Enterasys® D-Series

Ethernet Switch

D2G124-12
D2G124-12P

Hardware Installation Guide

P/N 9034395-02

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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Regulatory Compliance Information

Federal Communications Commission (FCC) Notice

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

Clase A. Aviso de ITE

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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.
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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/services/support/ or contact Enterasys Customer Support at 353 61 705586 (Ireland).

产品说明书附件
Supplement to Product Instructions

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

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

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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**
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x

Contents

About This Guide

Who Should Use This Guide xv
How to Use This Guide xv
Related Documents xv
Document Conventions xvi
Commonly Used Acronyms xvi
Getting Help xvii

Chapter 1: Introduction

Overview 1-1
D2G124-12 and D2G124-12P Switches 1-1
Features 1-3
D2-HIPWR-POE Power Combiner 1-4
PoE (Power over Ethernet) Support 1-4
Powered Device Classifications (PDs) 1-5

Chapter 2: Installation

Unpacking the D2 Switch 2-2
Shipped With the Switch 2-2
Optional Components 2-2
Order of Installation Steps 2-3
Using the Switch as a Freestanding Device 2-3
Mounting the Switch 2-4
Installing the Switch into a Rack 2-4
Positioning and Securing One or Two Switches 2-5
Installing One or More Power Supplies 2-6
Mounting the Assembled Kit Into a Rack 2-9
Connecting Power, Console, and Network Cables 2-9
Installing the Switch Under a Table 2-10
Installing the Switch on a Wall 2-12
Installing the Switch in the Lockbox and Mounting on a Wall 2-15
Installing the Switch in the Lockbox 2-15
Installing Power Supplies 2-16
Installing the D2-HIPWR-POE in the Lockbox 2-18
Connecting Network Cabling and Attaching the Wire Relief Bracket 2-21
Mounting the Lockbox on the Wall 2-22
Attaching and Locking the Cover 2-23
Removing the Lockbox Cover 2-25
Connecting a D2-HIPWR-POE Power Combiner 2-25
Connecting Power to the Switch 2-26
Power LED Displays 2-27
Connecting to the Console Port 2-27
Connecting to the Network 2-28
Connecting UTP Cables to RJ45 Ports 2-28
Installing an Optional SFP 2-29
Removing an SFP 2-31
Connecting Fiber-Optic Cables to SFP Ports 2-32
Installing the Optional Plastic Cover 2-33
Completing the Installation 2-35

Chapter 3: Troubleshooting

Checking the LEDs 3-1
CPU LED 3-1
Power LEDs 3-2
Port LEDs 3-2
Using the Password Reset Button 3-2
Resetting the D2-HIPWR-POE 3-3

Appendix A: Specifications

Switch Specifications A-1
D2-HIPWR-POE Specifications A-2
Power Supply Specifications A-3
Torque Values A-3
1-Gigabit Ethernet and 100Base-FX Transceiver (SFP) Specifications A-4
MGBIC-LC01/MGBIC-MT01 Specifications (1000BASE-SX) A-4
MGBIC-02 Specifications (1000BASE-T) A-5
MGBIC-LC03 Specifications (1000BASE-SX) A-5
MGBIC-LC04 Specifications (100BASE-FX) A-5
MGBIC-LC05 Specifications (100BASE-FX) A-6
MGBIC-LC07 Specifications (1000BASE-ELX) A-6
MGBIC-08 Specifications (1000BASE-ELX) A-6
MGBIC-LC09 Specifications (1000BASE-LX) A-7
Console Port Pinout Assignments A-7
Regulatory Compliance A-7

Index

Figures

1-1 D2G124-12P Switch (rear view) without plastic cover installed 1-2
1-2 D2G124-12P Switch (top and front view) without plastic cover installed 1-2
1-3 D2-HIPWR-POE 1-4
2-4 Installing a Switch in the Rack Mount Kit (D2G124-12P shown) 2-5
2-5 Fastening Switch(es) to the Rack Mounting Tray (two D2G124-12Ps shown) 2-6
2-6 Positioning of Hook & Loop Straps to Secure Power Supply (edge of tray shown) 2-7
2-7 Securing a Power Supply to the Rack Mount Tray (edge of tray position shown) 2-7
2-8 Rack Mount Switch Kit with Dual D2124-12Ps and Four D2-POE-PWRs 2-9
2-9 Installing the Switch in the Table Mount Kit (shown with one D2-PWR supply) 2-10
2-10 Attaching the D2-HIPWR-POE to the Table Mounting Tray 2-11
2-11 Installing the Switch On a Wall (shown with one D2-PWR supply) 2-13
2-12 Mounting the D2-HIPWR-POE to the Wall Mounting Tray 2-14
2-13 Installing the Switch in the D2 Lockbox Tray 2-16
2-14 Installing Power Supplies into the Lockbox Tray 2-17
2-15 Fastening the Hook & Loop Straps 2-18
2-16 Installing the Power Supplies 2-19
2-17 Threading the Cables 2-19
2-18 Seating the D2-HIPWR-POE in the Lockbox 2-20
2-19 Attaching a Network Cable (UTP cable to RJ45 port shown) 2-21
2-20 Attaching the Wire Relief Bracket 2-22
2-21 Mounting the Lockbox Over an AC Power/Data Outlet 2-23
2-22 Attaching the D2 Lockbox Cover 2-24
2-23 D2-HIPWR-POE Cable Connections 2-25
2-24 Connecting a UTP Cable Segment to RJ45 Port (D2G124-12P shown) 2-29
2-25 Installing an SFP (shown with LC connector and dust cover removed) 2-31
2-26 Cable Connection (LC shown) to Uplink Port with SFP Installed 2-33
2-27 Installing the Optional Plastic Cover (freestanding switch shown) 2-34
2-28 Optional Kensington Lock Opening 2-35

Tables

2-1 Power LED Displays 2-27
2-2 Console Port Pinout 2-27
2-3 RJ45 to DB9 Adapter Pinout 2-28
3-1 CPU LED Definitions 3-1
3-2 Power LED Definitions 3-2
3-3 Port LED Definitions 3-2
A-1 D2 Specifications A-1
A-2 D2-HIPWR-POE Specifications A-2
A-3 Power Supply Specifications A-3
A-4 Recommended Torque Values by Screw Size A-3
A-5 Mini-GBIC Input/Output Port Specifications A-4
A-6 MGBIC-LC01/MGBIC-MT01 Optical Specifications A-4
A-7 MGBIC-LC01/MGBIC-MT01 Operating Range A-4
A-8 MGBIC-02 Specifications A-5
A-9 MGBIC-LC03 Optical Specifications A-5
A-10 MGBIC-LC03 Operating Range A-5
A-11 MGBIC-LC04 Optical Specifications A-5
A-12 MGBIC-LC05 Optical Specifications A-6
A-13 MGBIC-LC07 Optical Specifications A-6
A-14 MGBIC-LC07 Operating Range A-6
A-15 MGBIC-08 Optical Specifications A-6
A-16 MGBIC-08 Operating Range A-6
A-17 MGBIC-LC09 Optical Specifications A-7
A-18 MGBIC-LC09 Operating Range A-7
A-19 Compliance Standards A-7

About This Guide

This guide provides an overview, specifications, and instructions for installing the Enterasys® D2 Ethernet Switch and its components in a standard 19-inch equipment rack, on a wall, under a table, or on a suitable flat surface. This guide also explains how to interpret the system status LEDs to facilitate troubleshooting when necessary, and provides information on how to contact Enterasys Networks for additional help.

Who Should Use This Guide

This guide is intended for a network administrator who is responsible for installing and setting up the D2 switch.

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.

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 D2 switch. A general working knowledge of data communications networks is helpful.

For information about...	Refer to...
An overview of D2 equipment	Chapter 1, **Introduction**
Instructions to install the D2 and components	Chapter 2, **Installation**
Troubleshooting installation problems and diagnosing network/operational problems	Chapter 3, **Troubleshooting**
Specifications, environmental requirements, and physical properties of the D2 switch.	Appendix A, **Specifications**

Related Documents

To configure the D2 switch, refer to the *Enterasys D-Series CLI Reference*.

Manuals can be accessed on the World Wide Web, using the following URL:

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

Document Conventions

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

blue type	Indicates a hypertext link. When reading this document online, click the text in blue to go to the referenced figure, table, or section.
Lowercase x	Indicates the general use of an alphanumeric character (for example, 6x1xx, the x's indicate a combination of numbers or letters).
	**Note:** Calls the reader's attention to any item of information that may be of special importance.
	**Caution:** Contains information essential to avoid damage to the equipment. **Precaución:** Contiene información esencial para prevenir dañar el equipo. **Achtung:** Verweißt auf wichtige Informationen zum Schutz gegen Beschädigungen.
	**Warning:** Warns against an action that could result in personal injury or death. **Advertencia:** Advierte contra una acción que pudiera resultar en lesión corporal o la muerte. **Warnhinweis:** Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!
	**Electrical Hazard:** Warns against an action that could result in personal injury or death. **Riesgo Electrico:** Advierte contra una acción que pudiera resultar en lesión corporal o la muerte debido a un riesgo eléctrico. **Elektrischer Gefahrenhinweis:** Warnung vor sämtlichen Handlungen, die zu Verletzung von Personen oder Todesfällen – hervorgerufen durch elektrische Spannung – führen können!

Commonly Used Acronyms

The following acronyms are used extensively throughout this guide:

- IOM – Input/Output Module
- LED – Light Emitting Diode
- SFP – 1-Gigabit Small Form Factor Pluggable fiber-optic transceiver
- USB – Universal Serial Bus
- ESD – Electrostatic Discharge
- PoE – Power over Ethernet

Getting Help

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

World Wide Web	www.enterasys.com/services/support/
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-978-684-1000 For the Enterasys Networks Support toll-free number in your country: www.enterasys.com/services/support/contact/
Internet mail	support@enterasys.com To expedite your message, please type **[SWITCHING]** 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 (if applicable)
- 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

The Enterasys Networks® D2 family of switches is designed to handle networking demands in a variety of business and institutional environments. Because the D2 operates with low noise emissions, this feature rich device is as suited to installation in conference rooms, office cubicles, and classrooms as it is to wiring closet installations. The D2 switch is a policy-capable device powered by external redundant power supplies that support Power over Ethernet (PoE) and other enterprise class features.

Overview

The D2 product family includes the D2G124-12 and D2G124-12P switches, power supply options (redundant as well as additional power), and switch mounting hardware.

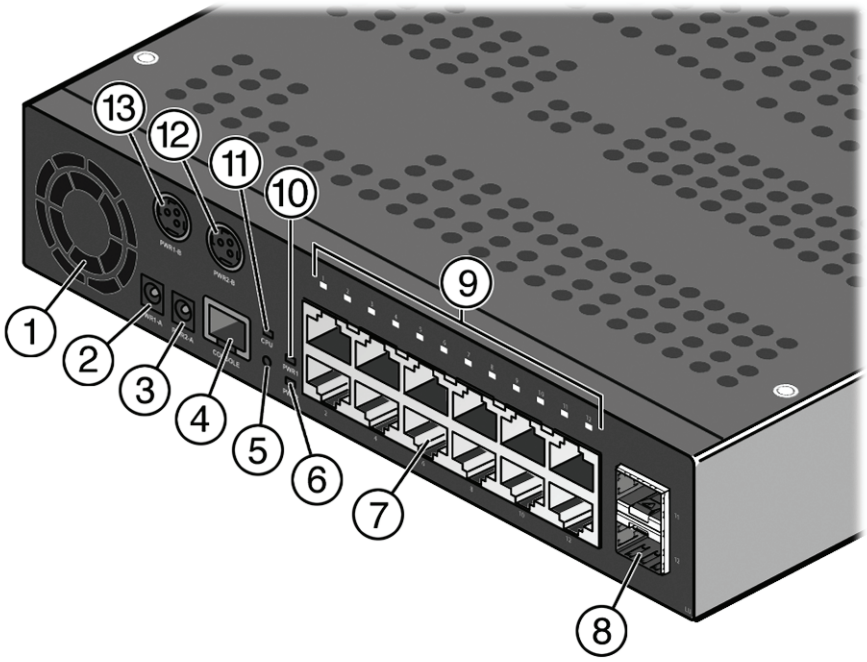
D2G124-12 and D2G124-12P Switches

The D2G124-12 and D2G124-12P systems provide twelve copper 10/100/1000 RJ45 ports and two 1-Gigabit Small Form Factor Pluggable (SFP) fiber-optic transceiver combo ports. Power over Ethernet (PoE) is factory installed on the D2G124-12P.

A D2 switch can be placed on a table-top as a freestanding unit, installed into a standard 48.26-centimeter (19-inch) rack, mounted on a wall, or mounted under a table. The width of the D2 allows for two switches to be installed side-by-side into a standard rack. In addition, a wall-mounted lockbox is available to secure the unit and cables from tampering after installation is complete.

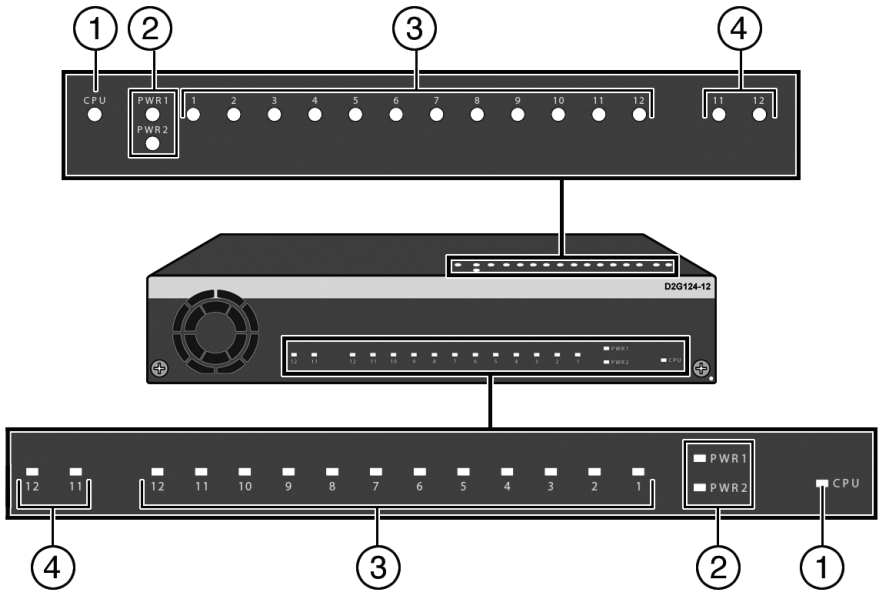
The D2G124-12 and D2G124-12P switches are shown in Figure 1-1 and Figure 1-2 on page 1-2. The D2 switch's status LEDs are visible from the front, rear, and top of the switch. Console and Ethernet ports are located on the rear panel. An add-on plastic cover can be ordered separately and installed over the switch when used as a freestanding unit or mounted on a wall.

Figure 1-1 D2G124-12P Switch (rear view) without plastic cover installed



1 Fan
2 Power Supply 1 non-PoE receptacle (PWR1-A)
3 Power Supply 2 non-PoE receptacle (PWR2-A)
4 Console port (RJ45)
5 Reset button
6 Power Supply 2 (PWR2) LED
7 RJ45 ports (1-12)
8 SFP combo ports (11 and 12)
9 RJ45 Port LEDs
10 Power Supply 1 (PWR1) LED
11 CPU (system) LED
12 Power Supply 2 PoE receptacle (PWR2-B)
13 Power Supply 1 PoE receptacle (PWR1-B)

Figure 1-2 D2G124-12P Switch (top and front view) without plastic cover installed



1 CPU (system) LED
2 Power supply (PWR1 and PWR2) LEDs
3 RJ45 port LEDs (ports 1-12)
4 SFP combo port LEDs (ports 11 and 12)

Features

The D2 includes the following features:

- Interfaces
  - Twelve RJ45 (10/100/1000Mbps,1000BASE-TX copper) ports plus two combo SFP ports in the rear panel

Notes: Each combo SFP port on the D2G124-12 and D2G124-12P supports the installation of Mini-GBICs for 1000Base-SX, 1000Base-LX, 100Base-FX or 1000Base-T copper SFP transceivers.

Each combo SFP port in use on these units eliminates the availability of one RJ45 port. In other words, only twelve ports can be active at any given time. When an SFP transceiver (Mini-GBIC) SFP port 11 establishes a link, RJ45 port 11 is disabled. When an SFP transceiver (Mini-GBIC) in SFP port 12 establishes a link, RJ45 port 12 is disabled.

- Standalone or Rack Mountable Chassis

  The D2 switch can be installed as a freestanding unit on a shelf or table. Optionally, it can be mounted as follows:
  - Into a standard 48.26-centimeter (19-inch) equipment rack as a single or dual (two devices side-by-side) mounting.
  - Under a table or desk.
  - On a wall.
- PoE
  - PoE is installed on the D2G124-12P switch. Refer to "PoE (Power over Ethernet) Support" on page 1-4 for more information.
- Power Supplies

  Two DC inputs in the D2 rear panel can be connected to the two types of external power supplies listed below. One power supply is provided with each switch. An optional redundant power supply can be purchased separately. Refer to "Power Supply Specifications" on page A-3 for more information.

  The following external power supplies are available for the D2 switch:
  - D2-PWR, a DC power supply capable of providing power to a fully-loaded non-PoE switch.
  - D2-PWR-POE, a DC power supply recommended for PoE power redundancy on six RJ45 ports.

Note: The D2-PWR supply will power either the D2G124-12 or the D2G124-12P without PoE support. The D2-PWR-POE is the only supply for powering the D2G124-12P with PoE support.

  - D2-HIPWR-POE, an optional power combiner that provides a full 15.4 watts of PoE to all twelve RJ45 ports on the D2G124-12P.
- Fan
  - The D2 fan is designed to run extremely quiet and is only required to operate beyond temperatures of 40 degrees C (104 degrees F) on the non-PoE model and 35 degrees C (95 degrees F) on the PoE model.

- LEDs

  LEDs are visible from the top, front, and rear panels of the D2 switch and include:

  – The CPU LED indicates the state of the system, as described in Table 3-1 on page 3-1.

  – Two power LEDs (PWR1 and PWR2) indicate voltage for the primary and secondary power inputs as described in Table 3-2 on page 3-2.

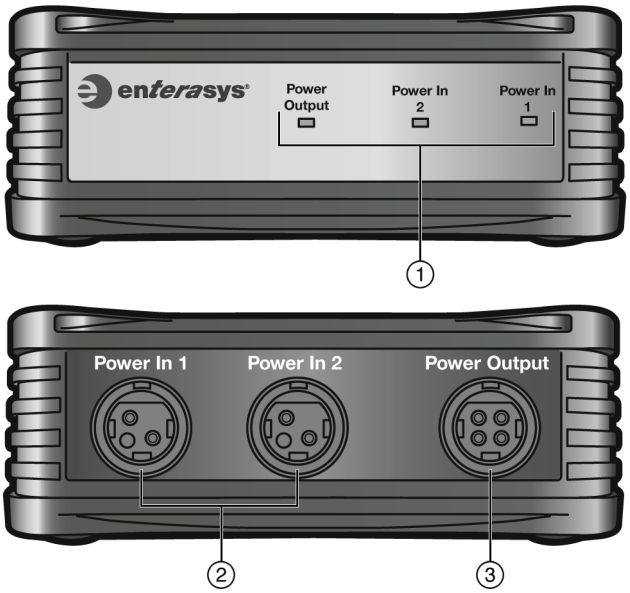
Port LEDs indicate the operational status of ports in the rear panel, as described in Table 3-3 on page 3-2.

D2-HIPWR-POE Power Combiner

The D2-HIPWR-POE is an optional power combiner that provides a full 15.4 watts of PoE to all twelve RJ45 ports on the D2G124-12P. The D2-HIPWR-POE combines the power output of two D2-PWR-POE power supplies into a single output that can be plugged into a D2G124-12P switch. You can connect a single D2-HIPWR-POE power combiner to your D2G124-12P switch, or two D2-HIPWR-POE power combiners for redundant PoE on all twelve front panel RJ45 ports.

Figure 1-3 shows the front panel LEDs and rear panel inputs of the D2-HIPWR-POE power combiner.

Figure 1-3 D2-HIPWR-POE



1 Status LEDs
2 Power Inputs
3 Power Output

PoE (Power over Ethernet) Support

The D2G124-12P switch is 802.3af compliant. This means the switch is capable of providing up to 15.4 watts of Power over Ethernet power from its RJ45 front panel connectors to powered devices (PDs) in the network. The D2G124-12P can provide 100 watts of PoE power to the RJ45 ports. Up to six ports can be provided with a full 15.4 watts of power with the base power configuration (one D2-PWR-POE power supply or two for redundancy) or twelve RJ45 ports can be provided 15.4 watts each if configured with the D2-HIPWR-POE power combiner.

Power over Ethernet (PoE) refers to the ability to provide 48 Vdc power to a powered device using the same Ethernet cabling that provides data. 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 specification, which is part of the 802.3 suite of standards.

The switch is fully compliant with the IEEE 802.3af standard. It supports the standard resistor-based detection method, as well as AC disconnect capability.

When operating at 40°C or less, the switch supports an average of 8.3W PoE power per port. It provides up to 15.4W for Class 3 support on any port, up to a system maximum of 100 watts. Total system PoE power decreases 2.16W per °C increase over 40°C.

Powered Device Classifications (PDs)

PDs are devices that receive their operating 48 Vdc power through a new or existing Ethernet cable from a switch or other device that can provide a PoE-compliant port connection. This enables the PD to operate in a location without local power. For example:

- Devices such as PoE-compliant remote EXIT signs and Personal Data Assistants (PDAs),
- Devices that support Voice over IP such as PoE-compliant digital telephones,
- Devices that support Wireless Application Protocol (WAP) such as security cameras, laptop PCs, and many more devices.

2

Installation

This chapter provides the instructions to install the D2G124-12 and D2G124-12P. Unless otherwise noted, the instructions apply to both switches.

Equipment needed:

- Anti-static wrist strap
- Phillips screwdriver

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.

Depending on the mounting option you choose, and whether you decide to use the switch as a freestanding device, the order in which you complete the D2 installation may vary. Use the following table as a guideline:

For information about...	Refer to page...
Unpacking the D2 Switch	2-2
Order of Installation Steps	2-3
Mounting the Switch	2-4
Connecting Power to the Switch	2-26
Connecting to the Console Port	2-27
Connecting to the Network	2-28
Installing the Optional Plastic Cover	2-28
Completing the Installation	2-35

Unpacking the D2 Switch

Note: Unpack the D2 switch 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 switch has to be repacked.

Shipped With the Switch

Inspect the contents for any signs of physical damage. Contact Enterasys Networks if it is damaged. Refer to "Getting Help" on page xvii for details. The contents of the package include:

- D2 switch
- RJ45 to DB9 adapter (for use with the RJ45 console port if necessary)
- Various documentation, including an optional policy license, if purchased
- One power supply module and AC cord
- Optional rubber feet (for using the switch as a freestanding device)

Optional Components

Optional components shipped separately from the D2 switch include the following:

- One or more additional power supply module(s) for redundancy, either D2-PWR or D2-PWR-POE
- D2-HIPWR-POE power combiner

Note: Both power supplies must be of the same type to support redundancy.

- One of the following installation kits:
  - Rack mount installation kit (D2-RMT)
  - Table mount installation kit (D2-TBL-MNT)
  - Wall mount installation kit (D2-WALL-MNT)
  - Metal lockbox wall mount installation kit (D2-LOCKBOX)
- Optional plastic cover (D2-COVER-W)

Order of Installation Steps

Once you have chosen a suitable site, you can proceed to install the D2 switch components. Depending on the mounting option you choose, and whether you decide to use the switch as a freestanding device, the order in which you complete the installation may vary. Use the following steps as a guideline:

1. Attach an antistatic wrist strap to your wrist.
2. Determine a suitable location for the D2 installation and proceed with one of the following options:
   a. Using the Switch as a Freestanding Device
   b. "Installing the Switch into a Rack" (page 2-4)
   c. "Installing the Switch Under a Table" (page 2-10)
   d. "Installing the Switch on a Wall" (page 2-12)
   e. "Installing the Switch in the Lockbox and Mounting on a Wall" (page 2-15)
3. Connect power to the switch. Refer to "Connecting Power to the Switch" on page 2-26.
4. Connect to the console port. Refer to "Connecting to the Console Port" on page 2-27.
5. Connect to the network (including installing optional SFPs). Refer to "Connecting to the Network" on page 2-28.
6. Install the optional plastic cover. Refer to "Installing the Optional Plastic Cover" on page 2-33.
7. Complete the installation. Refer to "Completing the Installation" on page 2-35.

Using the Switch as a Freestanding Device

If you are installing the D2 switch as a freestanding device, choose an appropriate flat, secure location, such as a desk top, and:

1. If desired, install the optional rubber feet underneath the switch by affixing one securely in each of the four corners.
2. (Optional) Connect the D2-HIPWR-POE power combiner as described in "Connecting a D2-HIPWR-POE Power Combiner" on page 2-25.
3. Proceed to connect power to the switch as described in "Connecting Power to the Switch" on page 2-26.

Mounting the Switch

The following mounting options are available for the D2 switch. Each requires that you purchase a separate mounting kit. Proceed to mount the switch in your desired location using one of the procedures described in this section:

- Install the switch in the rack mount kit and mount the switch to a 48.26-centimeter (19-inch) rack or other secure location, as described in Installing the Switch into a Rack.
- Install the switch in a table mount kit and mount the switch under a table, as described in "Installing the Switch Under a Table" on page 2-10.
- Install the switch in a wall mount kit and mount the switch on a wall, as described in "Installing the Switch on a Wall" on page 2-12.
- Install the switch in a lockbox kit and mount the switch on a wall, as described in "Installing the Switch in the Lockbox and Mounting on a Wall" on page 2-15.

Caution: Before installing the screws as described in this installation procedure, refer to "Torque Values" on page A-3.

Precaución: Antes de retirar los tornillos, tal como se describe en las instrucciones de instalación, consulte "Torque Values" on page A-3.

Installing the Switch into a Rack

The D2 switch can be single or dual-mounted in a standard EIA-310-D compliant 48.26-centimeter (19-inch) equipment rack. To mount one or two switches into a rack, you must first install each switch into a rack mount kit as described in the following procedure. You must provide the mounting hardware to attach the assembled kit to the rack rails.

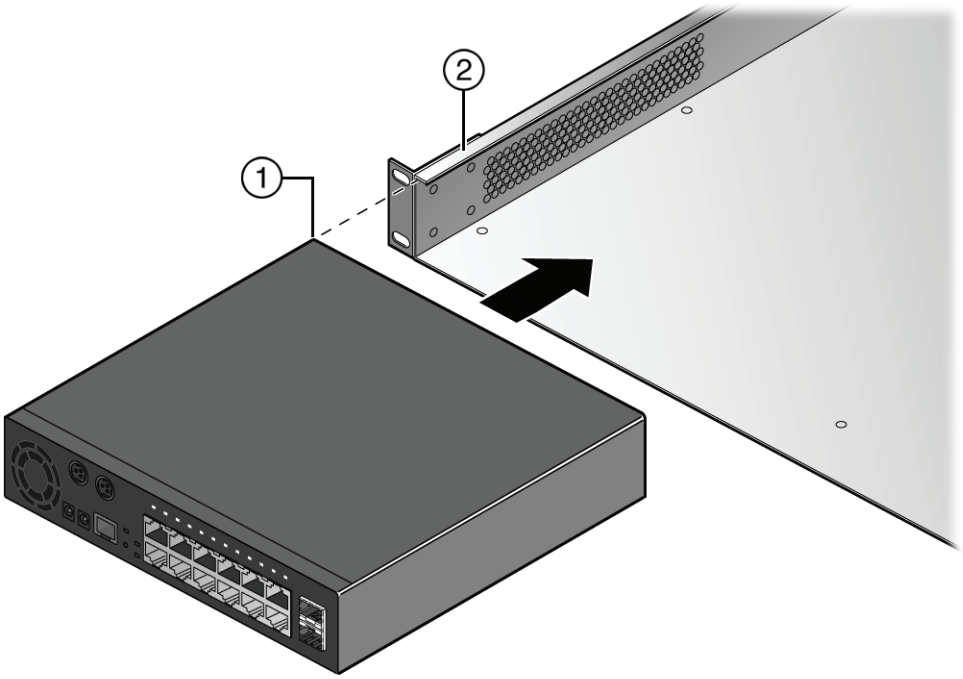
Note: The D2-PWR-POE is taller than one rack unit high. If you have installed one or more D2-PWR-POE power supplies in the rack mount kit, ensure that your rack installation location leaves at least one rack unit of free space above the mounted assembly kit.

Complete the following steps to install one or two switches in the rack mount kit:

1. "Positioning and Securing One or Two Switches" (page 2-5)
2. "Installing One or More Power Supplies" (page 2-6)
3. "Mounting the Assembled Kit Into a Rack" (page 2-9)
4. "Connecting Power, Console, and Network Cables" (page 2-9)

Positioning and Securing One or Two Switches

Figure 2-4 Installing a Switch in the Rack Mount Kit (D2G124-12P shown)

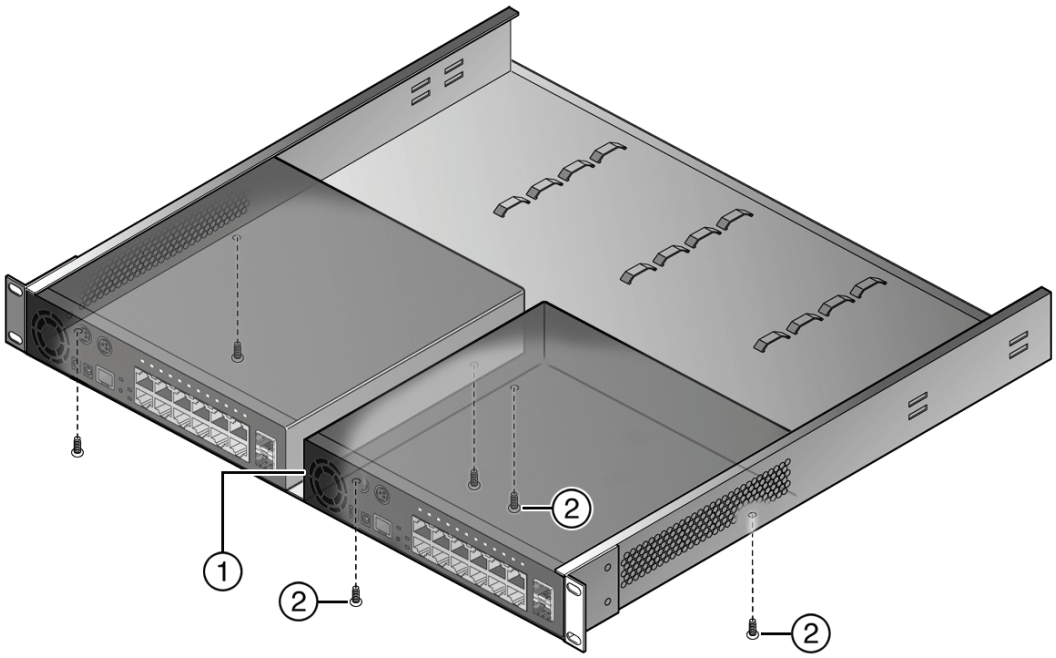


1 Front edge of switch **2** Rack mounting tray lip

To install a switch in the rack mount kit, proceed as follows:

1. Mount the switch in the mounting tray by sliding the front edge of the switch underneath the lip on the mounting tray as shown in Figure 2-4, and aligning the three screw holes on the bottom of the switch with the three holes in the rack mounting tray.
2. (Optional) Repeat Step 1 to mount a second switch on the opposite side of the rack mounting tray.

Figure 2-5 Fastening Switch(es) to the Rack Mounting Tray (two D2G124-12Ps shown)



1 Rear edge of switch **2** Fastening screws (three per switch)

3. Using the screws provided (three for each switch), fasten each switch to the rack mounting tray as shown in Figure 2-5.

Installing One or More Power Supplies

The D2 rack mount kit provides mounting positions for up to four power supplies (up to two for each mounted switch). Depending on whether you have one or two switches in the rack mount kit, and whether you want one or two power supplies for each switch, the method you use to secure each power supply may vary slightly.

Choose one of the following options for installing a power supply in the rack mount kit:

- "Edge of Tray Installation" (page 2-6)
- "Middle of Tray Installation" (page 2-8)

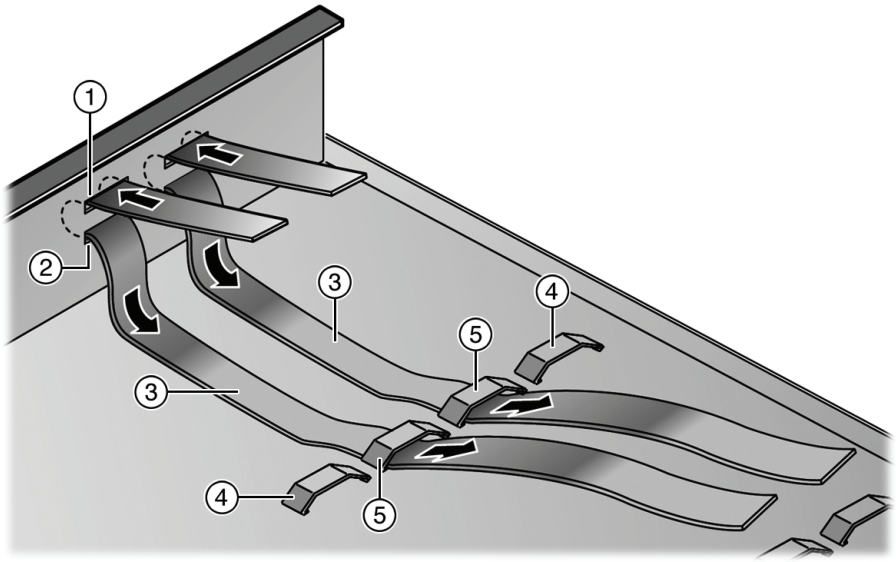
Edge of Tray Installation

Using one of the hook & loop straps provided, secure a power supply to one of the edge mounting positions on the rack mount kit as follows:

1. Thread the strap through the mounting tray as shown in Figure 2-6 on page 2-7 and around one side of the power supply in the following order:
   a. Out through the first mounting hole closest to the top of the mounting tray
   b. In through the mounting hole just below the first mounting hole
   c. Under the power supply
   d. Through the appropriate bridge anchor
   e. Wrap the ends of the strap over the top of the power supply and fasten securely.

Note: The bridge anchors you use to secure each power supply will depend on the power supply's location in the rack mounting tray. Refer to Figure 2-8 on page 2-9 for an illustration showing how to use all four sets of bridge anchors in staggered fashion to secure four power supplies.

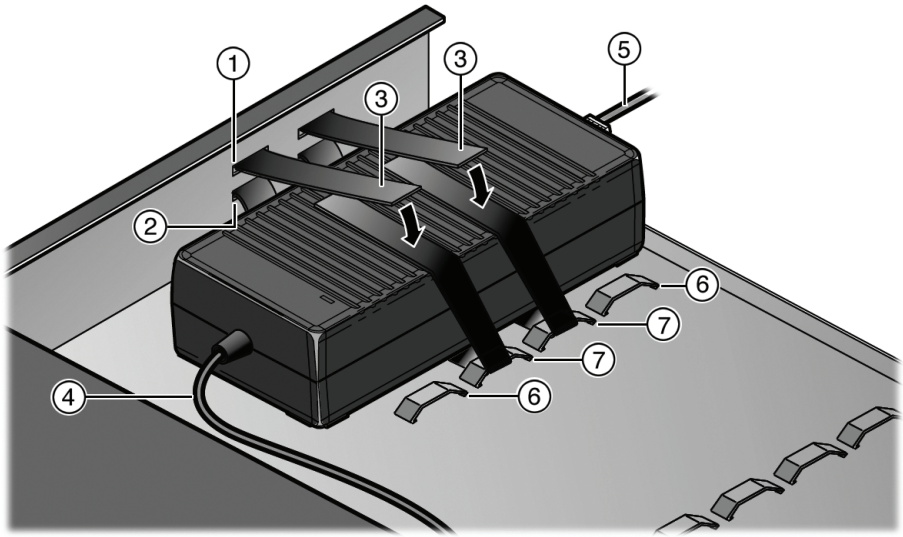
Figure 2-6 Positioning of Hook & Loop Straps to Secure Power Supply (edge of tray shown)



1	Top power supply mounting hole	**4**	Outer set of bridge anchors
2	Bottom power supply mounting hole	**5**	Inner set of bridge anchors
3	Hook & loop straps		

2. Repeat step 1 on page 2-6 with another hook & loop strap to secure the other side of the power supply to the mounting tray. Final placement is shown in Figure 2-7.

Figure 2-7 Securing a Power Supply to the Rack Mount Tray (edge of tray position shown)



1	Top power supply mounting hole	**5**	AC power cord
2	Bottom power supply mounting hole	**6**	Outer set of bridge anchors
3	Hook & loop straps	**7**	Inner set of bridge anchors
4	DC power cord		

3. Plug the power cord from the power supply into the switch DC power receptacle that is appropriate for your type of power supply.
   - For the D2-PWR supply, plug into the PWR1-A or PWR2-A receptacle.
   - For the D2-PWR-POE supply, plug into the PWR1-B or PWR2-B receptacle.
4. Choose one of the following:
   - If you are done installing power supplies, proceed to "Mounting the Assembled Kit Into a Rack" on page 2-9.
   - If you need to install one or more additional power supplies, either
     - Repeat this Edge of Tray Installation procedure, or
     - Proceed to the Middle of Tray Installation procedure on page 2-8.
5. (Optional) Use the wire ties provided to secure the power cords inside the rack mounting tray.

Middle of Tray Installation

Note: When installing power supplies in the middle of the rack mount tray, you do not need to use the mounting holes on the edge of the tray. Instead, you will use the available bridge anchors in a staggered fashion as show in Figure 2-8 on page 2-9.

Using one of the hook & loop straps provided, secure a power supply to one of the middle mounting positions on the rack mount kit as follows:

1. Thread the strap through the mounting tray and around one side of the power supply in the following order:
   a. Through the bridge anchor on one side of the power supply
   b. Under the power supply
   c. Through the bridge anchor on the other side of the power supply
   d. Wrap the ends of the strap over the top of the power supply and fasten securely
2. Repeat Step 1 with another hook & loop strap to secure the other side of the power supply to the mounting tray. Final placement is shown in Figure 2-8 on page 2-9.
3. Plug the power cord from the power supply into the switch DC power receptacle that is appropriate for your type of power supply.
   - For the D2-PWR supply, plug into the PWR1-A or PWR2-A receptacle.
   - For the D2-PWR-POE supply, plug into the PWR1-B or PWR2-B receptacle.
4. Choose one of the following:
   - If you are done installing power supplies, proceed to "Mounting the Assembled Kit Into a Rack" on page 2-9.
   - If you need to install one or more additional power supplies, either
     - Repeat this Middle of Tray Installation procedure, or
     - Repeat the Edge of Tray Installation procedure on page 2-6.
5. (Optional) Use the wire ties provided to secure the power cords inside the rack mounting tray.

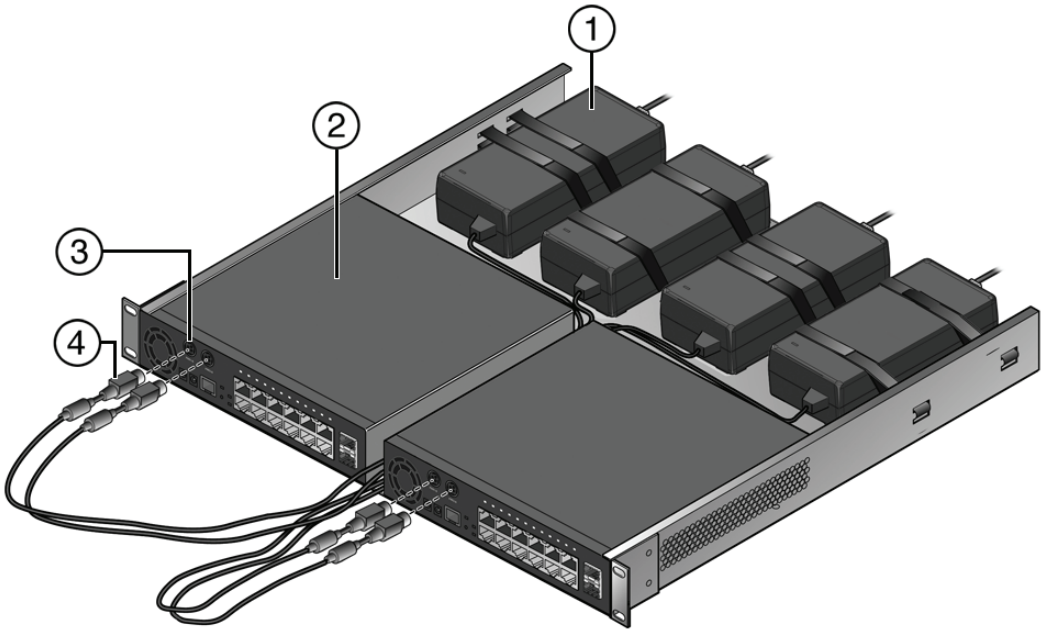
Mounting the Assembled Kit Into a Rack

Note: The D2-PWR-POE is taller than one rack unit high. If you have installed one or more D2-PWR-POE power supplies in the rack mount kit, ensure that your rack installation location leaves at least one rack unit of free space above the mounted assembly kit.

Once the kit is fully assembled with one or more switches and power supplies, mount it to your rack location as follows:

1. Ensure that you have appropriate screws for securing the assembled kit to your rack location. These four screws are required and are not provided in the rack mount kit.
2. Using appropriate screws and the four screw holes in the corner edges of the rack mounting tray, attach the assembled kit to your desired rack location. Tighten securely.

Figure 2-8 Rack Mount Switch Kit with Dual D2124-12Ps and Four D2-POE-PWRs



1	Power supply (D2-PWR-POEs shown)	**3**	PWR1-B and PWR2-B PoE DC power receptacles
2	D2 switch (Dual D2124-12Ps shown)	**4**	DC power chords

Connecting Power, Console, and Network Cables

Once the assembled rack mount kit is attached to your rack location, proceed to:

- Connect power to the switch(es) by plugging each AC power cord into a dedicated, grounded AC outlet. Refer to "Connecting Power to the Switch" on page 2-26.
- Attach console cable(s). Refer to "Connecting to the Console Port" on page 2-27 for more information.
- Attach network cables. Refer to "Connecting to the Network" on page 2-28 for more information.

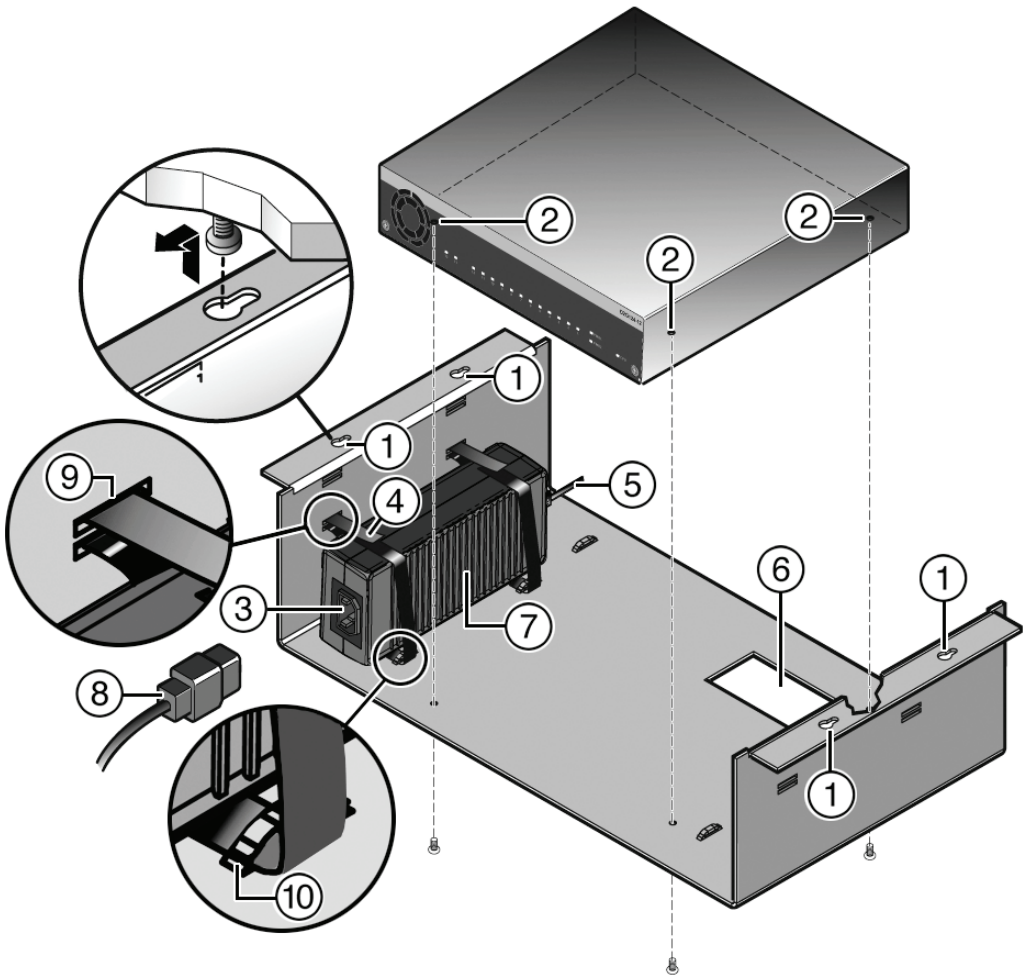
Installing the Switch Under a Table

Caution: The table location and rack mounting screws/anchoring method that the installer selects for mounting the D2 switch must be capable of supporting 60 lbs (27.2kg).

Advertencia: La ubicación de la mesa y el método de anclaje o los tornillos de montaje del estante que el instalador seleccione para montar el interruptor D2 deberán ser capaces de soportar un peso de 60 lbs (27.2 kg).

To install the switch in the table mount kit and then install it under a table, refer to Figure 2-9 and proceed as follows:

Figure 2-9 Installing the Switch in the Table Mount Kit (shown with one D2-PWR supply)

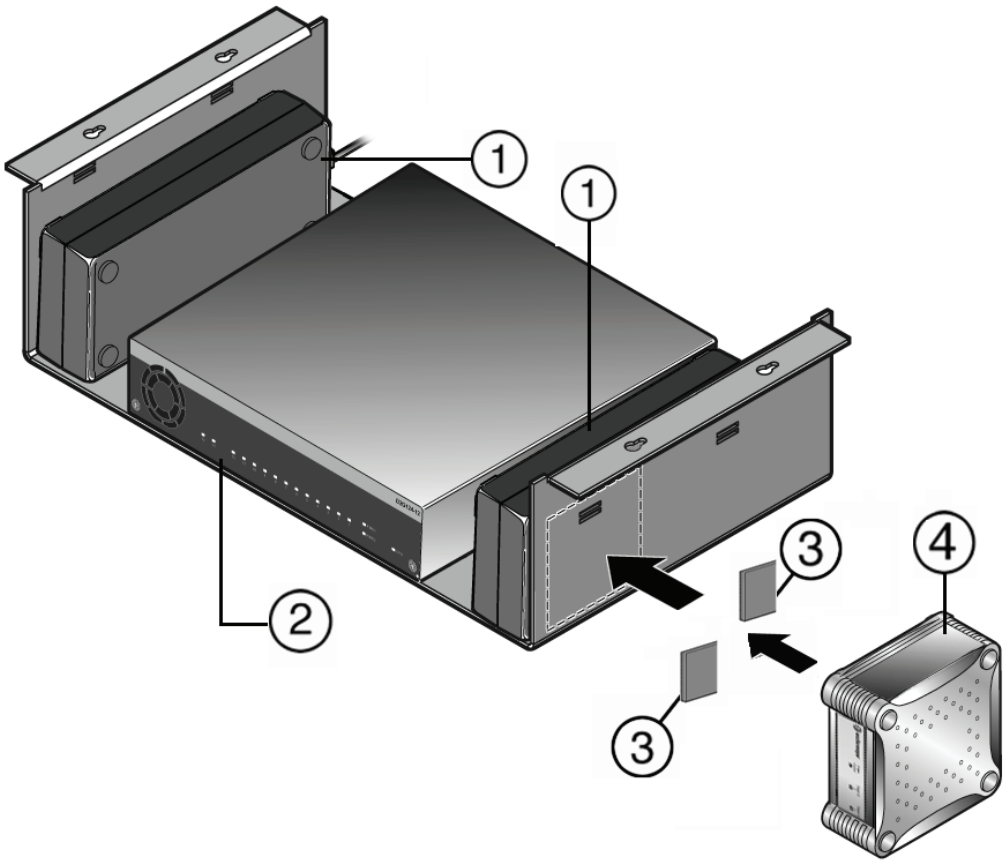


1	Table mounting screw holes (four)	**6**	Serial number access window
2	Switch mounting screw holes (three)	**7**	Power supply (D2-PWR shown)
3	AC power receptacle	**8**	AC power cord
4	Power supply hook & loop strap	**9**	Hook & loop strap through power supply mounting holes
5	DC power cord	**10**	Hook & loop strap through bridge anchor

1. Ensure that you have appropriate screws for securing the assembled table mount kit to your table location. These four screws are required and are not provided in the table mount kit.

2. Mount the switch in the center of the table mounting tray, aligning the three screw holes on the bottom of the switch with the three holes in the table mounting tray.
3. Using the three screws provided, fasten the switch to the table mounting tray.
4. Using one of the hook & loop straps provided, complete the following steps to secure one end of the power supply in the position shown:
   a. Thread the strap through the mounting tray and around the power supply in the following order:
      (1) Through the bridge anchor beside the power supply
      (2) Under the power supply
      (3) Out through the first mounting hole (closest to the top of the power supply)
      (4) In through the second mounting hole
   b. Wrap the ends of the strap over the top of the power supply and fasten securely.
5. Repeat Step 4 to secure the other end of the power supply to the mounting tray.
6. (Optional) Repeat Step 4 to secure a second power supply to the mounting tray.
7. (Optional) If you are installing a D2-HIPWR-POE, refer to Figure 2-10 and proceed as follows:

Figure 2-10 Attaching the D2-HIPWR-POE to the Table Mounting Tray



1	D2-PWR-POE power supply	**3**	Hook & loop fasteners with adhesive
2	D2G124-12P switch	**4**	D2-HIPWR-POE power combiner

a. With the hook and loop sides attached together, peel back the adhesive covering on one side of each hook & loop fastener and apply to opposite corners on the bottom of the D2-HIPWR-POE.

b. Once the hook & loop fasteners are adhered to the bottom of the D2-HIPWR-POE, remove the adhesive covering on the other side of both hook & loop fasteners and adhere to the table mounting tray.

c. Firmly press the D2-HIPWR-POE against the table mount tray and hold together for a few seconds.

8. Plug the DC power cord from the power supply into the switch DC power receptacle that is appropriate for your type of power supply.
   - For the D2-PWR supply, plug into the PWR1-A or PWR2-A receptacle on the switch.
   - For the D2-PWR-POE supply, plug into the PWR1-B or PWR2-B receptacle on the switch.
   - For the D2-HIPWR-POE, see "Connecting a D2-HIPWR-POE Power Combiner" on page 2-25.
9. Plug the AC cord into the power supply's AC receptacle.
10. (Optional) Use the wire ties provided to secure the power cords inside the table mounting tray.
11. Using appropriate screws and the four screw holes in the corner edges of the table mounting tray, attach the assembled kit underneath your desired table location. Mount the assembled unit in place by positioning the screw holes over your installed table screws and pulling slightly forward on the unit.
12. Attach network cables. Refer to "Connecting to the Network" on page 2-28 for more information.
13. Plug each AC power cord into a dedicated, grounded AC outlet. See "Connecting Power to the Switch" on page 2-26 for information on redundancy and the initialization process.

Note: Once assembled, the serial number on the bottom of your D2 switch will be visible through the window on the bottom of the table mount kit.

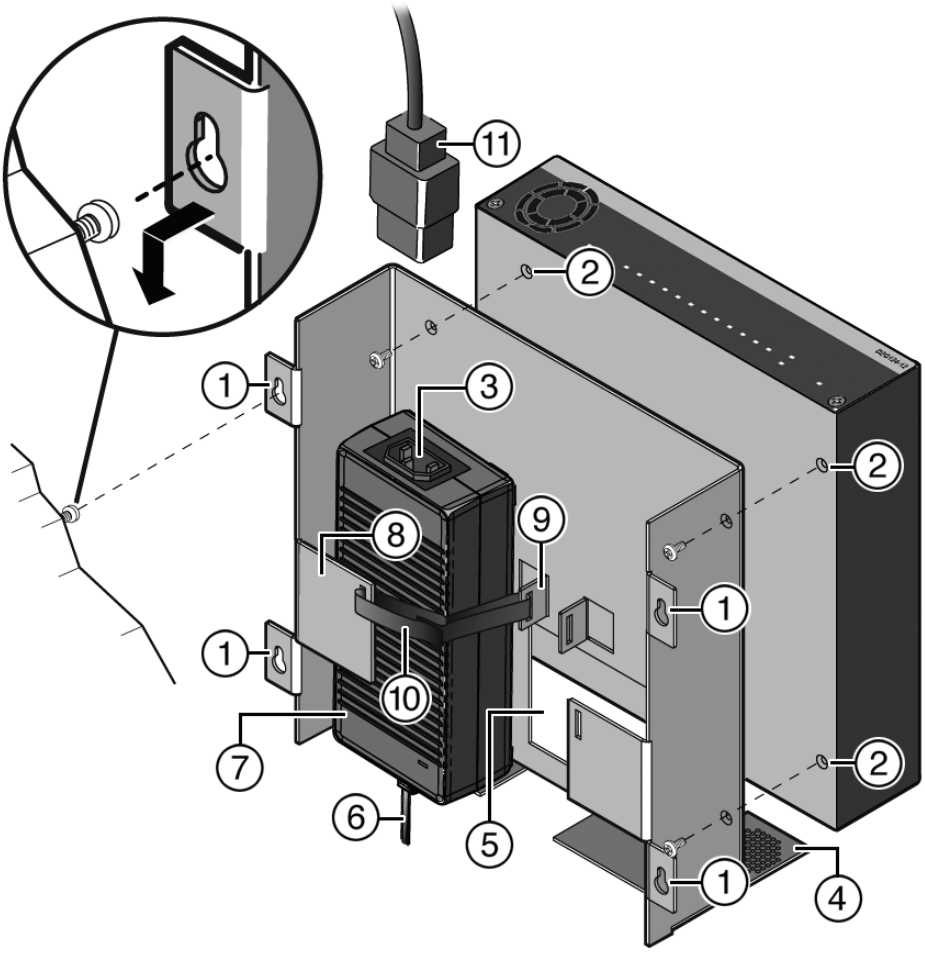
Installing the Switch on a Wall

Caution: The wall location and wall mounting screws/anchoring method that the installer selects for mounting the D2 switch must be capable of supporting 55 lbs (25kg).

Advertencia: La ubicación de la pared y el método de anclaje o los tornillos de montaje de la pared que el instalador seleccione para montar el interruptor D2 deberán ser capaces de soportar un peso de 55 lbs (25 kg).

To install the switch in the wall mount kit and then install it on a wall, refer to Figure 2-11 on page 2-13 and proceed as follows:

Figure 2-11 Installing the Switch On a Wall (shown with one D2-PWR supply)



1	Wall mounting screw holes (four)	**7**	Power supply (D2-PWR shown)
2	Switch mounting screw holes (three)	**8**	Power supply mounting flange
3	AC power receptacle	**9**	Power supply mounting bracket
4	Fan tab	**10**	Power supply hook & loop strap
5	Serial number access window	**11**	AC power cord
6	DC power cord		

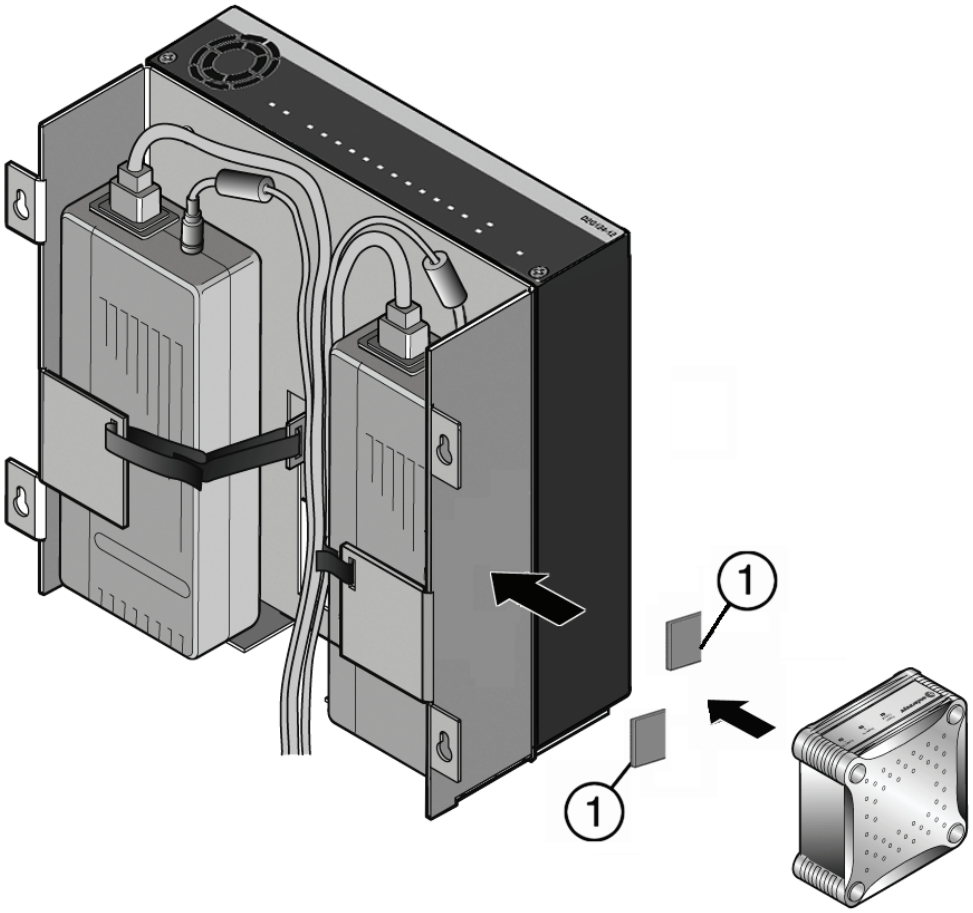
1. Ensure that you have appropriate screws for securing the assembled wall mount kit to your wall location. These four screws are required and are not provided in the wall mount kit.
2. Mount the switch on the front side of the wall mount kit in the direction shown, aligning the three screw holes on the bottom of the unit with the three holes in the wall mount tray.

Note: Ensure that the D2 switch is secured to the wall mount tray in the position shown, with the back panel of the switch facing downward. The fan tab on the wall mount tray must face downward when the kit is installed on the wall.

3. Using the screws provided, fasten the switch to the wall mounting tray.
4. Install a power supply by sliding it under the flange located on the bottom side of the wall mounting tray.

5. Using the hook & loop strap provided, thread the strap through the mounting tray and over the power supply in the following order:
   a. Up through the mounting tray bracket at the side of the power supply
   b. Through the opening in the mounting tray flange
6. Fasten the ends of the hook & loop strap securely around the power supply. Repeat Step 5 and Step 6 to secure a second power supply.
7. (Optional) If mounting a D2-HIPWR-POE to the wall mounting tray, refer to Figure 2-12 and proceed as follows:

Figure 2-12 Mounting the D2-HIPWR-POE to the Wall Mounting Tray



1 Hook & loop fasteners with adhesive

   a. With the hook and loop sides attached together, peel back the adhesive covering on one side of each hook & loop fastener and apply to opposite corners on the bottom of the D2-HIPWR-POE.
   b. Once the hook & loop fasteners are adhered to the bottom of the D2-HIPWR-POE, remove the adhesive covering on the other side of both hook & loop fasteners and adhere to the table mounting tray.
   c. Firmly press the D2-HIPWR-POE against the table mounting tray and hold together for a few seconds.

8. Plug the DC power cord from the power supply into the switch DC power receptacle that is appropriate for your type of power supply.
   - For the D2-PWR supply, plug into the PWR1-A or PWR2-A receptacle.
   - For the D2-PWR-POE supply, plug into the PWR1-B or PWR2-B receptacle.
   - For the D2-HIPWR-POE power combiner, see "Connecting a D2-HIPWR-POE Power Combiner" on page 2-25.
9. Plug the AC cord into the power supply's AC receptacle.
10. (Optional) Use the wire ties provided to secure the power cords inside the wall mounting tray.
11. Using appropriate screws and the screw holes in each corner edge of the wall mounting tray, attach the assembled kit to your desired wall location. Secure the assembled unit in place by positioning the screw holes over the installed wall screws and pulling slightly downward on the unit.
12. Attach network cables. Refer to "Connecting to the Network" on page 2-28 for more information.
13. Plug each AC power cord into a dedicated, grounded AC outlet. See "Connecting Power to the Switch" on page 2-26 for information on redundancy and the initialization process.
14. (Optional) If you have purchased an optional plastic cover, attach it to the mounted D2 switch as described in "Installing the Optional Plastic Cover" (page 2-33).

Note: Once assembled, the serial number on the bottom of your D2 switch will be accessible through the window on the bottom of the wall mounting tray. In the event you need to view it, you will need to detach the wall mounting tray from the wall and (if installed) remove the power supply from underneath the serial number window.

Installing the Switch in the Lockbox and Mounting on a Wall

To assemble the switch and other components in the D2 lockbox, proceed as described in the following sections:

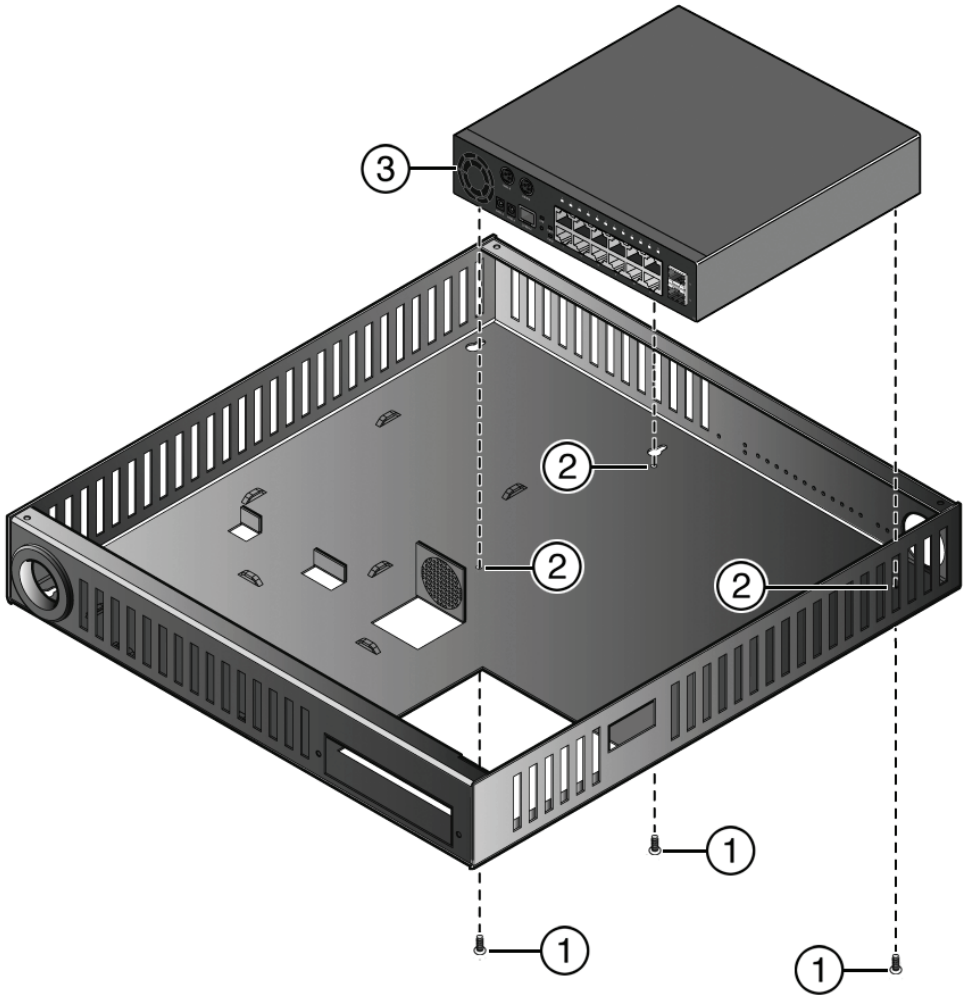
- Installing the Switch in the Lockbox
- Install your power supplies, following the steps in either "Installing Power Supplies" (page 2-16) or "Installing the D2-HIPWR-POE in the Lockbox" (page 2-18)
- "Connecting Network Cabling and Attaching the Wire Relief Bracket" (page 2-21)
- "Mounting the Lockbox on the Wall" (page 2-22)
- "Attaching and Locking the Cover" (page 2-23)
- "Removing the Lockbox Cover" (page 2-25)

Installing the Switch in the Lockbox

To install the switch in the lockbox tray, proceed as follows:

1. Detach the lockbox key and place it in a secure location for later use.

Figure 2-13 Installing the Switch in the D2 Lockbox Tray



1	Mounting screws (three)	**3**	D2 switch fan vent
2	Mounting screw holes		

2. Mount the switch inside the lockbox tray in the direction shown in Figure 2-13 on page 2-16, aligning the three screw holes on the bottom of the unit with the three holes in the lockbox tray.

Note: Ensure that the D2 switch is secured to the lockbox tray in the position shown in Figure 2-21 on page 2-23. The fan tab on the lockbox tray must face downward when the kit is installed on the wall.

3. Using the screws provided, fasten the switch to the lockbox tray.

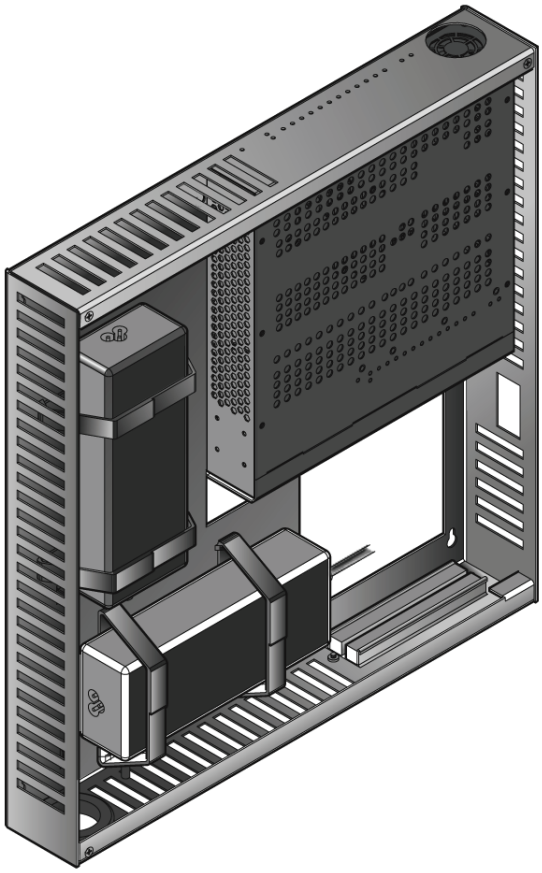
Installing Power Supplies

Once the switch is secured in the lockbox tray, assemble the rest of the D2 components into the lockbox. If you are installing the D2-HIPWR-POE power combiner in the lockbox, see "Installing the D2-HIPWR-POE in the Lockbox" on page 2-18.

To install power supplies into the lockbox:

1. Using one of the hook & loop straps provided, complete the following steps to secure one end of the power supply in the position shown in Figure 2-14 on page 2-17:

Figure 2-14 Installing Power Supplies into the Lockbox Tray



a. Thread the strap through the mounting tray and around the power supply in the following order:

   (1) Through the bridge anchor on one side of the power supply

   (2) Under the power supply

   (3) Through the bridge anchor on the other side of the power supply

b. Wrap the ends of the strap over the top of the power supply and fasten securely.

c. Repeat step 1 on page 2-16 with another hook & loop strap to secure the other end of the power supply to the mounting tray. Final placement of power supplies is shown in Figure 2-14 on page 2-17.

2. Plug the DC power cord from the power supply into the switch DC power receptacle that is appropriate for your type of power supply.
   - For the D2-PWR supply, plug into the PWR1-A or PWR2-A receptacle.
   - For the D2-PWR-POE supply, plug into the PWR1-B or PWR2-B receptacle.
3. Plug the AC cord into the power supply's AC receptacle.
4. (Optional) If you have purchased a second power supply and wish to install it, repeat step 1 on page 2-16 though Step 3 using the second power supply slot in the tray and the unused PWR receptacle appropriate for the supply. Refer to "Connecting Power to the Switch" on page 2-26 for more information about power redundancy.
5. Plug each AC power cord into a dedicated, grounded AC outlet. See "Connecting Power to the Switch" on page 2-26 for information about the initialization process.

Installing the D2-HIPWR-POE in the Lockbox

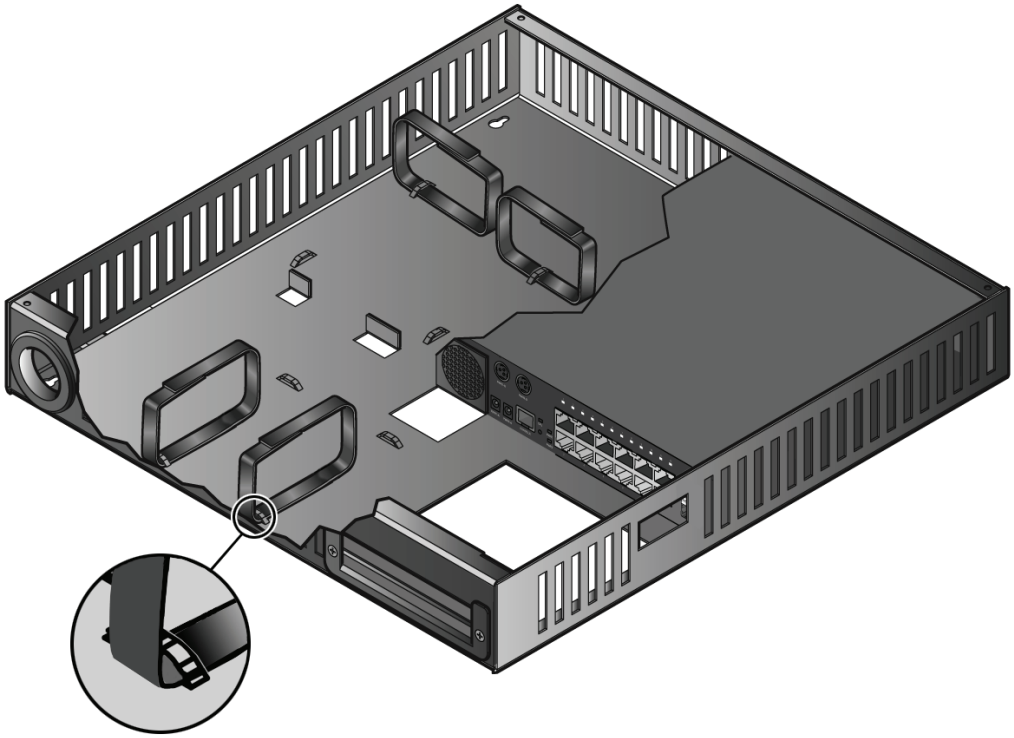
Note: Enterasys recommends installing the lockbox mounting screws to your wall as described in "Mounting the Lockbox on the Wall" on page 22 prior to the following procedure.

Use the following procedure if your D2 lockbox power configuration includes the D2-HIPWR-POE power combiner.

With the switch secured in the lockbox tray, assemble the rest of the D2 components as follows:

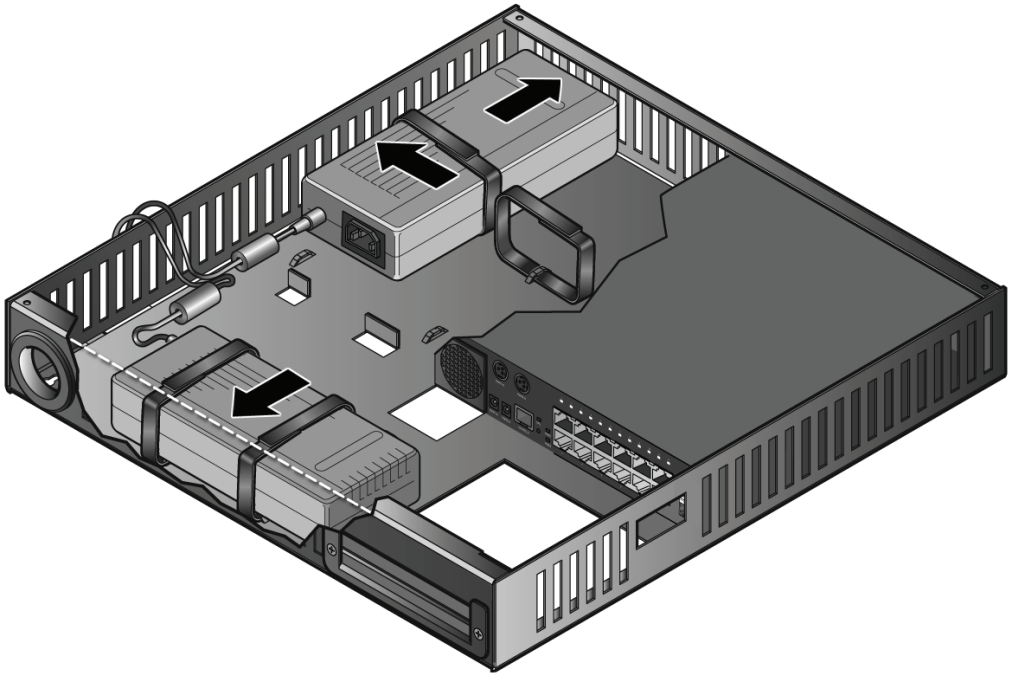
1. Use Figure 2-15 on page 2-18 as a guide and thread the hook & loop straps as follows:
   a. Through the top-left upper power supply bridge anchor
   a. Through the top-right upper power supply bridge anchor
   b. Through the bottom-left lower power supply bridge anchor
   c. Through the bottom-right lower power supply bridge anchor

Figure 2-15 Fastening the Hook & Loop Straps



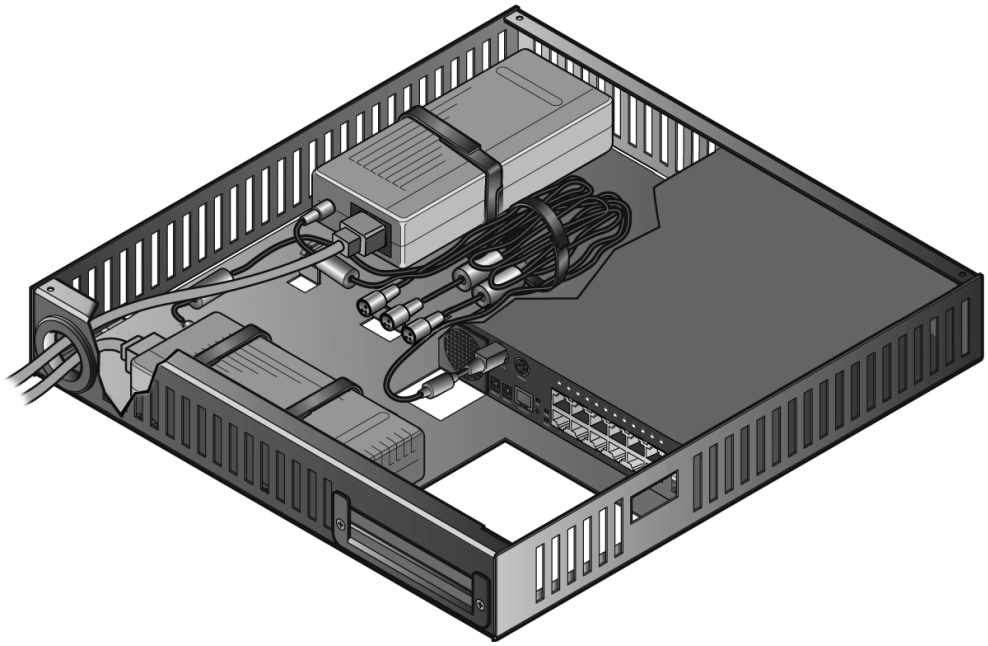
2. Install the upper power supply pressed against the left-side of the lockbox and slightly higher than its normal installation position with it's power cord facing down as shown in Figure 2-16 on page 2-19. Fasten the hook & loop strap securely around the power supply.

Figure 2-16 Installing the Power Supplies



3. Seat the lower power supply against the bottom of the lockbox with its DC power cord facing left as shown in Figure 2-16. Fasten the two hook & loop straps securely around the power supply.
4. Attach the three-prong end of the connecting cord to the Power1-B power input on your D2 switch.
5. Thread the DC power cords from both power supplies and the connecting cord in between the D2 switch and the upper power supply and secure them in place with the hook & loop strap, as shown in Figure 2-17.

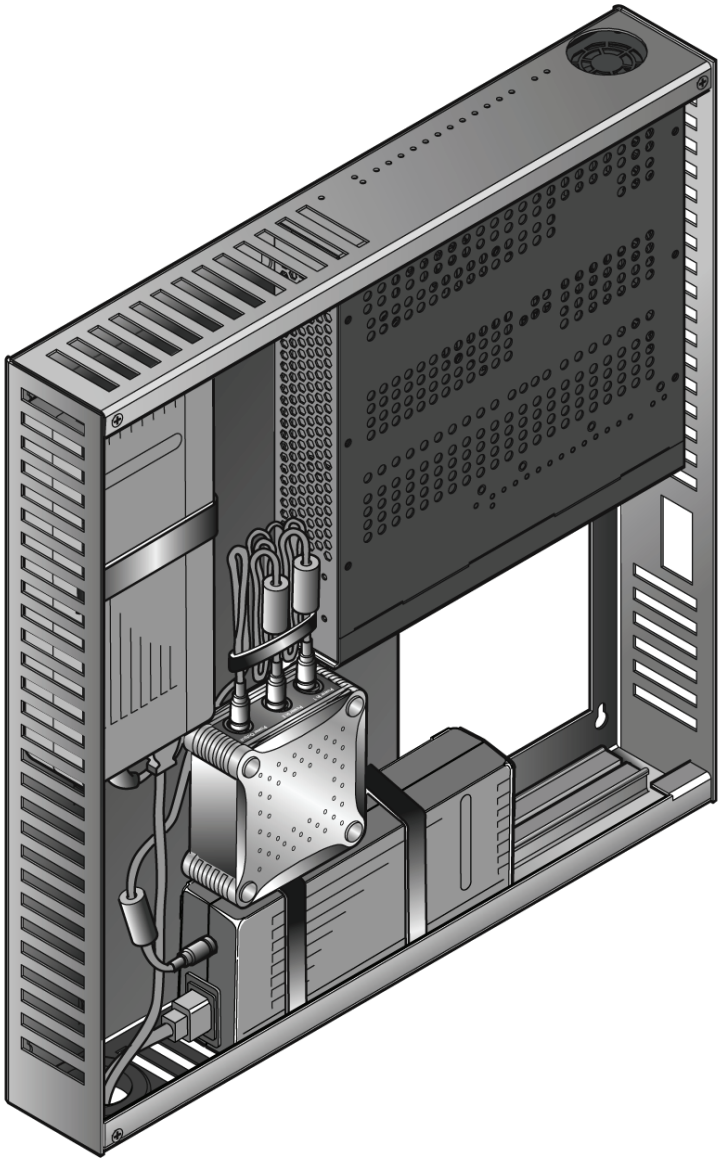
Figure 2-17 Threading the Cables



6. Connect the two, 3-prong power cords from each power supply to the D2-HIPWR-POE's Power In 1 and 2 power inputs.
7. Attach the connecting cord to the D2-HIPWR-POE's Power Output receptacle.
8. Thread the two power supply AC power cords:
   - through the hole in the bottom left of the lockbox if not mounting over a power outlet.
   - in between the D2 switch and upper power supply. Use the hook & loop strap securing the DC power cords and connecting cord to also secure the AC power cords.

   Plug each AC cord into each power supply's AC receptacle.
9. Seat the D2-HIPWR-POE in the space between the power supplies and the D2 switch as shown in Figure 2-18.

Figure 2-18 Seating the D2-HIPWR-POE in the Lockbox

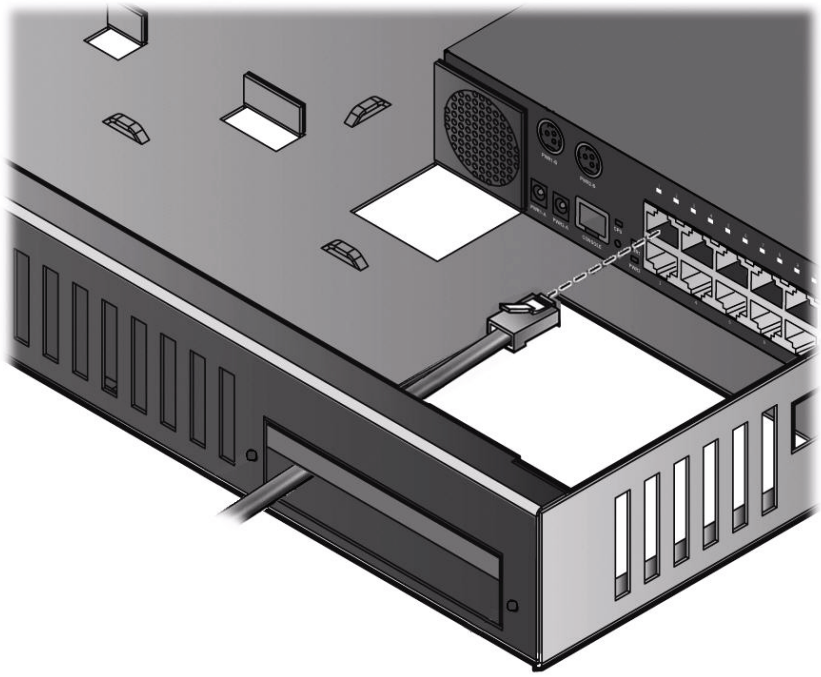


Connecting Network Cabling and Attaching the Wire Relief Bracket

The wire relief bracket is designed to hold network cables securely in place and prevent tampering once cabling is connected to switch ports. To attach the wire relief bracket to the lockbox tray:

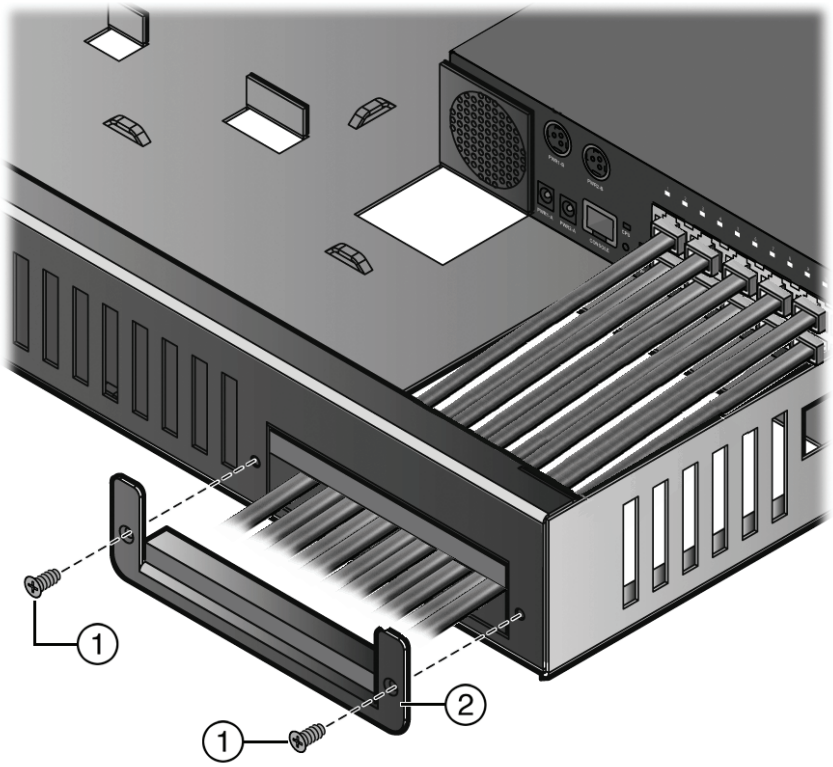
1. Attach network cables as shown in Figure 2-19. Refer to "Connecting to the Network" on page 2-28 for more information.

Figure 2-19 Attaching a Network Cable (UTP cable to RJ45 port shown)



2. Align the wire relief bracket with the flange and the two screw holes on the side of the lockbox tray as shown in Figure 2-20 on page 2-22.

Figure 2-20 Attaching the Wire Relief Bracket



1	Screws (provided)	**2**	Wire relief bracket

3. Insert the two screws provided and fasten securely.

Mounting the Lockbox on the Wall

The following procedure describes how to hang a fully configured D2 lockbox on the wall. You may hang the lockbox over a data/power outlet or in a spot where power and data are provided externally.

Note: The D2 lockbox kit can only be mounted in a secure wall location. The kit is not designed for table mounting or for use with a freestanding switch.

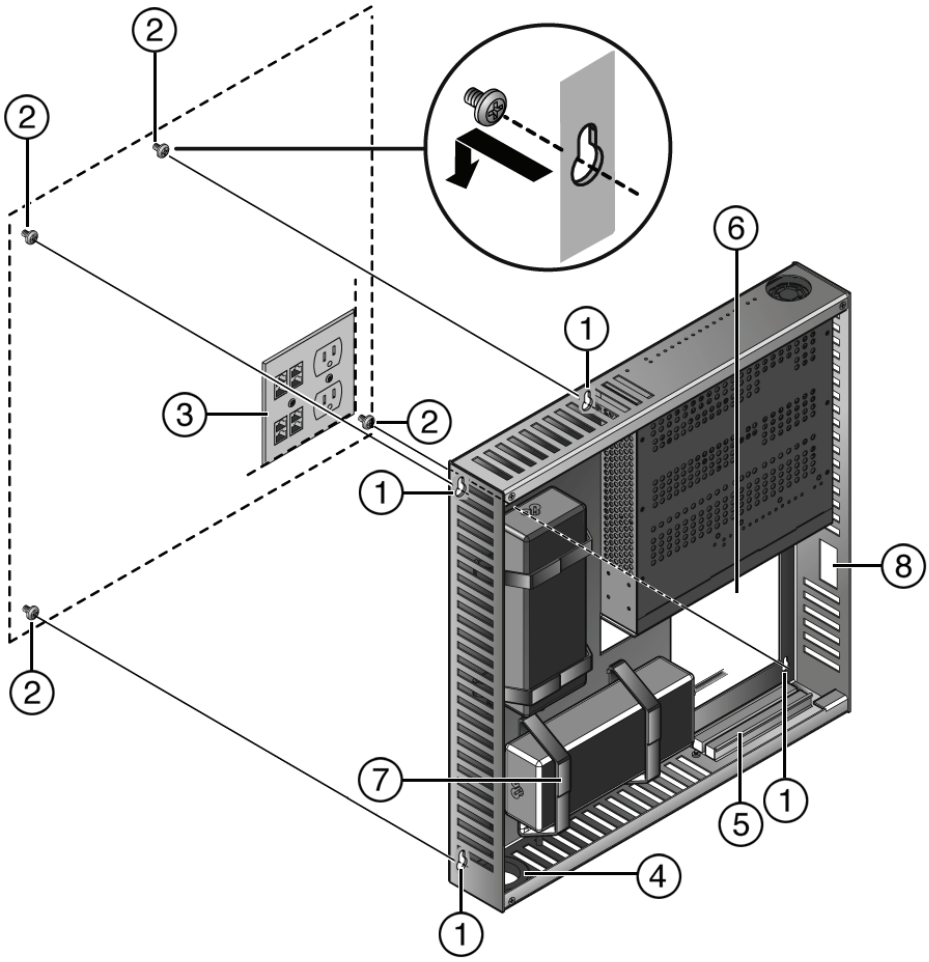
Caution: The wall location and wall mounting screws/anchoring method that the installer selects for mounting the D2 lockbox and switch assembly must be capable of supporting 68 lbs (30.84kg).

Advertencia: La ubicación de la pared y el método de anclaje o los tornillos de montaje de la pared que el instalador seleccione para montar la caja de seguridad y el conjunto del interruptor D2 deberán ser capaces de soportar un peso de 68 lbs (30.84 kg).

To mount the D2 lockbox on the wall:

1. Install the appropriate mounting screws to your desired wall location, as demonstrated by Figure 2-21 on page 2-23.

Figure 2-21 Mounting the Lockbox Over an AC Power/Data Outlet



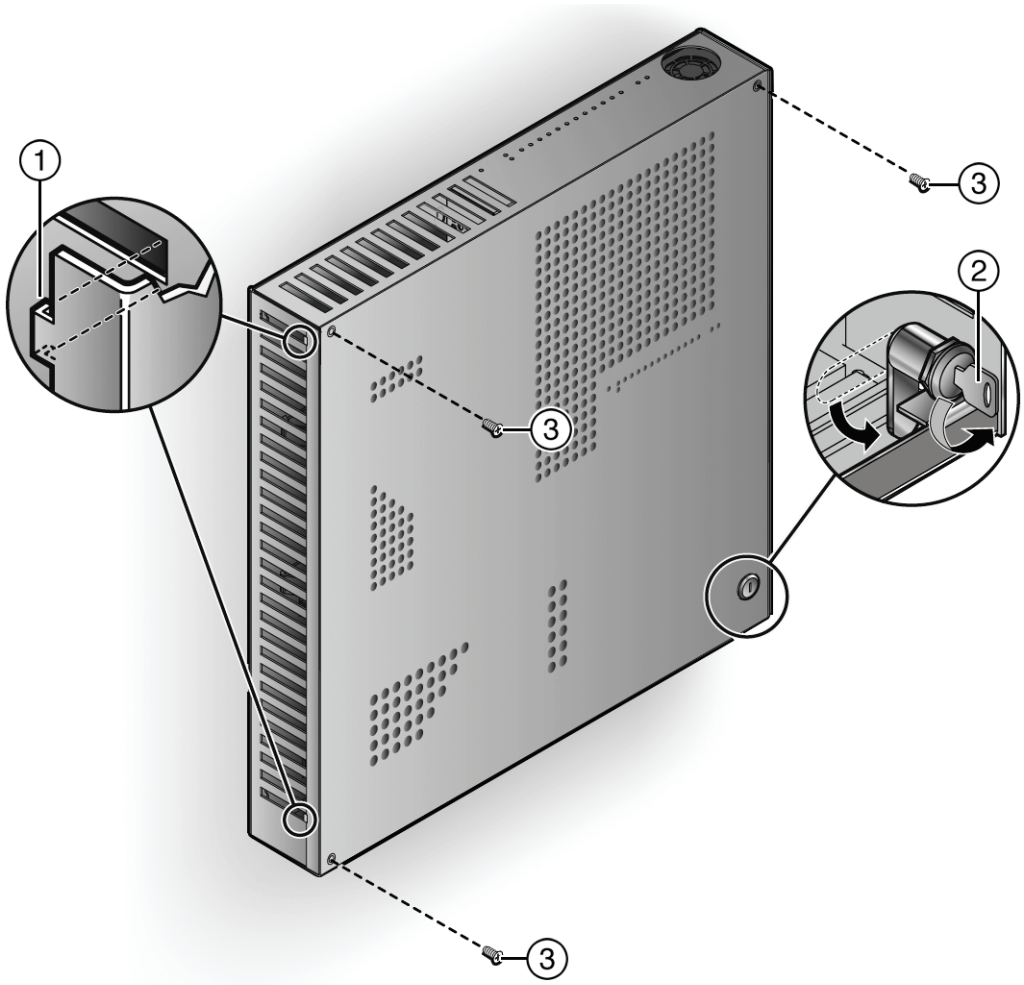
1	Wall mounting screw holes (four)	**5**	Network wire relief bracket (shown installed)
2	Wall mounting screws (not provided)	**6**	AC power/data outlet opening
3	AC power/data outlet	**7**	Power supply hook & loop strap
4	AC cord opening (for mounting away from outlet)	**8**	Fiber adapter opening

2. Position the lockbox screw holes over the installed wall screws.
3. Secure the assembled lockbox in place by pulling slightly downward on the unit.

Attaching and Locking the Cover

Once the switch and power supplies are assembled in the lockbox tray, and power and network cabling is connected, refer to Figure 2-22 on page 2-24 and proceed to attach and lock the cover as follows:

Figure 2-22 Attaching the D2 Lockbox Cover



1	Cover locking tabs	**3**	Cover fastening screws (three)
2	Latch and lock assembly (locking position)		

1. Secure the cover over the top of the lockbox assembly by locking the mounting tabs over the lip in the side of the mounting tray.
2. Slide the latch on the lock assembly to the position shown until it clicks into place.
3. Lock the lockbox by turning the provided key in the lock counter-clockwise.
4. Insert the three cover screws (provided) in the positions shown and tighten securely.
5. Return the lockbox key to a secure location.

Removing the Lockbox Cover

Remove the lockbox cover to access the D2 switch as follows:

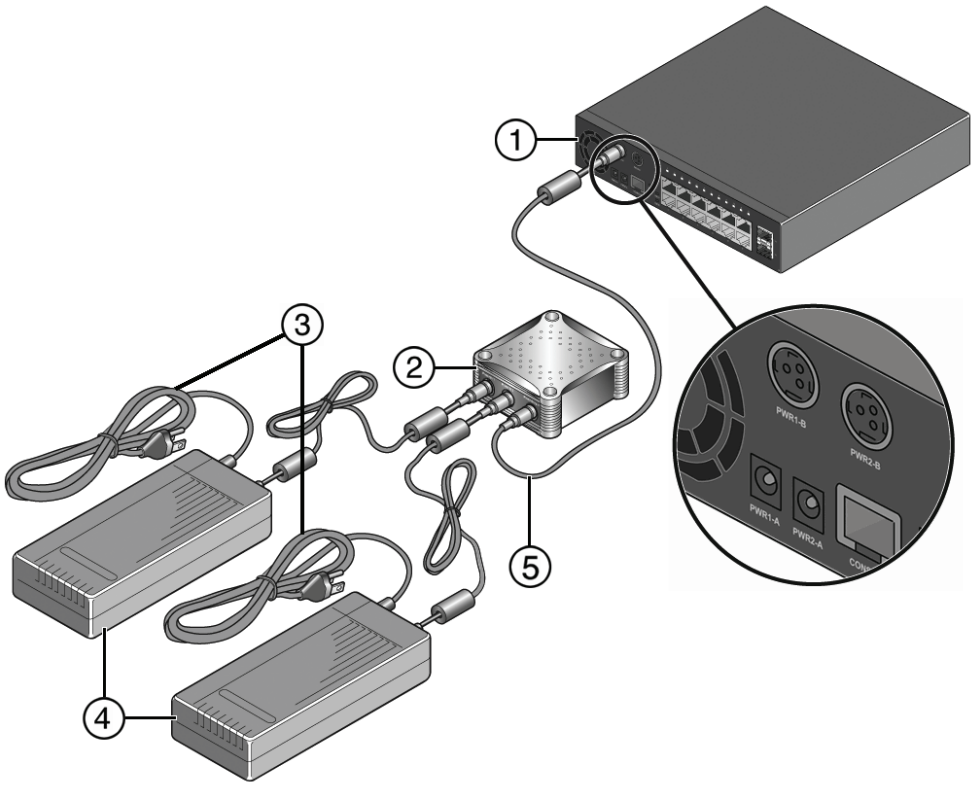
1. Unlock the lock using your provided key.
2. Slide the latch on the lock assembly to the unlocked position.
3. Remove the three cover screws.
4. Unhook the cover from the mounting tabs and remove the cover.

Connecting a D2-HIPWR-POE Power Combiner

You can connect a single D2-HIPWR-POE power combiner to your D2G124-12P switch or two D2-HIPWR-POE power combiners for redundancy to provide maximum (15.4 watts) PoE power on all twelve front panel RJ45 ports. Use Figure 2-23 as a reference for the following procedure.

Note: Only D2-PWR-POE power supplies can be combined using the D2-HIPWR-POE combiner, D2-PWR power supplies cannot be combined.

Figure 2-23 D2-HIPWR-POE Cable Connections



1 D2G124-12P Switch
2 D2-HIPWR-POE Power Combiner
3 AC Power Cords
4 D2-PWR-POE Power Supplies
5 Connecting Cord

To connect a D2-HIPWR-POE to the D2G124-12P switch:

1. Connect the DC power cord from each D2-PWR-POE power supply to each of the Power In receptacles on the D2-HIPWR-POE.

Note: The D2-HIPWR-POE will not supply power to the D2 switch until both input power supplies are connected to the D2-HIPWR-POE.

2. Connect the four-prong end of the connecting cord to the D2-HIPWR-POE's Power Output receptacle.
3. Repeat steps 1 and 2 if you are connecting a second D2-HIPWR-POE for redundancy.
4. Connect the three-prong end of the connecting cord to the PWR1-B power input receptacle of the D2G124-12P. If connecting a second D2-HIPWR-POE for redundancy, connect it to the PWR2-B power input.
5. Proceed to connect power to the switch as described in Connecting Power to the Switch.

Connecting Power to the Switch

You can connect to a single primary source of power or to two sources of power for redundancy, as described in the following sections. The example used here describes connecting two power sources.

The following redundant power supplies are available to be purchased from Enterasys for connection to the D2 switch. Follow the appropriate instructions in this section to install your component(s):

- D2-PWR, a DC power supply capable of providing power to a fully-loaded non-PoE switch.
- D2-PWR-POE, a DC power supply recommended for PoE power redundancy

Notes: Both power supplies must be of the same type to support redundancy.

The D2-PWR supply will power either the D2G124-12 or the D2G124-12P without PoE support. The D2-PWR-POE is the only supply for powering the D2G124-12P with PoE support

To connect power to the D2 switch:

1. If you have not already done so as part of one of the switch mounting procedures, plug the DC end of the power cord from each power supply into each of the switch DC power receptacles that are appropriate for your type of power supplies.
   - For the D2-PWR supply, plug into the PWR1-A and PWR2-A receptacles
   - For the D2-PWR-POE supply, plug into the PWR1-B and PWR2-B receptacles
   - For the D2-HIPWR-POE power combiner, attach cabling as instructed in "Connecting a D2-HIPWR-POE Power Combiner" on page 2-25.
2. Plug the AC cord into the power supply's AC receptacle. Repeat for each power supply.
3. Plug each AC power cord into a dedicated, grounded AC outlet.

Note: To take advantage of redundancy capabilities, each power cord must be plugged into a separate, dedicated AC outlet.

4. Verify that the appropriate power LEDs (PWR1 and PWR2) turn on as described in Table 2-1 on page 2-27 and the CPU (system) LED turns red until the D2 completes its initialization. These LEDs are visible from the back of the switch as shown in Figure 1-1 on page 1-2, as well as from the top and front of the switch as shown in Figure 1-2 on page 1-2.

If the initialization process is successful, the CPU LED turns green. If the CPU LED does not turn green, refer to Chapter 3 for troubleshooting information.

Note: It is normal for the surface of the device to be warm.

Power LED Displays

Once one or more power supplies are connected to the switch and power is on, the power LEDs (PWR1 and PWR2) will indicate the switch's power mode (redundant or additive) as follows:

Table 2-1 Power LED Displays

Display	Status
Off	Power supply not present.
Green	Normal operation.

Connecting to the Console Port

The RS-232 console port uses a standard 8-pin RJ45 connector. An RJ45 to DB9 adapter is provided with the switch, but you must provide your own RJ45 to RJ45 straight-through console cable.

Refer to Table 2-2 for console port pinout assignments.

Refer to Table 2-3 on page 2-28 for RJ45 to DB9 adapter pinout assignments.

Table 2-2 Console Port Pinout

Pin	Connection
1	TXD
2	Unused
3	Unused
4	RXD
5	GND
6	Unused
7	Unused
8	Unused

To connect to the console port:

1. Connect the RJ45 connector at one end of the cable to the RJ45 console port on the D2 switch.
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 serial port on a terminal or a PC running terminal emulation software.
4. Make sure the terminal emulation software is set as follows:
   - Select the appropriate serial port (COM port 1 or 2).
   - Set the data rate to 9600 baud.
   - Set the data format to 8 data bits, 1 stop bit, and no parity.
   - Set flow control to none.
   - Set the emulation mode to VT100.
   - When using HyperTerminal, select **Terminal keys**, not Windows keys.

5. When you are ready to begin configuring the D2 switch, use the procedures in "Completing the Installation" on page 2-35 to power on the switch and boot the software. You will perform initial setup by entering CLI commands on the management console.

Table 2-3 RJ45 to DB9 Adapter Pinout

Signal	RJ45 Pin	DB9 Pin
Receive (RX)	1	2
Transmit (TX)	4	3
Ground (GRD)	5	5

For a description of how to use the CLI and descriptions of all the CLI commands, refer to the *Enterasys D-Series CLI Reference*.

Connecting to the Network

The following procedures cover the cable connections from the network or other devices to the D2 switch.

- Connecting UTP Cables to RJ45 Ports
- Installing an Optional SFP on page 2-29
- Connecting Fiber-Optic Cables to SFP Ports on page 2-32

Connecting UTP Cables to RJ45 Ports

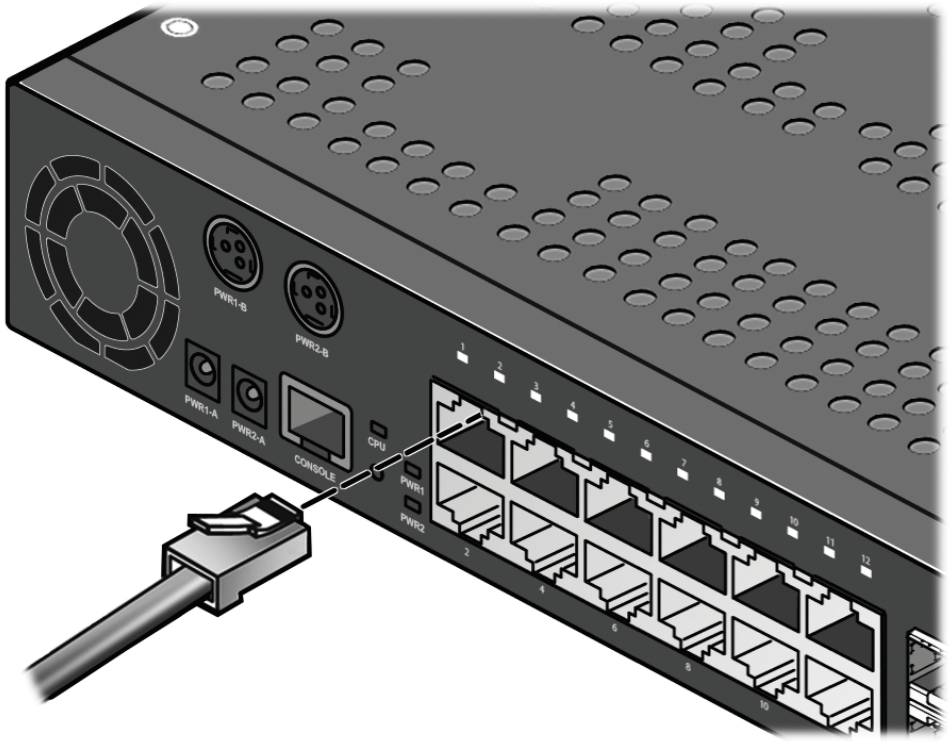
RJ45 10000BASE-TX front panel ports on the D2G124-12 and D2G124-12P switches support Auto MDIX, which means that you can use straight-through or crossover twisted pair cabling.

Note: All RJ45 front panel and IOM 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 D2, refer to Figure 2-24 on page 2-29 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 D2 by inserting the RJ45 connector on the twisted pair segment into the desired RJ45 port.

Figure 2-24 Connecting a UTP Cable Segment to RJ45 Port (D2G124-12P shown)



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.
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.

Installing an Optional SFP

Notes: Each combo SFP port on the D2G124-12 and D2G124-12P supports the installation of Mini-GBICs for 1000Base-SX, 1000Base-LX, or 100Base-FX SFP transceivers.

Each combo SFP port in use on these units eliminates the availability of one RJ45 port. In other words, only twelve ports can be active at any given time on components equipped with a combination of RJ45 and SFP interfaces. When an SFP transceiver (Mini-GBIC) SFP port 11 establishes a link, RJ45 port 11 is disabled. When an SFP transceiver (Mini-GBIC) in SFP port 12 establishes a link, RJ45 port 12 is disabled.

This section describes how to install an SFP optical transceiver into combo SFP ports (11 and 12) on the D2G124-12 or D2G124-12P unit

It is recommended that the options be installed first in a new installation.

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 D2.

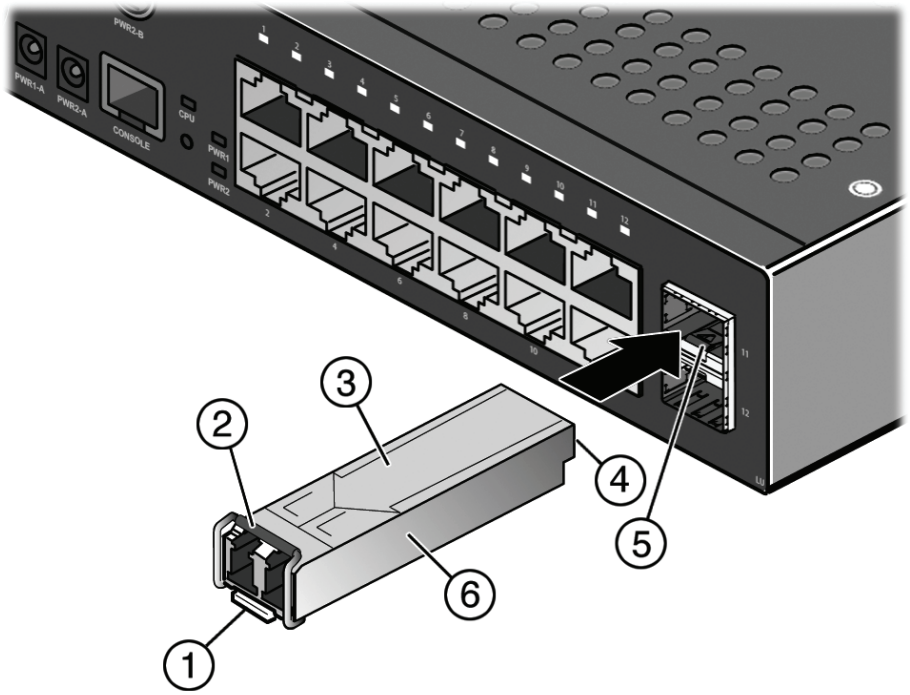
The SFP and D2 are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could result in damage to the SFP and D2. Always leave the SFP in the antistatic bag or an equivalent antistatic container when not installed.

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, refer to Figure 2-25 on page 2-31 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 2-25 on page 2-31.
4. Push the transceiver into the port slot until it “clicks” and locks into place.

Figure 2-25 Installing an SFP (shown with LC connector and dust cover removed)



1	Release tab	**4**	Edge connector (insertion side)
2	Wire handle	**5**	Port slot
3	Transceiver top side	**6**	Transceiver side view

Removing an SFP

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 D2 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 D2. 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 SFPen su bolsa antiestática o en cualquier otro recipiente antiestático.

To remove a transceiver from a port slot, refer back to Figure 2-25 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 (located under the front end of the transceiver.) Specific operation 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 SFP Ports

Before connecting cables to SFP ports, you must install the appropriate transceiver as described in Installing an Optional SFP on page 2-29. This section describes how to connect a 1-Gigabit fiber-optic segment from the network or other devices to an MT-RJ or LC port connector.

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.

Refer to Figure 2-26 on page 2-33 as you perform the following procedure.

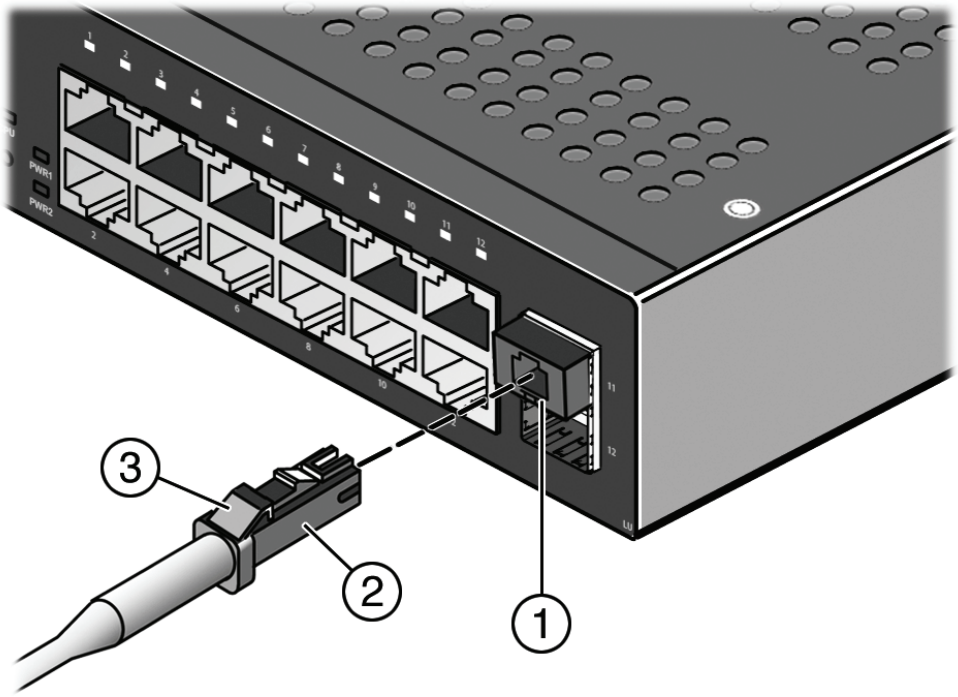
To connect an LC or MT-RJ cable connector to an SFP port connector:

1. Remove the protective covers (not shown) from the uplink 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.

Figure 2-26 Cable Connection (LC shown) to Uplink Port with SFP Installed



1 Combo SFP port with MGBIC installed **2** LC cable connector **3** Release tab

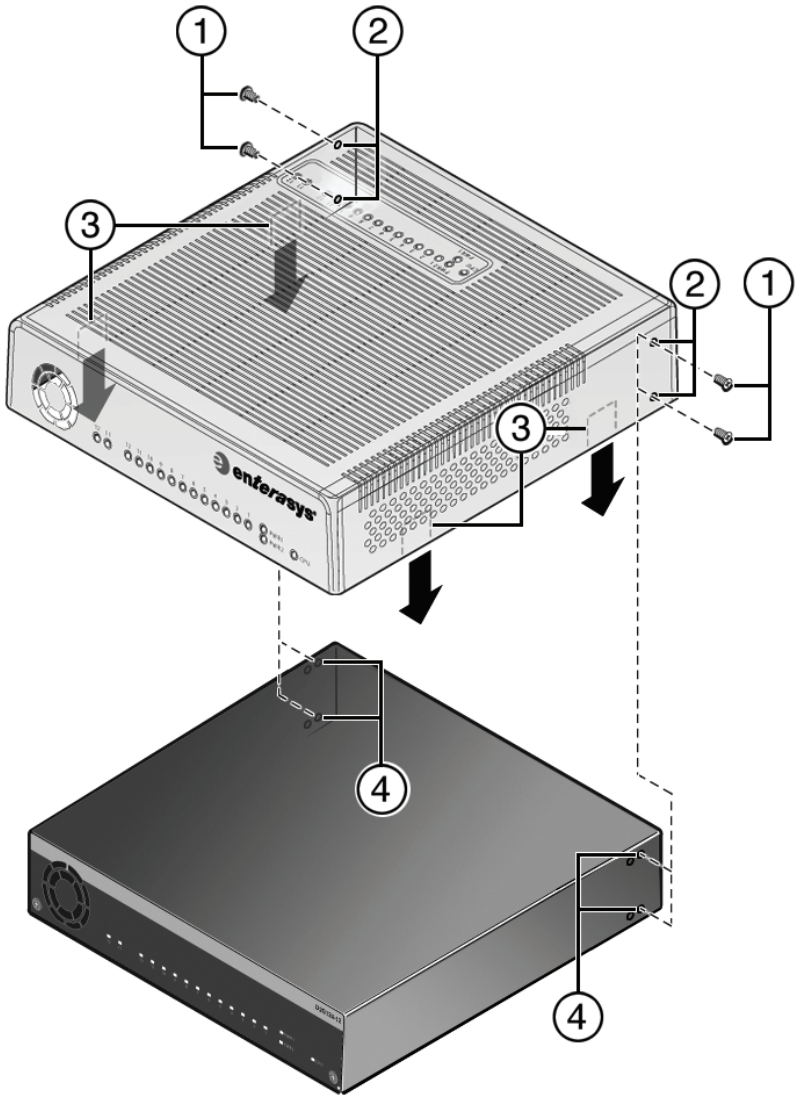
3. Plug the other end of the cable into the appropriate port on the other device. Some cables may be terminated at the other end with two separate connectors, one for each fiber-optic strand. In this case, ensure that the transmit fiber-optic strand from the D2 is connected to the receive port of the other device, and the receive fiber-optic strand on the D2 is connected to the transmit port of the other device.
4. Repeat this procedure for other SFP ports, if needed.
5. If an SFP port is unused, install a dust cover.

Installing the Optional Plastic Cover

If you have purchased a D2-COVER-W optional plastic cover, you can install it over a freestanding or wall-mounted switch as shown in Figure 2-27 on page 2-34.

Note: The optional plastic cover can be installed over a freestanding unit or a unit mounted in a D2-WALL-MNT kit. It is not intended for use in a D2 lockbox.

Figure 2-27 Installing the Optional Plastic Cover (freestanding switch shown)



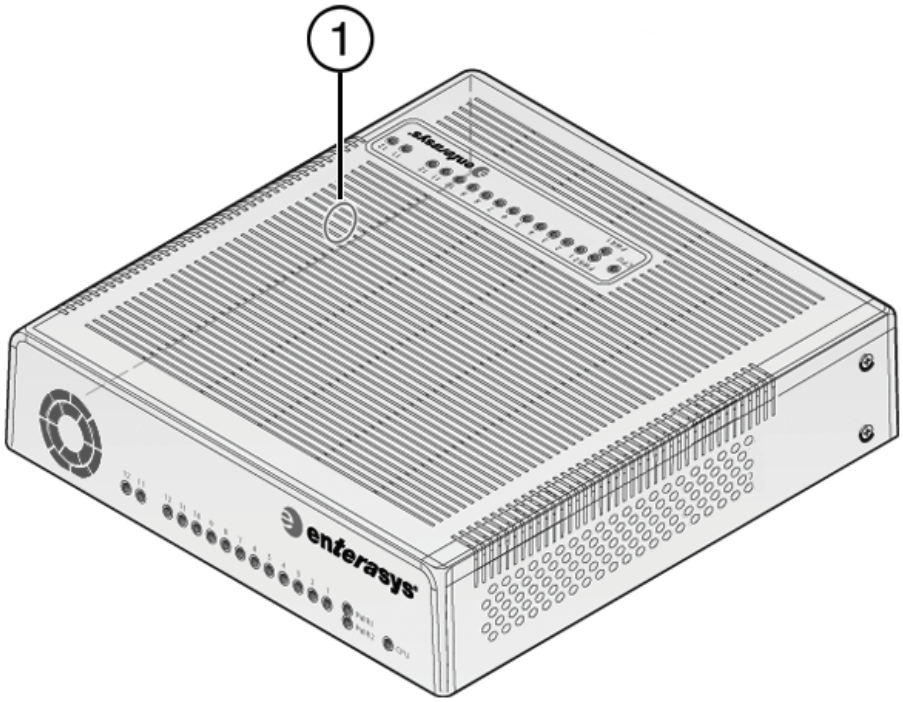
1	Cover mounting screws (four)	**3**	Cover mounting tabs
2	Cover mounting screw holes (four)	**4**	Switch mounting holes (four)

To install the plastic cover:

1. Align the fan and LED openings on the front panel of the plastic cover over the front panel of the switch.
   - If the switch is freestanding, front panel LEDs will align as shown in Figure 2-27, and the open end of the cover will align with the rear panel of the switch, allowing access to the ports and network, power and console cables.
   - If the switch is mounted on the wall as shown in Figure 2-11 on page 2-13, front panel LEDs will face up (towards the ceiling), and the open end of the cover will face down (away from the ceiling), allowing access to the ports and network, power and console cables.
2. Secure the cover in place. When positioned securely, mounting tabs inside the edge of the cover will snap into place into corresponding notches on the switch.

3. Using the four screws provided, attach the cover to the switch. Fasten securely.

Figure 2-28 Optional Kensington Lock Opening



1 Location of knock-out opening for optional Kensington lock

4. (Optional) Secure the switch and cover assembly with a Kensington lock using the optional knock-out opening on the cover's side panel, as shown in Figure 2-28, and the corresponding slot on the D2 switch.

Completing the Installation

1. Power on the switch.

Note: The D2 fans turn on when power is first supplied to the switch and will shut off automatically. The fans will turn back on automatically if the temperature ever exceeds the following ambient thresholds:

- D2G124-12 - 40 degrees C (104 degrees F)
- D2G124-12P - 35 degrees C (95 degrees F)

2. Verify that the PWR1 and PWR2 power LEDs are lit. Refer to "Power LED Displays" on page 2-27 for information on interpreting the power LEDs.
3. Verify that the CPU LED blinks initially then becomes solid green.
4. Make sure that the network devices connected to the switch ports are powered on, then verify that each Link/Activity LED is ON (solid green or blinking green).
5. At the device connected to the console port, perform the following:
   a. Enter **admin** for Username.
   b. At the Password prompt, press **ENTER** (RETURN).

c. For details on how to configure the D2 using the command line interface, refer to the *Enterasys D-Series CLI Reference*. The CLI commands enable you to set a new password and perform more involved management configurations on the D2.

Note: It is strongly recommended that you change the admin password from its default state of blank (no password), once the D2 switch becomes operational in your network. For more information, refer to the *Enterasys D-Series CLI Reference*.

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 D2 switch as required. This can include:

For information about...	Refer to page...
Checking the LEDs	3-1
Using the Password Reset Button	3-2
Resetting the D2-HIPWR-POE	3-3

Checking the LEDs

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.

The following sections define the behavior of the LEDs on the D2 switch. Refer back to Figure 1-1 on page 1-2 and Figure 1-2 on page 1-2 for the locations of the LEDs on the switch.

CPU LED

The CPU LED indicates the state of the system, as described in Table 3-1.

Table 3-1 CPU LED Definitions

Display	Status
Off	No power.
Solid red	Major system failure, including failure to boot.
Blinking red	Power on self-test failed.
Solid amber	Diagnostics are running.
Blinking amber	Functional image is loaded.
Blinking green	System is booting.
Solid green	System is fully operational.

Power LEDs

The two power LEDs, marked PWR1 and PWR2, indicate voltage for the primary and secondary power inputs. Table 3-2 describes their status.

Table 3-2 Power LED Definitions

Display	Status
Off	Power supply not present.
Green	Normal operation.

Port LEDs

Table 3-3 describes the status of D2 RJ45 and combo SFP port LEDs.

Table 3-3 Port LED Definitions

Display	Status
Off	No link established.
Solid Green	Ethernet link established without activity. For combo SFP ports, this indicates power up.
Blinking Green	Ethernet link established with activity.
Solid Amber (RJ45 only)	Link established without activity and failure to provide power to powered devices. For RJ45 ports, this indicates power up.
Blinking Amber (RJ45 only)	Link established with activity and failure to provide power to powered devices.

Using the Password Reset Button

If you forget the D2 switch login password, use the Reset button to reset the password to the default value as described in the following procedure.

Note: Notify the system administrator before changing the password.

To reset the D2 switch password:

1. Locate the reset button on the back of the switch as shown in Figure 1-1 on page 1-2.
2. Press-and-hold the 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 through the console port using the default password, 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 D-Series 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.

Resetting the D2-HIPWR-POE

The D2-HIPWR-POE will shut down in the event of an overload or short circuit.

To reset the D2-HIPWR-POE:

- Disconnect AC power to one of the power supplies. Wait 30 seconds (to allow the DC output voltage to decay enough to reset the D2-HIPWR-POE) before re-applying AC power.
- Remove and replace one of the D2-HIPWR-POE's power input cables, no minimum time required.

A

Specifications

This appendix provides information about the following:

For information about...	Refer to page...
Switch Specifications	A-1
D2-HIPWR-POE Specifications	A-2
Power Supply Specifications	A-3
Torque Values	A-3
1-Gigabit Ethernet and 100Base-FX Transceiver (SFP) Specifications	A-4
Console Port Pinout Assignments	A-7
Regulatory Compliance	A-7

Enterasys Networks reserves the right to change these 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 D2G124-12 and the D2G124-12P.

Table A-1 D2 Specifications

Item	Specification
Ports	
RJ45 ports 1 through 12	Twelve 10BASE-T/100BASE-TX/1000BASE-T compliant ports with auto-sensing and auto-negotiation via RJ45 connectors. On the D2G124-12P, these ports also support 802.3af PoE connections.
Combo SFP ports 11 and 12	Two ports that support optional Mini-GBICs 1000BASE-FX/LX/SX fiber-optic connections and 1000BASE-T copper connections. When an SFP transceiver (Mini-GBIC) in SFP port 11 establishes a link, RJ45 port 11 is disabled. When an SFP transceiver in SFP port 12 establishes a link, RJ45 port 12 is disabled.
Processors/Memory	
Processor	MPC8241, 266 MHz processor
Dynamic Random Access Memory (DRAM)	256 MB
FLASH Memory	32 MB

Table A-1 D2 Specifications (continued)

Item	Specification
Physical	
Dimensions	4.06 H x 20.9 W x 21.5 D (cm) 1.6 H x 8.25 W x 8.5 D (in.)
Approximate Weight (without power supply)	• D2G124-12 - 3.65 lb/1.66 kg • D2G124-12P - 4.02 lb/1.82 kg
Predicted hours for Mean Time Between Failures (MTBF)	Information about MTBF is located at http://www.enterasys.com/support/mtbf.
Heat Dissipation (maximum)	Same as Power Consumption (below)
AC Power Requirements	
Input Voltage	100 to 240 VAC
Power Consumption	• D2G124-12 - 30 W • D2G124-12P - 130W
Input Frequency	50-60Hz
Input Current	• D2G124-12 - 2.0A • D2G124-12P - 3.2A
Thermal Output	• D2G124-12 - 110V - 0.3A / 102.39 (BTUs/hr) • D2G124-12P - 110V - 2.16A / 443.69 (BTUs/hr)
Environmental	
Operating Temperature	• D2G124-12 - 0°C to 60°C (32°F to 140°F) • D2G124-12P - 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%

D2-HIPWR-POE Specifications

Table A-2 provides the specifications for the D2-HIPWR-POE power combiner.

Table A-2 D2-HIPWR-POE Specifications

Item	Specification
D2-HIPWR-POE	
Size	80.6 L x 90.0 W x 32.9 H mm (3.17 L x 3.54 W x 1.3 H in)
Input Voltage:	Accepts two 50V 2.6A (max) power supplies
Tripping Point	5A

Power Supply Specifications

Table A-3 provides the specifications for the available D2 power supplies:

Table A-3 Power Supply Specifications

Item	Specification
D2-PWR	
Input Frequency	50 to 60 Hz
Input Voltage/Current:	100 - 240Vac / 2.0A
Output Voltage	19V 6.32A
D2-PWR-POE	
Input Frequency	47 to 63 Hz
Input Voltage/Current	100 - 240Vac / 3.2A
Output Voltage	50V 2.6 A max

Torque Values

The following table describes the recommended torque values to use when installing the D2 switch using standard threaded fastener machine screws and bolts.

Table A-4 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

1-Gigabit Ethernet and 100Base-FX Transceiver (SFP) Specifications

The D2 SFP (Mini-GBIC) port interface slots support 1-Gbps fiber-optic and copper connections as described in Table A-5. These optional Mini-GBICs are hot swappable.

Table A-5 Mini-GBIC Input/Output Port Specifications

Item	Specification
MGBIC-LC01	1 LC fiber-optic multimode port that is compliant with the 1000BASE-SX standard and has an LC connector.
MGBIC-MT01	1 MT-RJ fiber-optic multi-mode port that is compliant with the 1000BASE-SX standard and has an MT-RJ connector.
MGBIC-02	1 RJ45 copper connection that is compliant with the 1000BASE-T standard and has an RJ45 connector.
MGBIC-LC03	1 LC fiber-optic multimode port that is compliant with the 1000BASE-SX standard and has an LC duplex style connector.
MGBIC-LC04	1 LC fiber-optic multimode port that is compliant with the 100BASE-FX standard and has an LC connector.
MGBIC-LC05	1 LC fiber-optic single-mode port that is compliant with the 100BASE-FX standard and has an LC connector.
MGBIC-LC07	1 LC fiber-optic single-mode port that is compliant with the 1000BASE-ELX standard and has an LC connector.
MGBIC-08	1 LC fiber-optic single-mode port that is compliant with the 1000BASE-ELX standard and has an LC connector.
MGBIC-LC09	1 LC fiber-optic single-mode port that is compliant with the 1000BASE-LX standard and has an LC connector.

The specifications for the Mini-GBICs shown in Table A-6 through Table A-18 meet or exceed the IEEE 802.3z-1998 standard.

MGBIC-LC01/MGBIC-MT01 Specifications (1000BASE-SX)

Table A-6 MGBIC-LC01/MGBIC-MT01 Optical Specifications

Item	62.5 µm MMF	50 µm MMF
Transmit Power (minimum)	-9.5 dBm	-9.5 dBm
Receive Sensitivity	-17 dBm	-17 dBm
Link Power Budget	7.5 dBm	7.5 dBm

Table A-7 MGBIC-LC01/MGBIC-MT01 Operating Range

Item	Modal Bandwidth @ 850 nm	Range
62.5 µm MMF	160 MHz/km	2-220 Meters
62.5 µm MMF	200 MHz/km	2-275 Meters
50 µm MMF	400 MHz/km	2-500 Meters
50 µm MMF	500 MHz/km	2-550 Meters

MGBIC-02 Specifications (1000BASE-T)

Table A-8 MGBIC-02 Specifications

Item	Specification
Supported Cable	
Type: Maximum Length	Copper, Category 5 UTP Up to 100 meters
Connector	RJ45
Data Rate	1 Gbps, IEEE 802.3:2000 compatible 1000BASE-T operation only Automatic crossover detection
TX Output impedance	100 ohms, typical at all frequencies between 1 MHz and 125 MHz
RX Input impedance	100 ohms, typical at all frequencies between 1 MHz and 125 Hz

MGBIC-LC03 Specifications (1000BASE-SX)

Table A-9 MGBIC-LC03 Optical Specifications

Item	62.5/125 µm MMF	50/125 µm MMF
Transmit Power (minimum)	-9.5 dBm	-9.5 dBm
Transmit Power (maximum)	-3 dBm	-3 dBm
Receive Sensitivity	-20 dBm	-20 dBm
Link Power Budget[1] (Multimode Only)	10.5 dB	10.5 dB

1. The maximum drive distance (up to 2 km) depends on the quality of the installed multimode fiber-optic cable segment. Use the Link Power Budget to calculate the maximum cable length of the attached segment. The Link Power Budget must not exceed those specified in this table. The MGBIC-LC03 input power must not exceed -3 dBm. Otherwise, saturation could occur.

Table A-10 MGBIC-LC03 Operating Range

Item	Modal Bandwidth @ 1310 nm	Range
62.5 µm MMF	160 MHz/km	2,000 Meters
50 µm MMF	400 MHz/km	2,000 Meters

MGBIC-LC04 Specifications (100BASE-FX)

Table A-11 MGBIC-LC04 Optical Specifications

Item	62.5 µm MMF	50 µm MMF
Transmit Power (minimum)	-20 dBm	-23.5 dBm
Receive Sensitivity	-31 dBm	-31 dBm
Link Power Budget[1] (Multimode Only)	11 dBm	7.5 dBm

1. The maximum drive distance (up to 2 km) depends on the quality of the installed multimode fiber-optic cable segment. Use the Link Power Budget to calculate the maximum cable length of the attached segment. The Link Power Budget must not exceed those specified in this table.

MGBIC-LC05 Specifications (100BASE-FX)

Table A-12 MGBIC-LC05 Optical Specifications

Item	10 µm SMF
Transmit Power (minimum)	-15 dBm
Receive Sensitivity	-25 dBm
Link Power Budget	10 dBm

MGBIC-LC07 Specifications (1000BASE-ELX)

Table A-13 MGBIC-LC07 Optical Specifications

Item	
Transmit Power (minimum)	-2 dBm, min.
Receive Sensitivity	-30 dBm, min.
Maximum Input Power	-9 dBm
Link Power Budget[1] (Full Duplex Only)	28 dB

1. The maximum drive distance (up to 110 km) depends on the quality of the installed single-mode fiber-optic cable segment. Use the Link Power Budget to calculate the maximum cable length of the attached segment. The Link Power Budget must not exceed those specified in this table. The MGBIC-LC07 input power must not exceed -9 dBm. Otherwise, saturation could occur.

Table A-14 MGBIC-LC07 Operating Range

Item	1550 nm	Range
9 or 10 µm SMF	N/A	110,000 Meters

MGBIC-08 Specifications (1000BASE-ELX)

Table A-15 MGBIC-08 Optical Specifications

Item			
Transmit Power (minimum)	-0 dBm, min.	+2 dBm, typical	+5 dBm, max.
Receive Sensitivity	-24 dBm, min.	-26 dBm, typical	
Maximum Input Power	-3 dBm		
Link Power Budget[1] (Full Duplex Only)	23 dB	28 dB, typical	

1. The maximum drive distance (up to 80 km) depends on the quality of the installed single-mode fiber-optic cable segment. Use the Link Power Budget to calculate the maximum cable length of the attached segment. The Link Power Budget must not exceed those specified in this table. The MGBIC-08 input power must not exceed -3 dBm. Otherwise, saturation could occur.

Table A-16 MGBIC-08 Operating Range

Item	1550 nm	Range
9 or 10 µm SMF	N/A	80,000 Meters

MGBIC-LC09 Specifications (1000BASE-LX)

Table A-17 MGBIC-LC09 Optical Specifications

Item	62.5 µm MMF	50 µm MMF	10 µm SMF
Transmit Power (minimum)	-11.5 dBm	-11.5 dBm	-9.5 dBm
Receive Sensitivity	-20 dBm	-20 dBm	-20 dBm
Link Power Budget	8.5 dBm	8.5 dBm	10.5 dBm

Table A-18 MGBIC-LC09 Operating Range

Item	Modal Bandwidth @ 1300 nm	Range
62.5 µm MMF	500 MHz/km	2-550 Meters
50 µm MMF	400 MHz/km	2-550 Meters
50 µm MMF	500 MHz/km	2-550 Meters
10 µm SMF	N/A	2-10,000 Meters

Console Port Pinout Assignments

Refer back to "Connecting to the Console Port" on page 2-27 for information about console port pinout assignments.

Regulatory Compliance

This product meets the safety, electromagnetic compatibility (EMC), and environmental requirements listed in Table A-19:

Table A-19 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)

Index

Numerics

1-Gigabit Ethernet and 100Base-FX transceiver (SFP)
  specifications A-4

A

AC input specifications
  specifications
    AC input A-2

C

Connecting 2-28
Connecting to the network 2-28
Console port
  pinout assignments A-7
Console port connection 2-27

D

D2-HIPWR-POE
  specifications A-2

F

Freestanding device installation 2-3

I

Installation
  connecting to the network 2-28
  steps, order of 2-3

L

LEDs
  CPU 3-1
  port 3-2
  power 3-2
Lockbox mounting 2-15

M

MGBIC-02
  specifications for A-5
MGBIC-08
  specifications for A-6
MGBIC-LC01
  specifications for A-4, A-5
MGBIC-LC03
  specifications for A-5
MGBIC-LC09
  specifications for A-5, A-6, A-7
MGBIC-MT01
  specifications for A-4, A-5
Mounting options 2-4

N

Network, connecting to the 2-28

P

Password reset button 3-2
Pinout assignments
  console port A-7
Plastic cover installation 2-33
PoE (Power over Ethernet)
  support 1-4
Power
  connecting to the switch 2-26
  LED displays 2-27
  supply specifications A-3

R

Rack mounting 2-4
Regulatory compliance A-7

S

SFP port connections 2-32
SFP/XFP installation 2-29
Specifications A-1
  100Base-FX transceiver A-4
  1-Gigabit Ethernet transceiver A-4
  C3G124-24P A-1
  MGBIC-02 A-5
  MGBIC-08 A-6
  MGBIC-LC01 A-4, A-5
  MGBIC-LC03 A-5
  MGBIC-LC09 A-7
  MGBIC-MT01 A-4, A-5
  power supply A-3
  switch A-1
Specifications, MGBIC-LC01
  optical A-5
Specifications, MGBIC-LC09
  optical A-5, A-6
Switch A-1
Switch specifications A-1

T

Table mounting 2-10
Torque values A-3

W

Wall mounting 2-12