibility

The 100BASE-T ports are compliant with the following standards and operations:

- IEEE 802.3
- IEEE 802.3u
- IEEE 802.3ab (Stack Ports)
- IEEE 802.3ad
- Full-Duplex operation

In addition to the 100BASE-T standards, the SFP ports are compliant with the following standards and operations:

- IEEE 802.3z
- IEEE 802.3x Flow Control support for Full-Duplex mode

- Auto-negotiation for Full-Duplex control operation

2

Installation

Electrical Hazard: Only qualified personnel should perform installation procedures.

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

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

Important Notice

Read the Release Notes for the latest A4 firmware release for your A4 switch to check for any exceptions to the supported features and operation documented in this guide.

This chapter provides instructions to install the A4. Unless otherwise noted, the instructions apply to all A4 models. Follow the order of the sections listed below to correctly install the switch.

Considerations Prior to Installation

When installing the switch, note the following:

- Before starting the installation procedure, notify the network administrator of the installation.
- Follow the installation procedures in the order as presented in this guide.
- Do not connect the switch to the network until you have established the correct IP address.

Required Tools

A Phillips screwdriver is required to install the switch into a rack.

Unpacking the Switch

Unpack the switch as follows:

1. Open the box and remove the packing material protecting the switch.
2. Verify that the contents of the carton contains the items listed in the table below.

Item	Quantity
A4 switch	1
Mounting kit, consisting of two mounting brackets and eight M3x6-mm screws for rack mounting	1
Rubber feet with adhesive backing for installation on a flat surface	4
AC power cord (The type of power cord is country dependent.)	1
DB9 female-to-DB9 female Console Cable	1
Quick Start Guide	1

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

Installing the Switch on a Flat Surface

When installing the switch on a flat surface, the installation of the rubber feet is recommended to prevent the switch from sliding on a flat surface. For instructions to rack mount the switch, proceed to "Rack Mounting the Switch" on page 2-3.

Installing the Rubber Feet

Note: Do not install the rubber feet if you are going to rack mount the switch.

To install the rubber feet:

1. Place the switch on its back on a sturdy flat surface to gain access to the bottom of the chassis.
2. Remove the four rubber feet from their plastic bag in the shipping box.
3. Remove the protective strip from the back of one rubber foot and position it on a corner and press firmly into place.

   Repeat this procedure to install the remaining three rubber feet in the other three corners.
4. After installing the rubber feet, return the switch to its upright position.

   If a number of switches are being installed in a stack, repeat steps 1 through 4 to install the rubber feet on each switch before continuing with the installation.

5. Proceed to "Guidelines for Flat Surface Installation" on page 2-3. For a rackmount installation, proceed to "Rack Mounting the Switch" on page 2-3.

Guidelines for Flat Surface Installation

Locate the switch within 182.88 cm (6 ft) of its power source and on a surface as shown in Figure 2-1 on page 2-3. If an optional redundant power system is going to be installed and connected to the 14-pin Redundant Power Supply input connector on the rear of the switch, refer to "Installing and Connecting a Redundant Power System" on page 2-10.

Caution: To ensure proper ventilation and prevent overheating, leave a minimum clearance space of 5.1 cm (2.0 in.) at the left and right of the switch.

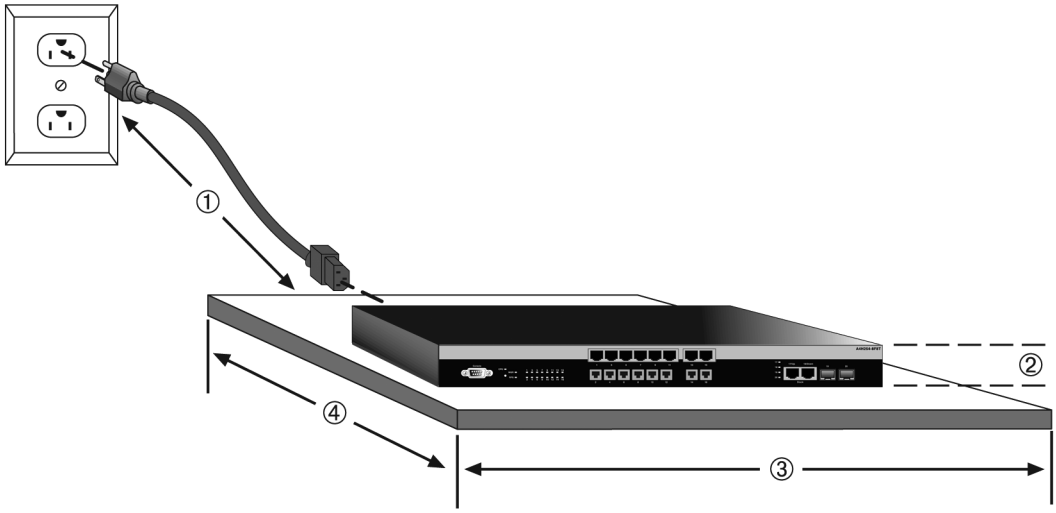
Do not connect the switch to the AC power source until instructed to do so later in the installation process.

Precaución: Para asegurar una buena ventilación y evitar que el sistema se sobrecaliente, deje un espacio mínimo de 5.1 cm (2 pulgadas) con respecto a los lados y a la parte posterior del aparato.

No conecte el dipositivo a la fuente primaria hasta que no se le indique.

If you are installing several switches in a stack, proceed to "Connecting Stacking Cables" on page 2-5. If the switch is being installed as a standalone switch, proceed to "Connecting AC Power" on page 2-9 for power connection instructions.

Figure 2-1 Area Guidelines for Switch Installation on Flat Surface



1 Approximately 152 cm (5 ft) from power source
2 4.45 cm (1.75 in.) per switch. (Vertical clearance depends on number of switches stacked.)
3 44.5 cm (19.4 in.) for proper ventilation
4 41.9 cm (16.5 in.) for proper ventilation

Rack Mounting the Switch

To install the switch in a 19-inch rack, you need:

- Two rackmount brackets and mounting screws (rackmount kit) shipped with the switch.
- Four customer-supplied screws to attach the switch to a standard 19-inch rack.

Guidelines for Rackmount Installation

The installation site must be within reach of the network cabling and meet the requirements listed below:

- Appropriate grounded power receptacles must be located within 152 cm (5 ft) of the location.
- A temperature of between 0°C (32°F) and 50°C (122°F) must be maintained at the installation site with fluctuations of less than 10°C (18°F) per hour.

Note: To ensure proper ventilation and prevent overheating, leave a minimum clearance space of 5.1 cm (2.0 in.) at the left and right of the switch.

Warning: Before rack-mounting the switch, ensure that the rack can support it without compromising stability. Otherwise, personal injury and/or equipment damage may result.

Advertencia: Antes de montar el equipo en el rack, asegurarse que el rack puede soportar su peso sin comprometer su propia estabilidad, de otra forma, daño personal o del equipo puede ocurrir.

Warnhinweis: Überzeugen Sie sich vor dem Einbau des Gerätes in das Rack von dessen Stabilität, ansonsten könnten Personenschäden oder Schäden am Gerät die Folge sein.

Note: Do not install the rubber feet if you are rack mounting the switch.

Attaching the Brackets and Installing in a Rack

Proceed as follows to install the switch into a 19-inch rack:

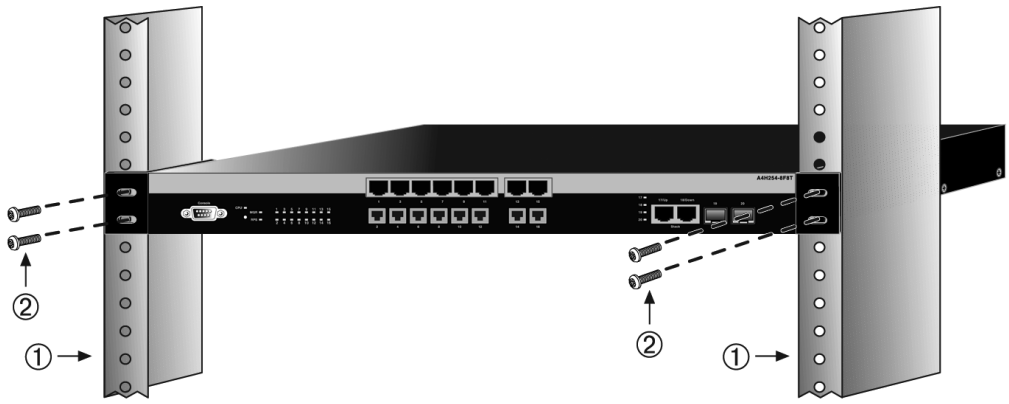
1. Attach the rackmount brackets to the switch, as shown in Figure 2-2, using the eight M3x6 mm flathead screws shipped with the switch.

Figure 2-2 Attaching the Rackmount Brackets

1 Rackmount brackets **2** M3x6 mm flathead screws

2. With the mounting brackets attached, position the switch between the vertical frame members of the 19-inch rack as shown in Figure 2-3. Then fasten the switch securely to the frame using four customer-supplied mounting screws.

Figure 2-3 Fastening the Switch to the Rack



1 Rails of 19-inch rack **2** Mounting screws (customer-supplied)

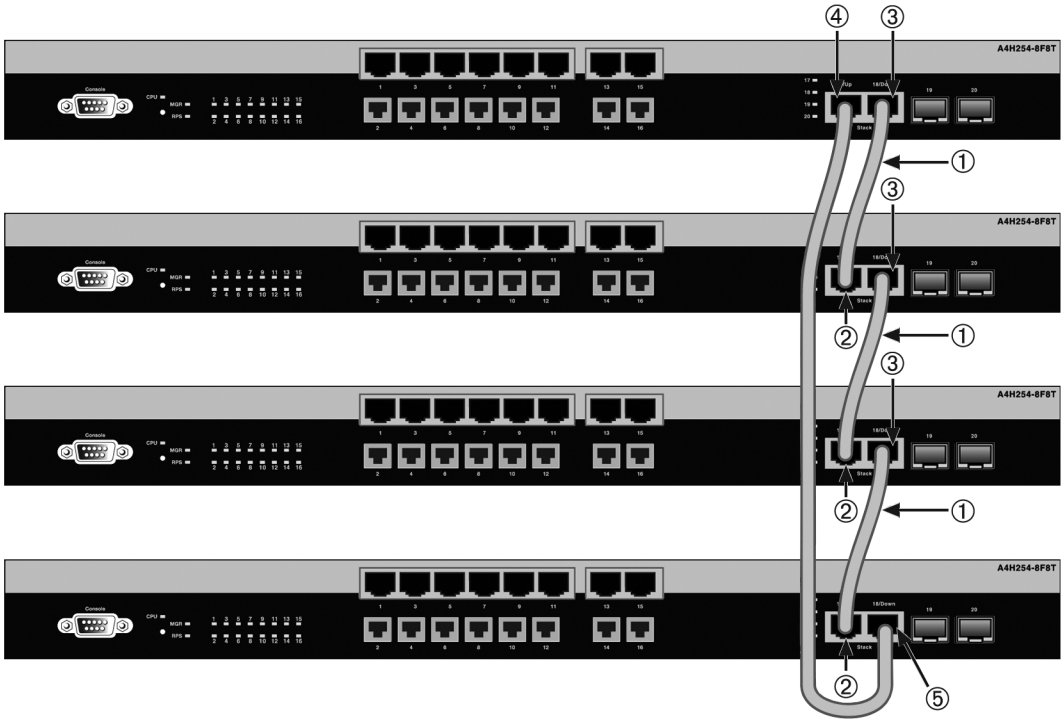
3. If you are installing this switch in a stacked configuration, repeat this procedure for each switch until all switches have been installed in the stack, then proceed to "Connecting Stacking Cables" on page 2-5. Otherwise, proceed to "Connecting AC Power" on page 2-9.

Connecting Stacking Cables

The stack of switches can be connected in a closed loop or daisy chained. In a closed loop all the switches are connected in sequence and the last switch in the stack is connected back to the first switch. In a daisy chain configuration the cable that would return the connection back to the first switch in a closed loop is not installed. The advantage of the closed loop is redundancy, this configuration eliminates any single point of failure. Up to eight switches can be stacked together and connected by standard UTP Category 5 or better cables. The stacking cables allow the entire stack to operate with a single IP address.

Figure 2-4 shows an example of a four-high stack connected in a closed loop configuration. All STACK DOWN and STACK UP connectors are used in the installation. The stacking cable connections are from the STACK DOWN connector of one switch to the STACK UP connector of the next switch up in the stack. A stacking cable connection from the STACK DOWN connector of the switch at the top of the stack to the STACK UP connector at the bottom of the stack closes the loop. In a daisy chain configuration, one cable connection is not made.

Figure 2-4 High-Speed Stacking Cable Connections



1 Category 5 or better UTP cable
2 STACK UP connector
3 STACK DOWN connector
4 STACK UP connector at top of stack
5 STACK DOWN connector at bottom of stack

After connecting the cables to the stacking ports, proceed to "Configuring Switches in a Stack" on page 2-7 for instructions.

Configuring Switches in a Stack

The information in the following sections is important to understand A4 switch operation and installations in a stack configuration.

About A4 Switch Operation in a Stack

The A4 switches are stackable switches that can be adapted and scaled to help meet your network needs. These switches provide a management platform and uplink to a network backbone for a stacked group of up to eight A4 switches.

Note: You can stack an A4H model switch only with other A4H model switches. You cannot stack an A4H model switch with switches that are not A4H model switches. That is, A4 switches do NOT stack with A2 switches.

Once installed in a stack, the switches behave and perform as a single switch. As such, you can start with a single switch and add more switches as your network expands. You can also mix different products in the A4H family in a single stack to provide a desired combination of port types and functions to match the requirements of individual applications. In all cases, a stack of switches performs as one large product, and is managed as a single network entity.

When switches are installed and connected as described in "Connecting Stacking Cables" on page 2-5, the following occurs during initialization:

- The switch that will manage the stack is automatically established and is referred to as the manager switch.
- All other switches are established as member switches in the stack.
- The hierarchy of the switches that will assume the function of backup manager is also determined in case the current manager malfunctions, is powered down, or is disconnected from the stack.
- The Console port on the manager switch remains active for out-of-band (local) switch management, but the Console port on each member switch is deactivated. This enables you to set the IP address and system password using a single Console port. Now each switch can be configured locally using only the manager's Console port, or in-band using a remote device and the CLI set of commands described in this section. For procedures used for various types of connections to the Console port, refer to "Connecting to the Console Port for Local Management" on page 2-18.

Once a stack is created (more than one switch is interconnected), the following occurs:

1. Switch (unit) IDs are arbitrarily assigned on a first-come, first-served basis.
2. Switch IDs are saved against each module. Then, every time a switch is power-cycled, it will initialize with the same switch ID. This is important for port-specific information (for example: fe.4.12 is the 12th Fast Ethernet port on switch number 4).
3. The management election process uses the following precedence to assign a manager switch:
   a. Previously assigned/elected manager switch
   b. Management assigned priority (values 1–15)
   c. Hardware preference level
   d. Highest MAC Address

Stack Manager Selection

When you install and connect all the high-speed stacking cables to the switches in the stack, the following occurs once power is applied to the switches:

- The switch that will manage (manager) the stack is automatically established with all other switches established as member switches in the stack. When the switches complete their initialization, one of the switches in the stack will illuminate its MGR LED, indicating that it is the stack manager. The MGR LED on each member switch will be off.
- The hierarchy of the switches that will function as backup manager is also determined in case the current manager malfunctions, is powered down, or is disconnected from the stack.
- The Console port on each member switch is deactivated. Only the Console port on the manager switch is active for out-of band configuration to set the IP address, password, and other configuration settings.

Once you know which switch is the manager, proceed to "Connecting to the Console Port for Local Management" on page 2-18.

Recommended Procedures for New and Existing Stacks

Important

The following procedures assume that all switches have a clean configuration from manufacturing. When adding a new switch to an already running stack, it is also assumed that the new switch is using the same firmware image version as other switches in the stack.

Installing a New Stackable System of Up to Eight Switches

Use the following procedure to install a new stack of up to eight switches out of the box. Before applying power, make **all** physical connections with the stack cables as described in "Connecting Stacking Cables" on page 2-5.

1. Once all of the stack cables have been connected, individually power on each switch from top to bottom (connecting power to a switch is described in "Connecting AC Power" on page 2-9).

   If the switches are powered on almost simultaneously, the system will automatically select the first one that powers up as the Master switch and the others as member switches. The switches are assigned unit IDs in the order that they become fully operational.

   You can control the unit ID assignment according to the physical position in a stack. When you power up each switch and allow it to become fully operational before applying power to the next switch, the first one becomes the manager and all the next switches will join that stack (regardless of priority, firmware revision, or MAC address). The switches are assigned unit IDs in the order that you power on each switch.

   Note: Once switch IDs are assigned, they are persistent and will be retained during a power cycle to any or all of the switches.

2. Connect to the Console port of the manager switch.
3. (Optional) If desired, change the management switch using the **set switch movemanagement** command as described in the *Enterasys A4 CLI Reference Guide*.
4. Once the desired master switch has been selected, reset the system using the **reset** command as described in the *Enterasys A4 CLI Reference Guide*.

Adding a New Switch to an Existing Stack

Use the following procedure to install a new switch to an existing stack configuration.

Note: This procedure assumes that the new switch being added has a clean configuration from manufacturing and is running the same firmware image version as other switches in the stack.

1. Ensure that power is off on the new switch being installed.
2. Use one of the following methods to complete the stack cable connections:
   - If the running stack uses a daisy chain topology, make the stack cable connections from the bottom of the stack to the new switch (that is, STACK DOWN connector from the bottom switch of the running stack to the STACK UP connector on the new switch).
   - If the running stack uses a ring stack topology, break the ring and make the stack cable connections to the new switch to close the ring.
3. Apply power to the new switch.

Important Considerations About Using Clear Config in a Stack

When using the **clear config** command (as described in the *Enterasys A4 CLI Reference Guide*) to clear configuration parameters in a stack, it is important to remember the following:

- Use **clear config** to clear config parameters without clearing stack switch IDs. This command WILL NOT clear stack parameters and avoids the process of re-numbering the stack.
- Use **clear config all** when it is necessary to clear all config parameters, including stack switch IDs and switch priority values.

Connecting AC Power

Note: The power supply in the switch has automatic voltage sensing that allows connection to power sources ranging from 100 to 240 VAC.

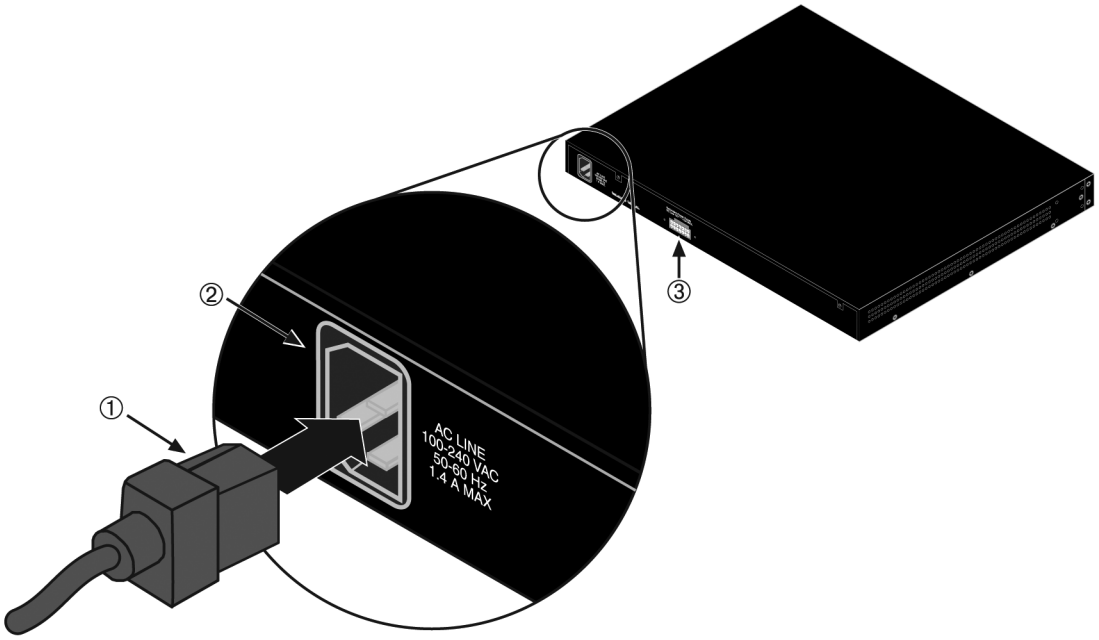
To connect a switch to the AC power source, refer to Figure 2-5 on page 2-10 and proceed as follows:

1. Plug the power cord into the switch AC power connector.
2. Plug the other end of the power cord into a dedicated grounded AC outlet (not shown). The type of power outlet and power cord are country-dependent.

Note: If you plan to connect all the switches quickly to allow automatic Manager selection, wait until all switches are fully operational before proceeding to the next step.

If you plan to power up each switch and allow it to become fully operational before applying power to the next switch, proceed to the next step.

Figure 2-5 Switch Rear View



1 AC power cord **2** AC power connector **3** Redundant power supply connector

3. Observe that the power CPU LED (not shown), located on the front panel. During the initialization, the CPU LED will start by illuminating solid amber, then start blinking green, then blinking amber, then blinking green again until the end of the initialization, and then turns solid green.

Note: If the CPU LED illuminates solid red, there was a critical failure. For more information about the LED indications and troubleshooting, refer to Chapter 3, **Troubleshooting**. If you need additional help, contact Enterasys Networks. Refer to "Getting Help" on page xvii for details.

If the switch is a standalone switch, it will take approximately 30 seconds for the switch to start up. If the switch is a stack manager, it can take up to 3 minutes or more to initialize all the switches in the stack, depending on the number of member switches in the stack.

Installing and Connecting a Redundant Power System

You can use the STK-RPS-150PS, a 150W redundant power supply for A4 models.

Note: The STK-RPS-150PS is a replacement for the C2RPS-PSM. If you already have a C2RPS-PSM power supply, it can be used in place of the STK-RPS-150PS.

STK-RPS-150PS

The STK-RPS-150PS can be used as a standalone unit, or you can install an STK-RPS-150PS in the following RPS shelves:

- STK-RPS-150CH2, a two-slot chassis
- STK-RPS-150CH8, an eight-slot chassis

Note: The STK-RPS-150PS can also be installed in the old two-slot and eight-slot chassis, C2RPS-CHAS2 and C2RPS-CHAS8.

Required Tools

A flat-blade screwdriver is required to install the STK-RPS-150CH2 or STK-RPS-150CH8 shelf and STK-RPS-150PS power supplies.

Unpacking the Shelf and Power Supply

The shelf and the power supply are shipped separately. To unpack these devices proceed as follows:

1. Open the box and remove the packing material protecting the shelf or power supply.
2. Verify the contents of each carton and compare the contents shipped with those listed in Table 2-1, Table 2-2, and Table 2-3.
3. Perform a visual inspection of the components for any signs of physical damage. Contact Enterasys Networks if there are any signs of damage. Refer to "Getting Help" on page xvii for details.

Table 2-1 Contents of STK-RPS-150CH2 Carton

Item	Quantity
STK-RPS-150CH2	1
Quick Reference	1

Table 2-2 Contents of STK-RPS-150CH8 Carton

Item	Quantity
STK-RPS-150CH8	1
Quick Reference	1

Table 2-3 Contents of STK-RPS-150PS Carton

Item	Quantity
STK-RPS-150PS 150 watt DC power supply	1
USA, NEMA power cord	1
RPS cable	1
Notice card	1

Installing an STK-RPS-150PS Into a Shelf

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

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

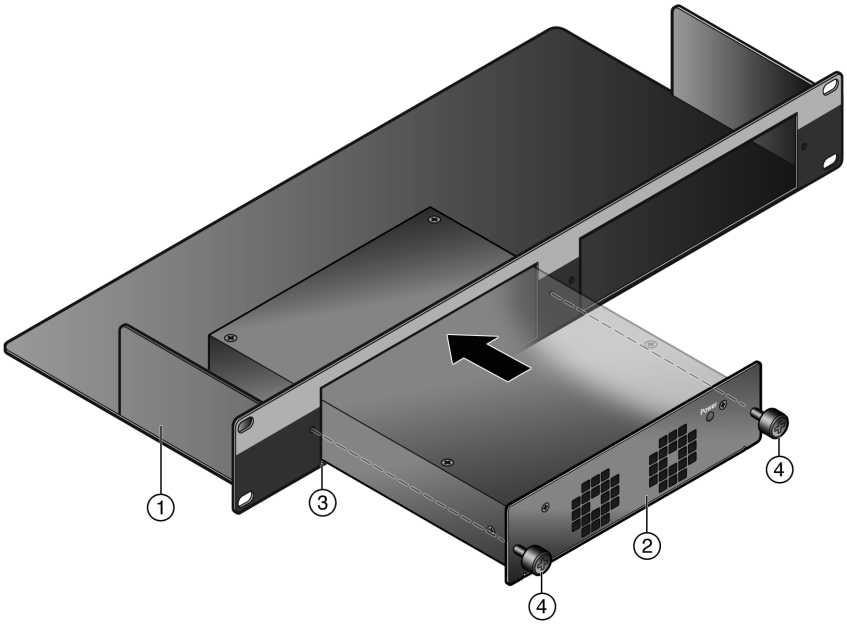
If you are using the STK-RPS-150PS as a standalone unit, go to "Connecting the RPS Cable and AC Power Cord" on page 2-16.

When you receive your STK-RPS-150CH8 shelf, a coverplate will be in place over each power-supply slot.

To install the power supplies, refer to Figure 2-6 or Figure 2-7 and proceed as follows:

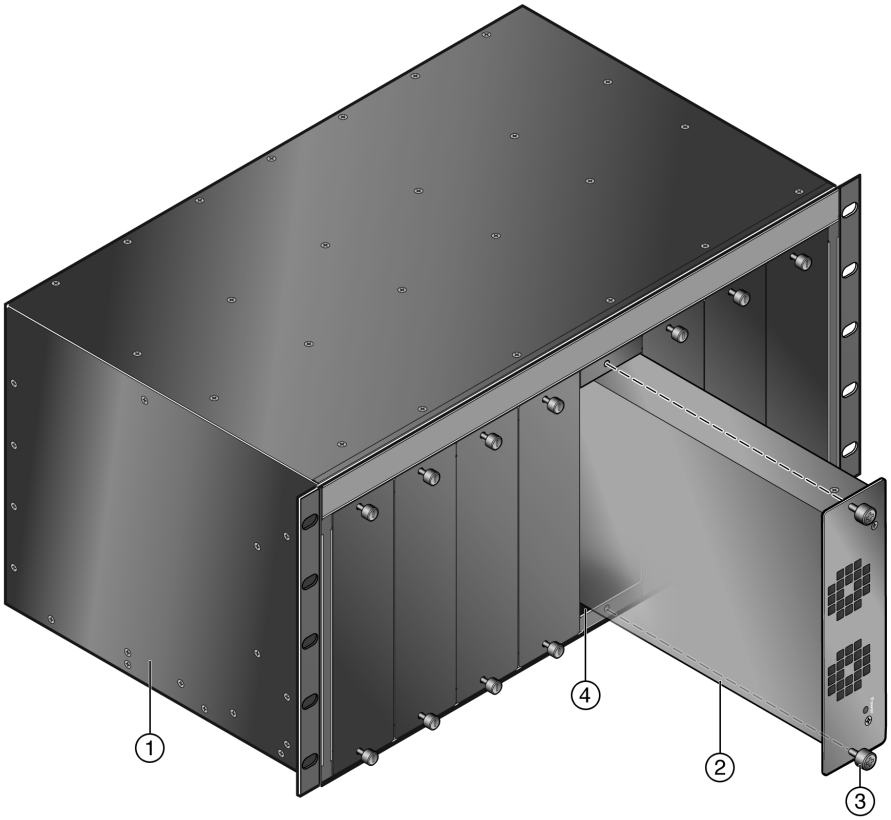
1. Place the chassis on a sturdy flat surface where you plan to install power supplies.
2. Align the power supply with one of the slots, then slide the power supply forward until its front panel is flush against the chassis front panel.
3. Fasten the power supply to the chassis using the captive screws on the PSM front panel.
4. Repeat steps 2 and 3 for each additional power supply.
5. Proceed to "Installing the Shelf into the Rack" on page 2-14 for the rack mount installation instructions.

Figure 2-6 STK-RPS-150PS Installation in an STK-RPS-150CH2 Shelf



1 STK-RPS-150CH2 shelf
2 STK-RPS-150PS power supply
3 Shelf power supply slot
4 Captive screws (2)

Figure 2-7 STK-RPS-150PS Installation in an STK-RPS-150CH8 Shelf



1 STK-RPS-150CH8 shelf
2 STK-RPS-150PS power supply
3 Captive screws (2)
4 Chassis power supply slot

Removing an Installed STK-RPS-150PS

To remove a power supply installed in an operating system, proceed as follows:

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

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

1. Unplug the AC power cord of the power supply from the AC power source first, then from the rear of the power supply.
2. Loosen the captive screws securing the power supply until it is released from the chassis front panel.
3. Pull the power supply out and remove it from the chassis.
4. Repeat steps 1 through 3 for each additional power supply you plan to remove.
5. Optionally, reinstall coverplates over empty slots. Coverplates are not required.

Installing the Shelf into the Rack

To install an STK-RPS-150CH2 or STK-RPS-150CH8 into a 19-inch (48.3-cm) rack, you need the following:

- For the STK-RPS-150CH2: four customer-supplied screws to fasten the shelf to the rack rails
- For the STK-RPS-150CH8: ten customer-supplied screws to fasten the shelf to the rack rails

After installing the power supplies as described in "Installing an STK-RPS-150PS Into a Shelf" on page 2-11, rack mount the chassis as follows:

1. Refer to the installation guidelines ("Guidelines for Rackmount Installation" on page 2-14).
2. Install the chassis into the rack ("Rack Mounting the Chassis" on page 2-15).
3. Connect the RPS cables and AC power cords of the power supplies ("Connecting the RPS Cable and AC Power Cord" on page 2-16).

Guidelines for Rackmount Installation

The installation site must be within reach of the network cabling and meet the requirements listed below:

- Shelf placement must be close enough to connect the 2-meter (6.6-foot) AC power cords from the power supplies to the AC power source.
- Up to two three-pronged power receptacles capable of delivering the current and voltage specified in "STK-RPS-150PS Specifications" on page A-4. Up to two AC outlets on independently-fused circuits must be within 182 centimeters (6 feet) from the installation site. If there is an AC power source failure, this will prevent the powering down of PSMs due to a single source power failure.
- Power cords and type of outlet are dependent on the country. In the United States, one power cord with an NEMA 5-15P plug is provided with each STK-RPS-150PS.
- An ambient temperature of between 0°C (32°F) and 50°C (122°F) must be maintained at the installation site with fluctuations of less than 10°C (18°F) per hour.

Caution: To ensure proper ventilation and prevent overheating, leave a minimum clearance space of 10.16 cm (4.0 in.) at the front and rear of the A4 chassis.

Precaución: Para asegurar una buena ventilación y evitar que el sistema se sobrecaliente, deje un espacio mínimo de 10.16 cm (4 pulgadas.) con respecto a la parte delantera y trasera del chasis A4.

Warning: Before installing the chassis into a rack, ensure that the rack can support the device(s) without compromising the stability of the rack. Otherwise, personal injury and/or equipment damage may result.

Advertencia: Antes de instalar el chassis en un rack, asegurarse que el rack puede soportar el(los) dispositivo(s) sin comprometer la estabilidad del mismo. De otra forma puede suceder algun tipo de daño personal o del equipo.

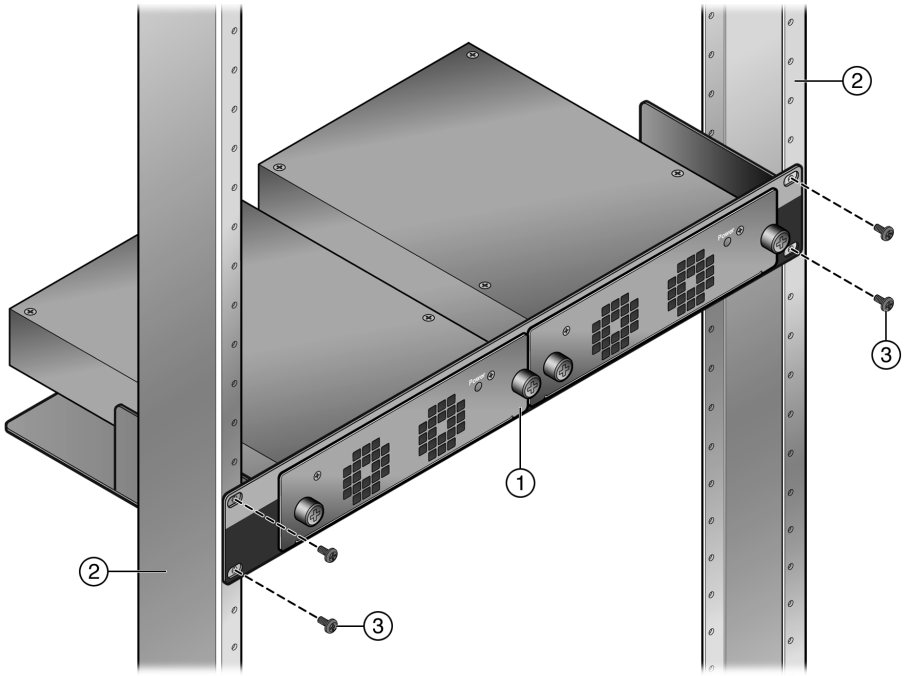
Warnhinweis: Schützen Sie sich vor Verletzungen und Geräteschaden, überzeugen Sie sich vor der Installation des Chassis in das Rack, von dessen Stabilität.

Rack Mounting the Chassis

Refer to Figure 2-8 or Figure 2-9 and proceed as follows to install the chassis into a 19-inch (48.3-cm) rack:

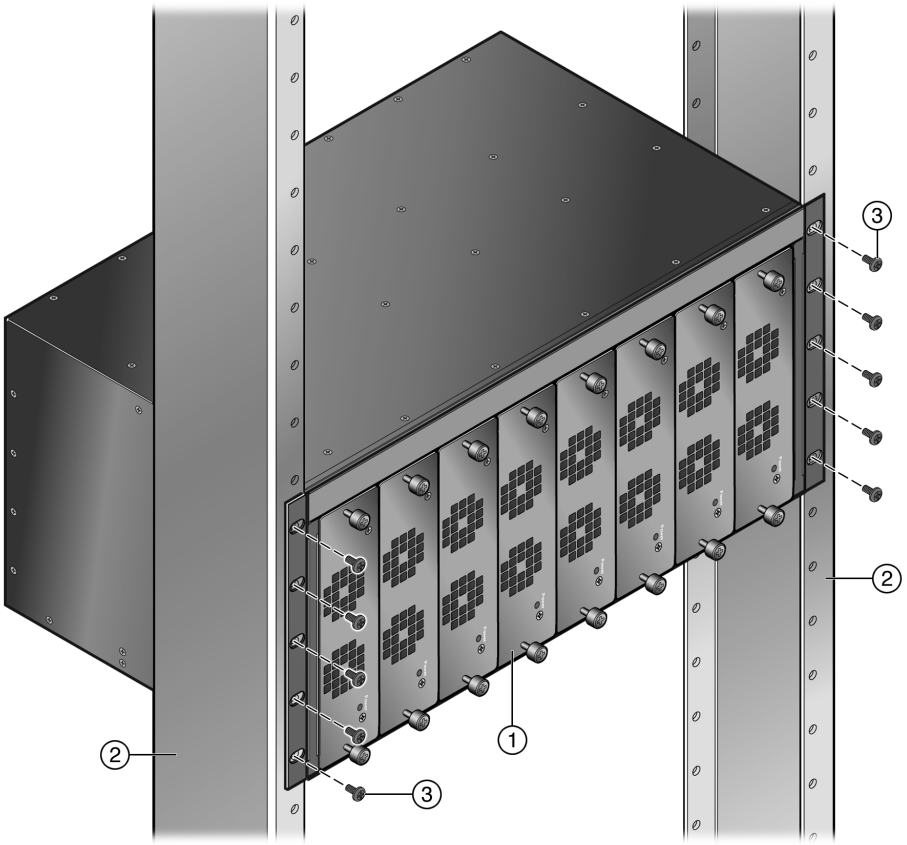
1. Position the chassis between the vertical rails and align the mounting holes in the chassis brackets with those in the rack frame.
2. Fasten the chassis securely to the rails using the customer-supplied mounting screws (four for the STK-RPS-150CH2, ten for the STK-RPS-150CH8).

Figure 2-8 Fastening the STK-RPS-150CH2 to the Rack



1 STK-RPS-150CH2 chassis
2 Rails of 19-inch rack
3 Mounting screws

Figure 2-9 Fastening the STK-RPS-150CH8 to the Rack



1 STK-RPS-150CH8 chassis
2 Rails of 19-inch rack
3 Mounting screws

Connecting the RPS Cable and AC Power Cord

The redundant power supply is connected to the A4 switch using an RPS cable.

To connect a redundant power supply, proceed as follows:

1. Using a Phillips screwdriver, remove the cover from the redundant power supply connector on the A4 switch.
2. Connect one end of the RPS cable to the redundant power supply connector on the A4 switch. Then connect the other end of the cable to the redundant power supply connector at the rear of the RPS as shown in Figure 2-10.
3. Connect the AC power cord to the AC input power connector on the RPS shown in Figure 2-11, then plug the AC power cord into the main AC power outlet.

   The green Power LED on the front of the RPS will illuminate to indicate a successful connection. If the LED remains off, proceed as follows:

   a. Check the AC power cord connection at the AC power source and make sure the power source is within specification.

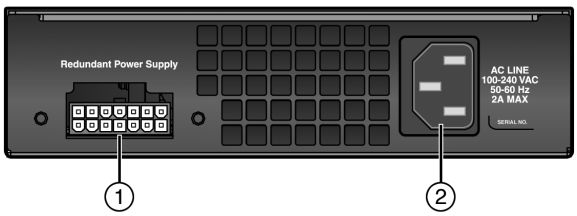
   b. Check the AC power connection to the RPS.

   c. Swap the AC power cord with a known good one.

   d. If the green LED continues to remain off, contact Enterasys Networks. Refer to “Getting Help” on page xvii for instructions. Otherwise, proceed to step 4.

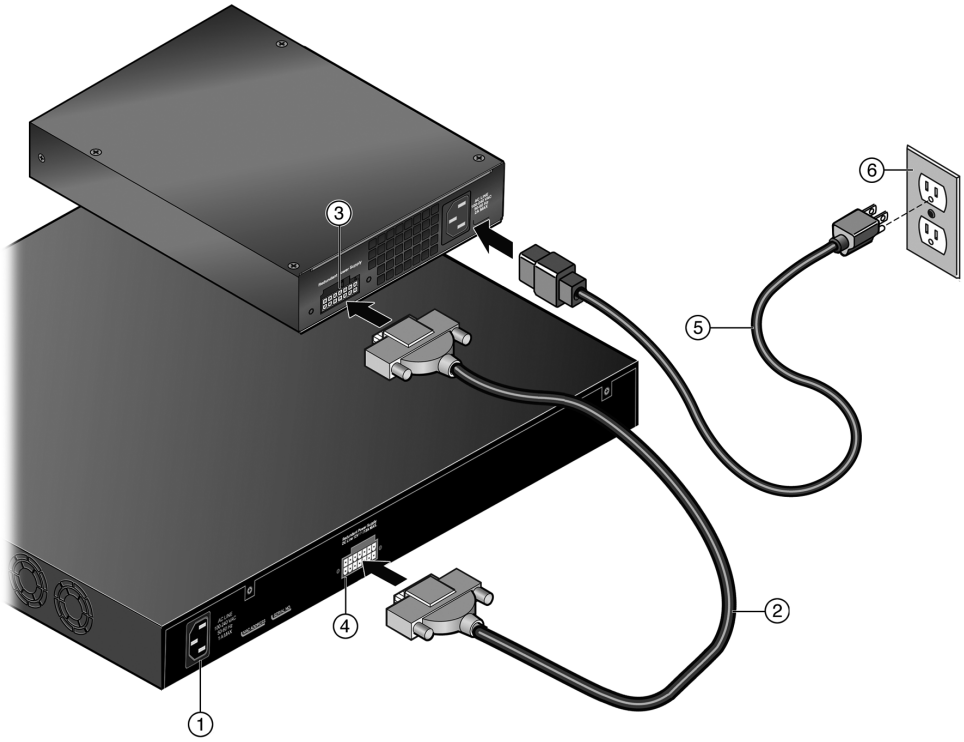
Note: No change in switch configuration is necessary for this installation.

Figure 2-10 Power Connectors on STK-RPS-150PS (rear view)



1 Redundant power supply connector
2 AC power connector

Figure 2-11 STK-RPS-150PS RPS Cable and AC Power Cord Connections



1 A4 switch
2 RPS cable
3 STK-RPS-150PS redundant power supply connector
4 A4 switch redundant power supply connector
5 AC power cord (type varies depending on country)
6 AC power outlet with ground connection (type varies depending on country)

4. If the switch itself is not plugged into power, the front panel RPS LED indicator will show that a redundant power supply is now in operation.

Note: No change in switch device configuration is necessary for this installation.

This completes the installation.

Connecting to the Console Port for Local Management

This section describes how to install an RS232 DTE interface cable to a PC, a VT series terminal, or a modem to the A4 for out-of-band sessions using CLI commands.

Note: When switches are connected in a stack configuration and all high-speed stacking cables are connected before powering up the switches, one switch in the stack will be automatically designated as the Manager of the stack and its Console port will remain active. All other switches will become Member switches and their Console ports will be deactivated.

What Is Needed

The following is a list of interface cables that may be needed to connect the DB9 male Console port connector on the switch. The cables are terminated by a DB9 female connector at one end, and by one of three type connectors at the other end, depending on the type connection needed for the remote device. The cables that may be needed are as follows:

- DB9 female-to-DB9 female (supplied with switch)
- DB9 female-to-DB25 female
- DB9 female-to-DB25 male

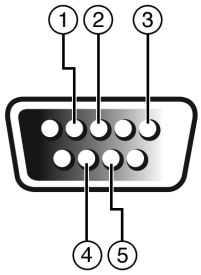
Using a DTE modem DB9 female-to-DB9 female cable, you can connect products equipped with a DB9 DTE male console port to an IBM or compatible PC running a VT series emulation software package.

Using a DTE modem DB9 female-to-DB25 female cable, you can connect products equipped with a DB9 DTE male console port to a VT series terminal or VT type terminals running emulation programs for the VT series.

Using a DTE modem DB9 female-to-DB25 male cable, you can connect products equipped with a DB9 DTE male console port to a Hayes compatible modem that supports 9600 baud.

The cable used must connect the Console port Received Data, Pin 2 to the Transmitted Data pin at the other end of the cable. The connection from the Console port Transmitted Data, Pin 3 (must be connected) to the Received Data pin cable connection at the other end of the cable. The DB9 Console port pin assignments are shown in Figure 2-12.

Figure 2-12 DB9 Male Console Port Pinout Assignments



1 Pin 2, Received Data (input)
2 Pin 3, Transmitted Data (output)
3 Pin 5, Signal Ground
4 Pin 7, Request to Send
5 Pin 8, Clear to Send
All other pins not connected.

Connecting to a PC

To connect a PC, running the VT terminal emulation, to the A4 Console port:

1. Connect the DB9 female connector at one end of the cable (supplied with switch) to the Console port on the A4 switch. (If there is a switch designated as the manager, connect to its Console port.)
2. Plug the DB9 female connector at the other end of cable into the communications port on the PC.
3. Turn on the PC and configure your VT emulation package with the following parameters:

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

When these parameters are set, the Startup screen will display. Proceed to "Connecting to the Network" on page 2-20.

Connecting to a VT Series Terminal

To connect a VT Series terminal to an A4 Console port, use a UTP serial interface cable terminated with a DB9 female connector and a DB25 female connector and proceed as follows:

1. Connect the DB9 female connector at one end of cable to the Console port DB9 male connector on the A4 switch. (If there is a switch designated as the manager, connect to its Console port.)
2. Plug the DB25 female connector at the other end of the cable into the port labeled COMM on the VT terminal.
3. Turn on the terminal and access the Setup Directory. Set the following parameters on your terminal:

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

When these parameters are set, the Startup screen will display. Proceed to "Connecting to the Network" on page 2-20.

Connecting to a Modem

To connect a modem to the A4 Console port, use a UTP serial interface cable terminated with a DB9 female connector and a DB25 male connector and proceed as follows:

1. Connect the DB9 female connector at one end of the cable to the Console port DB9 connector on the A4 switch. (If there is a switch designated as the manager, connect to its Console port.)
2. Plug the DB25 male connector at the other end of the cable into the modem communications port.
3. Turn on the modem and make sure the remote modem is ON.
4. With your PC connected to the remote modem, configure your VT emulation package with the following parameters:

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

When these parameters are set, the Startup screen will display. If the switches are in a stacked configuration, proceed to "Connecting to the Network" on page 2-20.

Connecting to the Network

The following procedures cover the cable connections from the network or other devices to the A4 switch front panel ports.

- "Connecting UTP Cables to RJ45 Ports" on page 2-21
- "Installing an Optional SFP Transceiver" on page 2-22
- "Connecting Fiber-Optic Cables to SFP Ports" on page 2-26

Connecting UTP Cables to RJ45 Ports

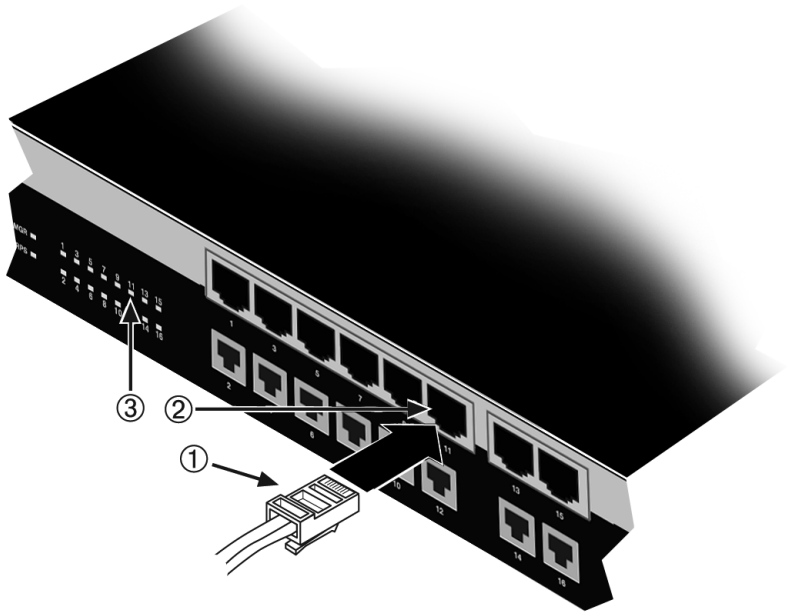
The fixed RJ45 front panel 10/100 Mbps ports support Auto MDIX, which means that you can use straight-through or crossover twisted pair cabling.

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

To connect twisted pair segments to the switch, refer to Figure 2-13 and proceed as follows:

1. Ensure that the device to be connected at the other end of the segment is powered on.
2. Connect the twisted pair segment to the switch by inserting the RJ45 connector on the twisted pair segment into the desired RJ45 port on the A4 switch.

Figure 2-13 Connecting a UTP Cable Segment to an RJ45 Port



1 RJ45 cable connector **2** RJ45 front panel port **3** Front panel port Link/Activity LED

3. Verify that a link exists by checking that the Link/Activity LED is on (solid green or blinking green). If the Link/Activity LED is off, perform the following steps until it is on:
   a. Verify that the cabling being used is Category 5 or better with an impedance between 85 and 111 ohms with a maximum length of 100 meters (328 feet).
   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.
4. If a link is not established, contact Enterasys Networks. Refer to "Getting Help" on page xvii for details.

Repeat all steps above until all connections have been made.

Preparing to Install an Optional SFP Transceiver

Before removing the pluggable transceiver from the antistatic packaging, Enterasys Networks recommends that you use an antistatic wrist strap (not supplied) to prevent damage from static discharge. To use the wrist strap, refer to the instructions provided with your antistatic wrist strap.

1. Remove the pluggable transceiver from its packaging.
2. If there is a protective dust cover in the pluggable transceiver connector, do not remove it at this time.

Installing an Optional SFP Transceiver

This section describes how to install an SFP transceiver into A4 ports.

Warning: Fiber-optic SFPs 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 SFPs de fibra optica usan lasers de clase 1. No se debe usar instrumentos opticos para ver la potencia laser. El uso de los instrumentos opticos para ver la potencia laser incrementa el riesgo a los ojos. Cuando vean el puerto de la potencia optica, la corriente debe ser removida del adaptador de la red.

Warnhinweis: SFPs mit Fiber-Optik Technologie benutzen Laser der Klasse 1. Benutzen sie keinesfalls optische Hilfsmittel, um die Funktion des Lasers zu überprüfen. Solche Hilfsmittel erhöhen die Gefahr von Sehschäden. Wenn sie den optischen Port überprüfen möchten stellen Sie sicher, dass die Komponente von der Spannungsversorgung getrennt ist.

Caution: Carefully follow the instructions in this manual to avoid damaging the SFP and switch equipment.

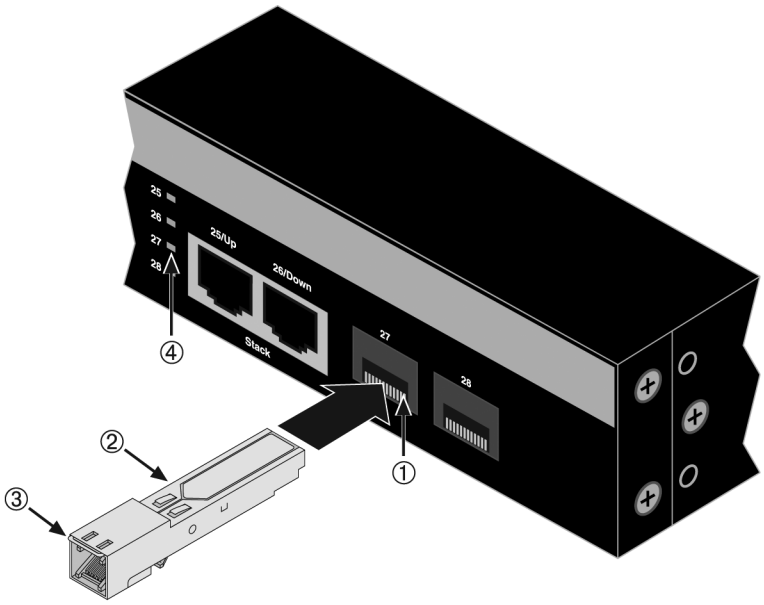
The SFP and switch equipment are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the SFP and switch equipment. Always leave the SFP in the antistatic bag or an equivalent antistatic container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

Precaución: Siga las instrucciones del manual para no dañar el SFP ni del aparato, 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 o del aparato. Mientras no esté instalado, mantenga el SFP en su bolsa antiestática o en cualquier otro recipiente antiestático.

To install an SFP that has an RJ45 connector, refer to Figure 2-14; for an SFP with an MT-RJ connector, refer to Figure 2-15; for an SFP with an LC connector, refer to Figure 2-16; and proceed as follows:

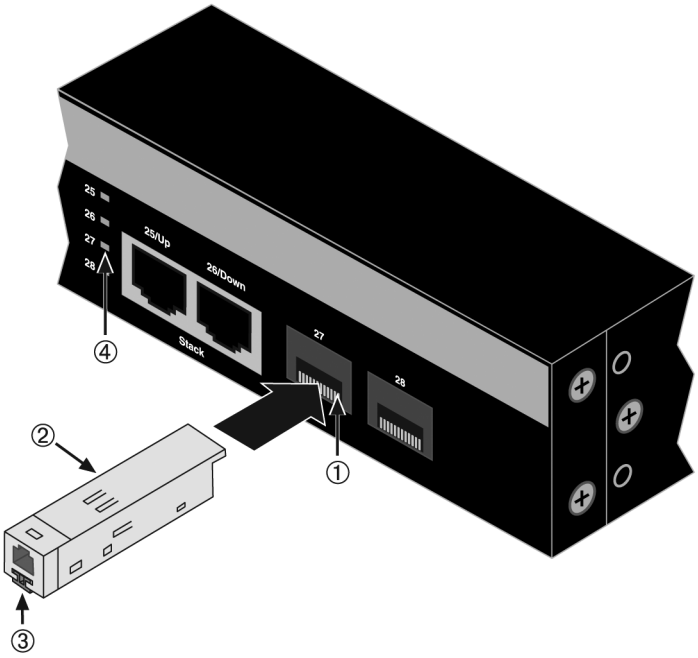
1. With an antistatic wrist strap attached to your wrist, remove the transceiver from its packaging. If there is a protective dust cover in the transceiver connector, do not remove it at this time.
2. Hold the transceiver so that the connector will seat properly.
3. Carefully align the transceiver with the port slot as shown in Figure 2-14, Figure 2-15, and Figure 2-16.
4. Push the transceiver into the port slot until it “clicks” and locks into place.

Figure 2-14 Installing an SFP Transceiver with RJ45 Connector



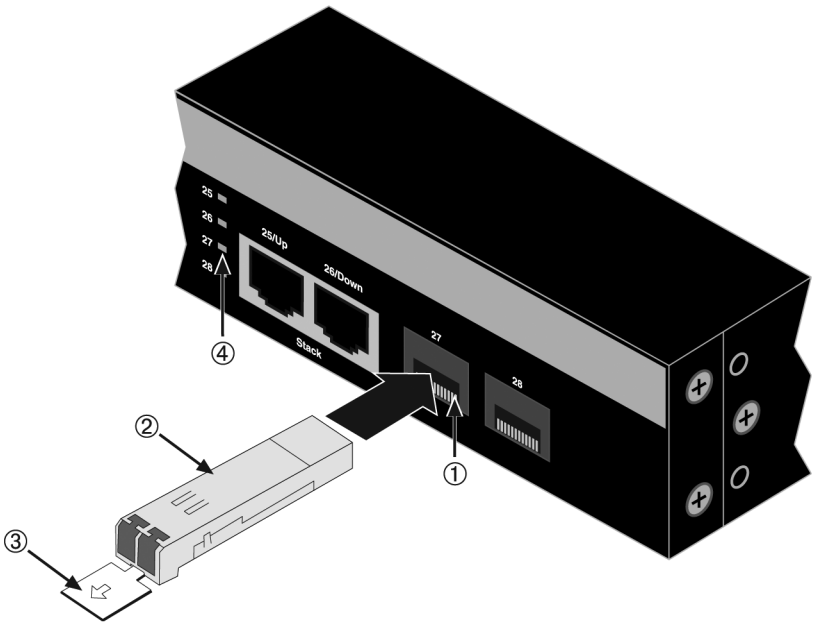
1	SFP slot	**3**	Release tab
2	SFP transceiver	**4**	Link/Activity LED

Figure 2-15 Installing an SFP Transceiver with MT-RJ Connector



1	SFP slot	**3**	Release tab
2	SFP transceiver	**4**	Link/Activity LED

Figure 2-16 Installing an SFP Transceiver with an LC connector



1	SFP slot	**3**	Release tab
2	SFP transceiver	**4**	Link/Activity LED

Removing an SFP Transceiver

Caution: Do NOT remove the SFP from the port slot without releasing it. The SFP is released by pulling down on its wire handle. Attempting to remove the SFP without releasing it can damage the SFP.

The SFP and its host switch 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 damaging the SFP or host switch. Always leave the SFP in the antistatic bag or an equivalent antistatic container when not installed.

Precaución: NO quite el SFP de la ranura sin antes abrir la traba ubicada en la parte frontal del SFP. Si lo hace, puede dañar el SFP, puesto que es muy sensible a las descargas de electricidad estática, al igual que el dispositivo host. Utilice la pulsera antiestática y tome todas las precauciones necesarias durante este procedimiento. Si no lo hace, pude dañar el SFP o el dispositivo host. Mientras no esté instalado, mantenga el SFP en su bolsa antiestática o en cualquier otro recipiente antiestático.

To remove a transceiver from a port slot, refer back to Figure 2-14, Figure 2-15, or Figure 2-16 and proceed as follows:

1. With an antistatic wrist strap attached to your wrist, remove the cables connected to the transceiver.
2. Release the transceiver using its wire handle. Specific operation and location of the handle will vary depending on transceiver type.
3. Grasp the sides of the transceiver and pull it straight out of the port slot.

If storing or shipping an SFP, which has a fiber-optic connector, insert its protective dust cover to protect the ends of the fiber-optic fibers from dust or contamination.

Connecting Fiber-Optic Cables to Fixed MT-RJ Ports

This section provides the procedure to connect fiber-optic cables from the 100BASE-FX, MT-RJ fixed front panel ports of the A4H124-24TX or A4H254-8F8T to the network or other devices. Each fiber-optic link consists of two fiber-optic strands within the cable: Transmit (TX) and Receive (RX).

The transmit strand from an A4H124-24FX or A4H254-8F8T fixed MT-RJ port connects to the receive port of a fiber-optic 100BASE-FX Ethernet device at the other end of the segment. The receive strand of the applicable MT-RJ port on the switch connects to the transmit port of the fiber-optic 100BASE-FX Ethernet device.

Note: An odd number of crossovers (preferably one) must be maintained between devices so that the transmit port is connected to the receive port of the other device and vice versa.

To connect a fiber-optic cable segment to the switch, refer to Figure 2-17 on page 2-26 and proceed as follows:

1. Remove the protective covers (not shown) from the MT-RJ front panel connector and from the connector on each end of the cable.

Note: Leave the protective covers in place when the connectors are not in use to prevent contamination.

Caution: Do not touch the ends of the fiber-optic strands, and do not let the ends come in contact with dust, dirt, or other contaminants. Contamination of cable ends causes problems in data transmissions. If the ends of the fiber-optic strands become contaminated, use a canned duster to blow the surfaces clean. A cleaning swab saturated with optical-grade isopropyl alcohol may also be used to clean the ends.

Precaución: No toque los extremos de los cables de fibra óptica y evite su contacto con el polvo, la suciedad o con cualquier otro contaminante. Si los extremos de los cables se ensucian, es posible que la transmisión de datos se vea afectada. Si nota que los extremos de los cables de fibra óptica se ensucian, utilice aire comprimido para limpiarlos. También puede limpiarlos con un estropajo embebido en alcohol isopropílico.

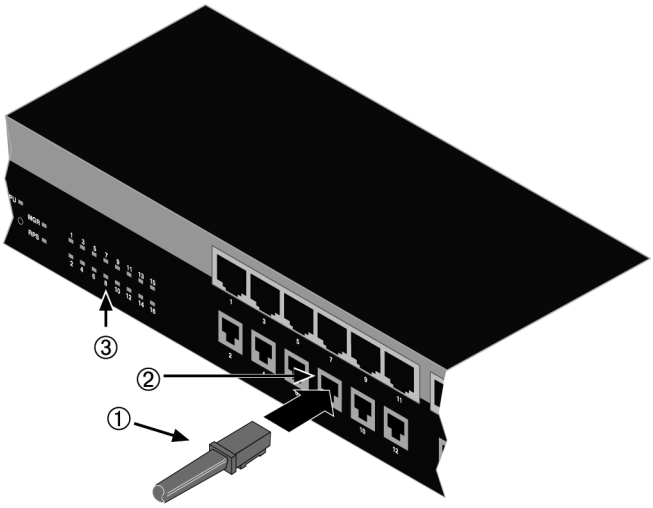
2. Insert the MT-RJ cable connector into the MT-RJ front panel port until it clicks into place.

Note: To remove the MT-RJ cable connector, press on its release tab and pull it out of the MT-RJ front panel port.

3. Verify that a link exists by checking that the Link/Activity LED is ON (solid green or blinking green). If the Link/Activity LED is OFF, perform the following steps until it is on:
   a. If there are separate fiber-optic connections on the other device, check the crossover of the cables. Swap the cable connections if necessary.
   b. Verify that the fiber connection meets the dB loss and cable specifications for multimode cabling.
4. If a link is not established, contact Enterasys Networks. Refer to "Getting Help" on page xvii for details.

Repeat all steps above until all connections have been made.

Figure 2-17 Connecting a Fiber-Optic Cable Segment to Fixed MT-RJ Port



1 MT-RJ cable connector **2** MT-RJ front panel port **3** Front panel port Link/Activity LED

Connecting Fiber-Optic Cables to SFP Ports

Before connecting cables to SFP ports, you must install the appropriate transceiver as described in "Installing an Optional SFP Transceiver" on page 2-22. This section describes how to connect a 1-Gigabit fiber-optic segment from the network or other devices to an SFP port connector (LC or MT-RJ).

Each fiber-optic link consists of two fiber-optic strands within the cable for Transmit (TX) and Receive (RX). The transmit strand from a device port connects to the receive port of a fiber-optic 1-Gigabit Ethernet device at the other end of the segment. The receive strand of the applicable LC or MT-RJ port connects to the transmit port of the fiber-optic 1-Gigabit Ethernet device.

Caution: Do not touch the ends of the fiber-optic strands, and do not let the ends come in contact with dust, dirt, or other contaminants. Contamination of cable ends causes problems in data transmissions. If the ends of the fiber-optic strands become contaminated, use a canned duster to blow the surfaces clean. A fiber-port cleaning swab saturated with optical-grade isopropyl alcohol may also be used to clean the ends.

Precaución: No toque los extremos de los cables de fibra óptica y evite su contacto con el polvo, la suciedad o con cualquier otro contaminante. Si los extremos de los cables se ensucian, es posible que la transmisión de datos se vea afectada. Si nota que losextremos de los cables de fibra óptica se ensucian, utilice aire comprimido paralimpiarlos. También puede limpiarlos con un estropajo embebido en alcohol isopropílico.

To connect an LC or MT-RJ cable connector to an SFP port connector:

1. Remove the protective covers from the port SFP and from the connectors on each end of the cable.

Note: Leave the protective covers in place when the connectors are not in use to prevent contamination.

2. Insert the cable connector into the SFP connector until it clicks into place.
3. Plug the other end of the cable into the appropriate port on the other device. Some cables may be terminated at the other end with two separate connectors, one for each fiber-optic strand. In this case, ensure that the transmit fiber-optic strand from the A4 switch is connected to the

receive port of the other device, and the receive fiber-optic strand on the A4 switch is connected to the transmit port of the other device.

4. Repeat this procedure for other SFP ports, if needed.
5. Verify that a link exists by checking that the Link/Activity LED is ON (solid green or blinking green). If the Link/Activity LED is OFF, perform the following steps until it is on:
   a. Verify that the device at the other end of the segment is powered ON and connected to the segment.
   b. If there are separate fiber-optic connections on the other device, check the crossover of the cables. Swap the cable connections if necessary.
   c. Check that the fiber-optic connection meets the dB loss and cable specifications for multimode cabling.
   d. If a link has not been established, refer to Chapter 3, **Troubleshooting** for LED troubleshooting details. If a problem persists, refer to "Getting Help" on page xvii for details on contacting Enterasys Networks for support.
6. If an SFP port is unused, install a dust cover.

Completing the Installation

After installing the switch and making the connections to the network, access the switch management, as described below.

Initial Logon to Switch Management

To initially access switch management from your local PC, terminal, or modem connection, proceed as follows at the displayed startup screen:

1. Enter **rw** (Read-Write) for Username.
2. At the Password prompt, press **Enter** (RETURN).
3. For details on how to configure the switch using the command line interface, refer to the *Enterasys A4 CLI Reference Guide*. The CLI commands enable you to set a new password and perform more involved management configurations on the switch. One of many capabilities is to reconfigure the stack, reassigning the Manager function to another switch and configuring the order of Member switches that will take over the stack management functions in case the operating Manager is powered down, malfunctions, or is removed from the stack.
4. After the initial configuration, you can also use WebView (Enterasys Networks' embedded web server) for configuration and management tasks.

   All the guides associated with the switch are available online at:
   https://extranet.enterasys.com/downloads/

Once you are confident that the installation is successful, route and secure your cables. If you require assistance, contact Enterasys Networks using one of the methods described in "Getting Help" on page xvii.

3

Troubleshooting

This chapter contains instructions on troubleshooting the A4 switch as required. This can include:

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

Riesgo Eléctrico: 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.

Warning: Do not connect or disconnect any connections while circuit is live, unless area is known to be non-hazardous. Secure any external connections that mate to this equipment by using the screws, safety bars, or other means provided with this equipment.

Advertencia: No conecte ni desconecte ninguna conexión mientras el circuito tenga corriente, a menos que esté seguro de que el área no es peligrosa. Asegure cualquier conexión externa que se una a este equipo usando tornillos, barras de seguridad u otros medios que se proporcionen con el mismo.

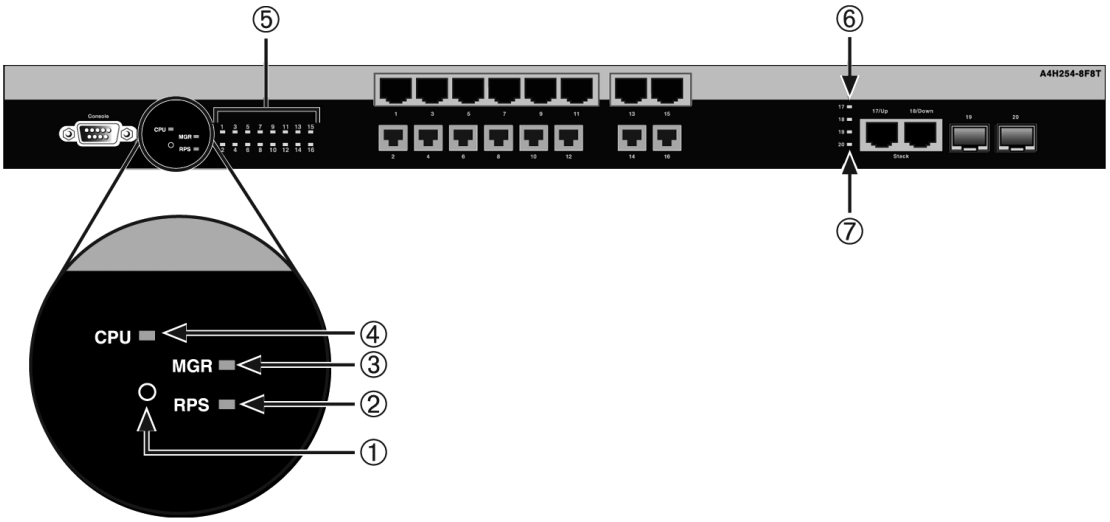
Warnhinweis: Ist der Stromkreis in Betrieb dürfen keine Verbindungen getrennt oder hergestellt werden, es sei denn, die Umgebung gilt als ungefährlich. Alle externen Verbindungen zu diesem Gerät müssen mithilfe von Schrauben, Sicherheitsvorrichtungen o. ä. gesichert werden.

Checking the LEDs

The following sections define the behavior of the LEDs on the A4 chassis models. The LEDs on all chassis are located in the same location on the front panel.

Refer to Figure 3-1 for the location of the LEDs on the chassis.

Figure 3-1 A4 Chassis LEDs (A4H254-8F8T shown)



1	Recessed Password Reset Button	**5**	10/100 MB Ports Link/Activity
2	Redundant Power Supply Active (RPS)	**6**	1000 MBS Stacking Port Link/Activity
3	Unit selected as Stack Manager (MGR)	**7**	SFP port Link/Activity
4	CPU and Power Indicator (CPU)		

MGR LED

The MGR LED indicates whether the switch is operating as a member or as the manager of the stack, as described in Table 3-1.

Table 3-1 MGR LED Definitions

Color	State	Recommended Action
Off	Switch is operating as a member in the stack.	None.
Green	**Solid.** Switch is operating as the manager of the stack.	None.

RPS LED

The RPS LED indicates the state of the internal power supply and whether a redundant power supply is providing power, as described in Table 3-2.

Table 3-2 RPS LED Definitions

Color	State	Recommended Action
Off	Connected RPS not in use.	None.
	Internal power supply failed.	If an RPS is connected to the switch, it should be providing power. Perform the following: 1. Ensure the RPS is powered on. 2. Ensure that the AC power cord to the RPS is plugged in correctly and that there is power at the AC power source. 3. Replace the power cord with a known good one. 4. Ensure the DC power cord from the RPS to the switch is plugged in correctly. 5. If the problem persists, contact Enterasys Networks for technical support.
Amber	**Solid.** The switch internal power supply failed, and the RPS is providing the proper power to the switch.	None.

UP LED

The STACK UP LED indicates the state of the connection to the switch stack down connector, as described in Table 3-3.

Table 3-3 UP LED Definitions

Color	State	Recommended Action
Off	No valid connection to switch stack down connector.	1. Make sure the switch connected to the stack down connector is powered on. 2. Replace cable with a known good one. 3. If the problem still exists, contact Enterasys Networks for technical support.
Green	**Solid.** Valid connection to switch stack down connector.	None.
	Blinking. Information is being transferred through the stacking cable.	None.

DOWN LED

The STACK DOWN LED indicates the state of the connection to the switch stack up connector, as described in Table 3-4.

Table 3-4 DOWN LED Definitions

Color	State	Recommended Action
Off	No valid connection to switch stack up connector.	1. Make sure the switch connected to the stack up connector is powered on. 2. Replace cable with a known good one. 3. If the problem still exists, contact Enterasys Networks for technical support.
Green	**Solid.** Valid connection to switch stack up connector.	None.
	Blinking. Information is being transferred through the stacking cable.	None.

CPU LED

The CPU LED indicates the status of the system operation, as described in Table 3-5.

Table 3-5 CPU LED Definitions

Color	State	Recommended Action
Off	Power disconnected.	If the LED remains off after connecting AC power or DC power from an RPS, check the following: 1. Make sure there is power at the power source (AC source and RPS if applicable). 2. Replace the power cord with a known good one or check the continuity of the power cord. 3. If the switch still does not power up, the system may have a fatal error. Contact Enterasys Networks for technical support.
Red	**Solid.** Boot-up failed.	If the LED remains red for several minutes, the system may have a fatal error. Contact Enterasys Networks for technical support.
	Blinking. Diagnostics have failed.	Contact Enterasys Networks for technical support.
Amber	**Solid.** Diagnostics are running.	If the LED remains amber for more than several minutes, contact Enterasys Networks for technical support.
	Blinking. Code image is being downloaded, or the Manager switch is copying its configuration to the other members in the stack. (This happens automatically every 15 minutes and every time the **save config** command is executed.	None.

Table 3-5 CPU LED Definitions

Color	State	Recommended Action
Green	**Solid.** System is fully functional.	None.
	Blinking. Boot-up in process.	None.

Link/Activity LEDs

Table 3-6 describes the status of RJ45 and SFP port LEDs.

Table 3-6 Port LED Definitions

Color	State	Recommended Action
Off	No link.	None.
	No activity or port in standby.	None.
	Cable is faulty.	Replace cable.
Green	**Solid**. Port is linked, but the interface is not receiving any traffic.	None.
	Blinking. Port is linked and traffic is being received or transmitted by the interface.	None.

Troubleshooting Checklist

If the device is not working properly, refer to Table 3-7 for a checklist of problems, possible causes, and recommended actions to resolve the problem.

Table 3-7 Troubleshooting Checklist

Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Ensure that the switch was installed properly according to the installation instructions in Chapter 2, **Installation**. Ensure that the power cords are connected properly to an active power source that meets the AC input specifications for this switch. Ensure that the AC power cord is not damaged. Replace the power cord with a known good one.
No local management startup screen.	Incorrect terminal setup.	Refer to the *Enterasys A4 CLI Reference* for proper setup procedures.
	Improper Console cable pinouts.	Refer to Figure 2-12 on page 2-18 for proper Console port pinouts.
	Corrupt firmware image, or hardware fault.	If possible, attempt to download the image to the device again. Refer to the *Enterasys A4 CLI Reference* for details.
Cannot navigate beyond startup screen.	Improper Community Names Table.	Refer to the *Enterasys A4 CLI Reference* for the Community Names Table setup.
Cannot contact the switch through in-band management.	IP address not assigned.	Refer to the *Enterasys A4 CLI Reference* for the IP address assignment procedure.
	Port is disabled.	This is normal if the switch is a Member in a stack. If operating as a standalone switch or as the Manager in a stack, enable the port. Refer to the *Enterasys A4 CLI Reference* for instructions to enable/disable ports.
	No link to device.	Verify that all network connections between the network management station and the device are valid and operating. If the problem continues, contact Enterasys Networks for technical support.
Port(s) goes into standby for no apparent reason.	Loop condition detected.	Verify that Spanning Tree is enabled. Refer to the *Enterasys A4 CLI Reference* for the instructions to set the type of STA. Review the network design and delete unnecessary loops. If the problem continues, contact Enterasys Networks for technical support.
User parameters (IP address, device and module name, etc.) were lost when the switch power was cycled.	Clear NVRAM was set using CLI commands.	Reenter the lost parameters as necessary. Refer to the *Enterasys A4 CLI Reference* for the instructions to configure the switch using CLI commands. If the problem continues, contact Enterasys Networks for technical support.

Using the Password Reset Button

If you forget the A4 login password, use the password reset button to reset the password to the default value as described in the following procedure.

Note: Notify the system manager before changing the password.

To reset the A4 password:

1. Locate the password reset button on the front of the switch as shown in Figure 3-1 on page 3-2.
2. Press-and-hold the password reset button while the switch is operational. This changes the login password to the default password and will be indicated by means of the command line interface (CLI) only.
3. You can now logon to the switch using the default password via the Console port and assign a new password using the CLI.
4. To access switch management from your local PC, terminal, or modem connection, refer to the *Enterasys A4 CLI Reference* for instructions on how to log in and enter a new password.

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

Note: If the admin user account is locked out (typically because someone entered the wrong password multiple times), resetting the admin password with the password reset button will not unlock the admin user account. In order to unlock the admin user account, you can wait for the configured lockout time to expire or you can power cycle the switch to reboot it.

Removing the Switch from a Rack

To remove the A4 switch from a rack:

1. While supporting the switch so it does not fall, carefully remove the mounting screws from the two brackets that attach the switch to the rack.
2. If necessary, remove each bracket from the switch by removing the mounting kit screws as shown in Figure 2-2 on page 2-4.

A

Specifications

This appendix provides the following information:

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

Switch Specifications

Table A-1 provides the I/O ports, processors and memory, physical, and environmental specifications for the A4 models.

Table A-1 A4 Switch Specifications

Item	Specification
A4H124-24FX Ports	
MT-RJ ports 1 through 24	Twenty-four 100Base-FX compliant ports with auto-sensing and auto-negotiation via MT-RJ connectors.
Stacking or uplink ports 25 and 26	Two 10/100/1000BASE-T compliant ports via RJ45 connectors.
Gigabit Ethernet SFP ports 27 and 28	Two ports that support optional pluggable transceiver 100BASE-FX, 1000BASE-SX, 1000BASE-LX fiber-optic, and 1000BASE-T copper connections.
A4H254-8F8T Ports	
RJ45 ports labeled odd numbers 1 – 15	Eight 10BASE-T/100BASE-TX compliant ports with auto-sensing and auto-negotiation via RJ45 connectors.
MT-RJ ports labeled even numbers 2 – 16	Eight 100Base-FX compliant ports with auto-sensing and auto-negotiation via MT-RJ connectors.
Stacking or uplink ports 25 and 26	Two 10/100/1000BASE-T compliant ports via RJ45 connectors.

Table A-1 A4 Switch Specifications (continued)

Item	Specification
Gigabit Ethernet SFP ports 27 and 28	Two ports that support optional pluggable transceiver 100BASE-FX, 1000BASE-SX, 1000BASE-LX fiber-optic, and 1000BASE-T copper connections.
Processors/Memory	
Processor	MPC8241, 266 MHz processor
Synchronous Dynamic Random Access Memory (SDRAM)	256 MB
FLASH Memory	32 MB
Physical	
Dimensions	44 W x 4.4 H x 36.5 D cm 17.3 W x 1.7 H x 14.4 D in
Approximate Weight	• A4H124-24FX — 4.85 kg (10.7 lb) • A4H254-8F8T — 4.78 kg (10.5 lb)
Mean Time Between Failure (MTBF)	Refer to the MTBF web site at URL http://www.enterasys.com/support/mtbf/
Power Specifications	
Input Voltage	100 to 240 VAC
Power Consumption	• A4H124-24FX — 65.7 W • A4H254-8F8T — 47.1 W
Input Frequency	50 to 60 Hz
Input Current	• A4H124-24FX — 1.0A Max • A4H254-8F8T — 1.0A Max
Thermal Output	Same as Power Consumption (above)
Environmental	
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to +70°C (-40°F to 158°F)
Operating Relative Humidity	5% to 95% (non-condensing)
Altitude	Operational up to 10,000 feet Non-operationally tested to 15,000 feet
Performance	
Throughput capacity wirespeed Mpps (switch/stack)	• A4H124-24FX — 9.5 Mpps / 76.2 Mpps • A4H254-8F8T — 8.3 Mpps / 66.7 Mpps
Switching capacity (switch/stack)	• A4H124-24FX — 12.8 Gbps / 102.4 Gbps • A4H254-8F8T — 11.2 Gbps / 89.6 Gbps
Stacking capacity(switch/stack)	No dedicated stacking ports on these switches. The 10/100/1000 ports can be used for stacking or uplinks.
Aggregate throughput capacity (switch/stack)	• A4H124-24FX — 12.8 Gbps / 102.4 Gbps • A4H254-8F8T — 11.2 Gbps / 89.6 Gbps

Fixed MT-RJ Port Specifications

Table A-2 provides the specifications for the fixed MT-RJ ports.

Table A-2 Fixed MT-RJ Port Specifications

Item	Specifications	
Core size (microns)	50 / 125	62.5 / 125
B/W MHz-Km	400	160
Maximum distance	Up to 2 Km depending on type of fiber and number of connections	
Wavelength nm	1270 to 1380, typical = 1308	
Tx power, Min / Max dBm	-22.5 / -14	-19 / -14
Rx power, Min / Max dBm	-33.5 / -11.8	
Link power budget dB	11 dB minimum	19.5 dB minimum

Redundant Power Supply Specifications

STK-RPS-150CH2 Chassis Specifications

Table A-3 provides the physical specifications for the STK-RPS-150CH2.

Table A-3 STK-RPS-150CH2 Specifications

Item	Specification
Power supply slots	Two slots for optional STK-RPS-150PS power supplies
Dimensions without mounting brackets	5.5 H x 48.2 W x 18.0D (cm) 2.2 H x 19.0 W x 7.0 D (in.)
Net Weight (Unit Only)	0.95 kg (2.09 lb)
Gross Weight (Packaged Unit)	1.60 kg (3.52 lb)

STK-RPS-150CH8 Chassis Specifications

Table A-4 provides the physical specifications for the STK-RPS-150CH8.

Table A-4 STK-RPS-150CH8 Specifications

Item	Specification
Power supply slots	Eight slots for optional STK-RPS-150PS power supplies
Dimensions without mounting brackets	22.26 H x 44.0 W x 26.4 D (cm) 8.77 H x 17.3 W x 10.4 D (in.)
Net Weight (Unit Only)	5.27 kg (11.6 lb)
Gross Weight (Packaged Unit)	6.5 kg (14.3 lb)

STK-RPS-150PS Specifications

Table A-5 provides the specifications for the STK-RPS-150PS.

Table A-5 STK-RPS-150PS Specifications

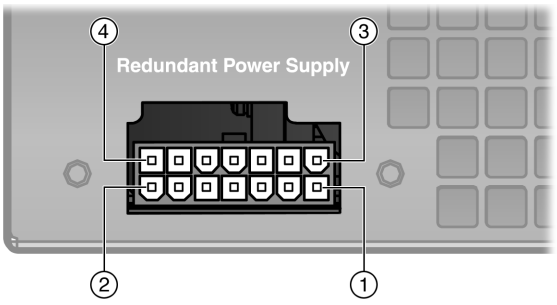
Item	Specification
Electrical	
AC Input Frequency Range	47–63 Hz
AC Input Voltage Range	85–264 Vac
Output Voltage	12 Vdc
Output Current	1.0 A min., 8.5 A or 13.0 A max.
Maximum Output Power	102 W or 156 W continuous
Physical	
Dimensions	19.6 H x 5.2 W x 25.7 D (cm) 7.7 H x 2.04 W x 10.1 D (in.)
Net Weight (Unit Only)	1.75 kg (3.85 lb)
Gross Weight (Packaged Unit)	3.20 kg (7.04 lb)
MTBF	300,000 Hours

STK-RPS-150PS Redundant Power Supply Connector

For pin location and function, refer to Figure A-1 and Table A-6, respectively.

Note: The following information is for troubleshooting purposes only. For proper operation, do not use any other cable except the RPS cable supplied with the STK-RPS-150PS. This cable is specially designed for this application and meets all necessary regulatory and safety standards. The use of non-approved cables will void your warranty.

Figure A-1 STK-RPS-150PS Power Supply Connector Pin Locations



1 Pin 1 **2** Pin 7 **3** Pin 8 **4** Pin 14

Table A-6 STK-RPS-150CH2 Power Supply Connector Pin Functions

Pin Number	Function	Pin Number	Function
1	Ground	8	Ground
2	No connection	9	No connection
3	12 Vdc Output	10	No connection
4	12 Vdc Output	11	Status 1
5	12 Vdc Output	12	Status 2
6	12 Vdc Output	13	Power good
7	Ground	14	Ground

Torque Values

Table A-7 describes the recommended torque values to use when installing the using standard threaded fastener machine screws and bolts.

Table A-7 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

Pluggable Transceiver Specifications

For SFP transceiver specifications, refer to the datasheet at http://www.enterasys.com/products/transceivers-ds.pdf.

Console Port Pinout Assignments

Refer back to Figure 2-12 on page 2-18 for information about console port pinout assignments.

Regulatory Compliance

This product meets the safety, electromagnetic compatibility (EMC), and environmental requirements listed in Table A-8.

Table A-8 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)