CISCO SYSTEMS

# Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide

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• Turn the television or radio antenna until the interference stops.

• Move the equipment to one side or the other of the television or radio.

• Move the equipment farther away from the television or radio.

• Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits controlled by different circuit breakers or fuses.)

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*Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide*
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# CONTENTS

**CHAPTER 2**   **Switch Installation**   2-1

**CHAPTER 3**   **Connecting the Power Supply**   3-1

# Preface

## Audience

This guide is for the networking or computer technician responsible for installing the Cisco ME 4924-10GE Ethernet switch. We assume that you are familiar with the concepts and terminology of Ethernet and local area networking.

## Purpose

This guide documents the hardware features of the Cisco ME 4924-10GE Ethernet switch. It describes the physical and performance characteristics of the switch, explains how to install it, and provides troubleshooting information.

This guide does not describe system messages that you might receive or how to configure your switch. For more information, refer to the switch software configuration guide, the switch command reference, and the switch system message guide on the Cisco.com Product Documentation home page. For information about the standard Cisco IOS Release 12.2 commands, refer to the Cisco IOS documentation set from the Cisco.com home page at **Service and Support > Technical Documents.** On the Cisco Product Documentation home page, select Release **12.2** from the Cisco IOS Software drop-down list.

## Organization

This guide is organized into these chapters:

Chapter 1, "Product Overview," is a physical and functional overview of the switch. This chapter describes the switch ports, the standards they support, and the switch LEDs.

Chapter 2, "Switch Installation," has the procedures on how to power the switch, how to install the switch on a wall, a table, or a shelf, stack the switches, install the switch in a rack, on a wall, on a table, or shelf,, and how to make port connections.

Chapter 3, "Connecting the Power Supply," describes how to connect the AC and DC power supply units and how to remove the units.

Chapter 4, "Troubleshooting," describes how to identify and resolve some of the problems that might arise when installing the switch.

Appendix A, "Technical Specifications," lists the physical and environmental specifications for the switches and the regulatory agency approvals.

**Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide**

Appendix B, "Connector and Cable Specifications," describes the connectors, cables, and adapters that can be used to connect to the switch.

Appendix C, "Initial Configuration for the Switch," provides a quick step-by-step installation and setup procedure for a switch.

# Conventions

This document uses these conventions and symbols for notes, cautions, and warnings:

**Note**    Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.

**Caution**    Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

# Statement 1071—Warning Definition

**Warning**    **IMPORTANT SAFETY INSTRUCTIONS**

**This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.** Statement 1071

**SAVE THESE INSTRUCTIONS**

**Waarschuwing**    **BELANGRIJKE VEILIGHEIDSINSTRUCTIES**

**Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.**

**BEWAAR DEZE INSTRUCTIES**

**Varoitus**     **TÄRKEITÄ TURVALLISUUSOHJEITA**

**Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.**

**SÄILYTÄ NÄMÄ OHJEET**

**Attention**     **IMPORTANTES INFORMATIONS DE SÉCURITÉ**

**Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.**

**CONSERVEZ CES INFORMATIONS**

**Warnung**     **WICHTIGE SICHERHEITSHINWEISE**

**Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.**

**BEWAHREN SIE DIESE HINWEISE GUT AUF.**

**Avvertenza**     **IMPORTANTI ISTRUZIONI SULLA SICUREZZA**

**Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza  per individuare le traduzioni delle avvertenze riportate in questo documento.**

**CONSERVARE QUESTE ISTRUZIONI**

**Advarsel**     **VIKTIGE SIKKERHETSINSTRUKSJONER**

**Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.**

**TA VARE PÅ DISSE INSTRUKSJONENE**

**Aviso** INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

**¡Advertencia!** INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

**Varning!** VIKTIGA SÄKERHETSANVISNINGAR

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR

**Figyelem** FONTOS BIZTONSÁGI ELOÍRÁSOK

Ez a figyelmezeto jel veszélyre utal. Sérülésveszélyt rejto helyzetben van. Mielott bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplo figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján keresheto meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

**Предупреждение** ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告 重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意
识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此
设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を
行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、
各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의 중요 안전 지침

이 경고 기호는 위험을 나타냅니다. 작업자가 신체 부상을 일으킬 수 있는 위험한 환경에 있습니다.
장비에 작업을 수행하기 전에 전기 회로와 관련된 위험을 숙지하고 표준 작업 관례를 숙지하여 사고
를 방지하십시오. 각 경고의 마지막 부분에 있는 경고문 번호를 참조하여 이 장치와 함께 제공되는
번역된 안전 경고문에서 해당 번역문을 찾으십시오.

이 지시 사항을 보관하십시오.

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

**Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões
corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os
circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o
número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de
segurança traduzidos que acompanham o dispositivo.**

**GUARDE ESTAS INSTRUÇÕES**

Advarsel **VIGTIGE SIKKERHEDSANVISNINGER**

**Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for
legemesbeskadigelse. Før du begynder arbejde på udstyr, skal du være opmærksom på de
involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til
undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de
oversatte advarsler, der fulgte med denne enhed.**

**GEM DISSE ANVISNINGER**

تحذير **إرشادات الأمان الهامة**

**يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض لإصابات. قبل بدء العمل،
احذر مخاطر التعرض للصدمات الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم
رقم البيان الموجود في أخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز.
قم بحفظ هذه الإرشادات**

Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide

**Upozorenje**   VAŽNE SIGURNOSNE NAPOMENE

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE

**Upozornění**   DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY

Προειδοποίηση   ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθεις πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ

אזהרה   הוראות בטיחות חשובות
סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כד לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.
שמור הוראות אלה

Opomena   ВАЖНИ БЕЗБЕДНОСНИ НАПАТСТВИЈА
Симболот за предупредување значи опасност. Се наоѓате во ситуација што може да предизвика телесни повреди. Пред да работите со опремата, бидете свесни за ризикот што постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во преведените безбедносни предупредувања што се испорачани со уредот.
ЧУВАЈТЕ ГИ ОВИЕ НАПАТСТВИЈА

**Ostrzeżenie**

**WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA**

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

**NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ**

**Upozornenie**

**DÔLEŽITÉ BEZPEČNOSTNÉ POKYNY**

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

**USCHOVAJTE SI TENTO NÁVOD**

**Opozorilo**

**POMEMBNI VARNOSTNI NAPOTKI**

Ta opozorilni simbol pomeni nevarnost. Nahajate se v situaciji, kjer lahko pride do telesnih poškodb. Preden pričnete z delom na napravi, se morate zavedati nevarnosti udara električnega toka, ter tudi poznati preventivne ukrepe za preprečevanje takšnih nevarnosti. Uporabite obrazložitveno številko na koncu posameznega opozorila, da najdete opis nevarnosti v priloženem varnostnem priročniku.

**SHRANITE TE NAPOTKE!**

# Related Publications

✐

**Note** Before installing, configuring, or upgrading the switch, see these documents:

- For initial configuration information, see Appendix C, "Initial Configuration for the Switch," in this guide.

- For upgrading information, see the "Downloading Software" section in the release notes.

You can order printed copies of documents with a DOC-xxxxxx= number from the Cisco.com sites and from the telephone numbers listed in the "Ordering Documentation" section on page xv. The Cisco ME 4924-10GE switch shares software with the Catalyst 4500 series switches, and the software is documented in books that are mostly aimed at Catalyst 4500 users.

- *Release Notes for the Cisco ME 4924-10GE Ethernet Switch* (not orderable, but available on Cisco.com)

- *Cisco ME 4924-10GE Ethernet Switch Getting Started Guide* (order number DOC-7817609=)

- *Regulatory Compliance and Safety Information for the Cisco ME 4924-10GE Ethernet Switch* (order number DOC-7817610=)

- *Catalyst 4500 Series Switch Software Configuration Guide* (not orderable, but available on Cisco.com)

- *Catalyst 4500 Series Switch Command Reference* (not orderable, but available on Cisco.com)

- *Catalyst 4500 Series Switch System Message Guide* (not orderable, but available on Cisco.com)

- *Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide* (not orderable, but available on Cisco.com)

- *Cisco Small Form-Factor Pluggable Modules Installation Notes* (order number DOC-7815160=)

- *Cisco Small Form-Factor Pluggable Modules Compatibility Matrix* (not orderable, but available on Cisco.com)

# Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. This section explains the product documentation resources that Cisco offers.

## Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/techsupport

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

## Product Documentation DVD

The Product Documentation DVD is a library of technical product documentation on a portable medium. The DVD enables you to access installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the HTML documentation and some of the PDF files found on the Cisco website at this URL:

http://www.cisco.com/univercd/home/home.htm

The Product Documentation DVD is created and released regularly. DVDs are available singly or by subscription. Registered Cisco.com users can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

## Ordering Documentation

You must be a registered Cisco.com user to access Cisco Marketplace. Registered users may order Cisco documentation at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

If you do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

# Documentation Feedback

You can provide feedback about Cisco technical documentation on the Cisco Technical Support & Documentation site area by entering your comments in the feedback form available in every online document.

# Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to do the following:

- Report security vulnerabilities in Cisco products
- Obtain assistance with security incidents that involve Cisco products
- Register to receive security information from Cisco

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

## Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For emergencies only—security-alert@cisco.com

  An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

**Tip**   We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.*x* through 9.*x*.

Never use a revoked encryption key or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT to find other means of encrypting the data before sending any sensitive material.

# Product Alerts and Field Notices

Modifications to or updates about Cisco products are announced in Cisco Product Alerts and Cisco Field Notices. You can receive Cisco Product Alerts and Cisco Field Notices by using the Product Alert Tool on Cisco.com. This tool enables you to create a profile and choose those products for which you want to receive information.

To access the Product Alert Tool, you must be a registered Cisco.com user. (To register as a Cisco.com user, go to this URL: http://tools.cisco.com/RPF/register/register.do) Registered users can access the tool at this URL: http://tools.cisco.com/Support/PAT/do/ViewMyProfiles.do?local=en

# Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

## Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

**Note** Use the **Cisco Product Identification Tool** to locate your product serial number before submitting a request for service online or by phone. You can access this tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link, clicking the **All Tools (A-Z)** tab, and then choosing **Cisco Product Identification Tool** from the alphabetical list. This tool offers three search options: by product ID or model name; by tree view; or, for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

**Tip** Displaying and Searching on Cisco.com

If you suspect that the browser is not refreshing a web page, force the browser to update the web page by holding down the Ctrl key while pressing F5.

To find technical information, narrow your search to look in technical documentation, not the entire Cisco.com website. On the Cisco.com home page, click the **Advanced Search** link under the Search box and then click the **Technical Support & Documentation** radio button.

To provide feedback about the Cisco.com website or a particular technical document, click **Contacts & Feedback** at the top of any Cisco.com web page.

## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411
Australia: 1 800 805 227
EMEA: +32 2 704 55 55
USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is "down" or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

## Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Online Subscription Center is the website where you can sign up for a variety of Cisco e-mail newsletters and other communications. Create a profile and then select the subscriptions that you would like to receive. To visit the Cisco Online Subscription Center, go to this URL:

  http://www.cisco.com/offer/subscribe

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco channel product offerings. To order and find out more about the *Cisco Product Quick Reference Guide*, go to this URL:

    http://www.cisco.com/go/guide

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

    http://www.cisco.com/go/marketplace/

- Cisco Press publishes a wide range of general networking, training, and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

    http://www.ciscopress.com

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the *Internet Protocol Journal* at this URL:

    http://www.cisco.com/ipj

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

    http://www.cisco.com/en/US/products/index.html

- Networking Professionals Connection is an interactive website where networking professionals share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

    http://www.cisco.com/discuss/networking

- "What's New in Cisco Documentation" is an online publication that provides information about the latest documentation releases for Cisco products. Updated monthly, this online publication is organized by product category to direct you quickly to the documentation for your products. You can view the latest release of "What's New in Cisco Documentation" at this URL:

    http://www.cisco.com/univercd/cc/td/doc/abtunicd/136957.htm

- World-class networking training is available from Cisco. You can view current offerings at this URL:

    http://www.cisco.com/en/US/learning/index.html

# Product Overview

The Cisco ME 4924-10GE Ethernet switch, also referred to as the *switch*, is a metro Ethernet switch that can be used as user facing provider edge aggregation equipment to connect to service provider customer routers, switches, or other devices. This chapter provides a functional overview of the switch:

- Features, page 1-1
- Front Panel Description, page 1-3
- Rear Panel Description, page 1-7
- Management Options, page 1-8

## Features

The switch can be deployed as a broadband aggregation switch, aggregating 1000BASE-X SFP Ethernet traffic from other network devices to 10-Gigabit uplinks. The Cisco ME 4924-10GE switch has a 48-Gbps, nonblocking, full-duplex switching fabric, providing 102 million packets-per-second of switching capacity for high-speed applications.

A removable automatic variable speed fan tray for low noise operation at room temperature and removable and redundant 300 W AC or 300 W DC power supplies provide fault-tolerance protection for the switch. A faulty fan tray may be removed and replaced with a new one without taking the switch out of service. You may also replace a faulty power supply while the redundant supply provides uninterrupted power to the switch.

The following sections describe the switch features.

## Hardware Features

The Cisco ME 4924-10GE hardware provides:

- 24 small form-factor pluggable (SFP) module ports usable as downlinks
- 4 SFP ports usable as uplinks or downlinks

  For information about port numbering, see the "Front Panel Description" section on page 1-3

- 2 power supply bays that support AC or DC input and power redundancy

  For instructions on installing power supply units, see Chapter 3, "Connecting the Power Supply."

- Layer 2, Layer 3, and Layer 4 switching services
- Two 10-Gigabit Ethernet uplink ports using X2 interfaces

**Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide**

- Serial console management port using an RJ-45 interface
- A removable automatic variable speed fan tray for low noise operation at room temperature
- 256-MB SDRAM (fixed)
- 64-MB embedded Flash memory
- 48 Gbps switching capacity at the ports, 102 million packets-per-second actual forwarding rate
- EtherChannel at 1 Gbps and 10 Gbps
- Hardware-based access lists
- Storm control in hardware

# Software Features

This switch uses software developed for Catalyst 4500 series switches. The Cisco ME 4924-10GE software provides:

- Support for 55,000 MAC addresses for Layer 2 switching
- Support for 4,096 VLANs and 4,096 VLAN IDs
  - IEEE 802.1Q VLAN tagging on all ports
  - Cisco Inter Switch Link (ISL) tagging on all ports
- 64,000 multicast forwarding entries and 16,000 unicast forwarding entries
- 1022 ingress policers and 1022 egress policers
- 32,000 ingress Security ACEs and 32,000 egress Security ACEs
- Support for port aggregation using Port Aggregation Protocol (PAgP) for Gigabit EtherChannel
- Catalyst 4500 series management software features include the following:
  - Command-line interface (CLI) and Simple Network Management Protocol (SNMP) interfaces consistent with the Catalyst 4500 series switches
  - Compatible development of new features with the Catalyst 4500 series switches
  - Support for out-of-band management over serial lines through a terminal attached to the console interface
  - Support for in-band management through any switch port through SNMP, Telnet client, and Trivial File Transfer Protocol (TFTP)
  - Remote Monitoring (RMON)
  - Support for standard Layer 2 features: 802.1D Spanning Tree, Cisco Discovery Protocol (CDP), VTP version 2 with pruning extensions, and Cisco Group Management Protocol (CGMP) client
- Embedded management features include the following:
  - Full SNMP instrumentation including entity-Management Information Base (MIB), all relevant standard MIBs, and all relevant Cisco MIBs
  - Support for the first four RMON groups (Ethernet Statistics, Alarms, Events, and History) on a per-port basis without the need for an optional RMON processing module
  - Performance management information
  - Embedded CiscoView support

## Optical Support

The switch supports Gigabit Ethernet SFP modules as described at these URLs:

- http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_table09186a00 80446625.html

- http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_table09186a00 80385874.html

The switch supports X2 modules as described at this URL:

- http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_table09186a00 803857e7.html

# Front Panel Description

The 1000BASE-X Ethernet ports are numbered 1 through 24. These ports are grouped into pairs. The first member of the pair (port 1) is above the second member (port 2) on the far left, as shown in Figure 1-1. Port 3 is above port 4, and so on.

*Figure 1-1*        *Cisco ME 4924-10GE Switch Front Panel*
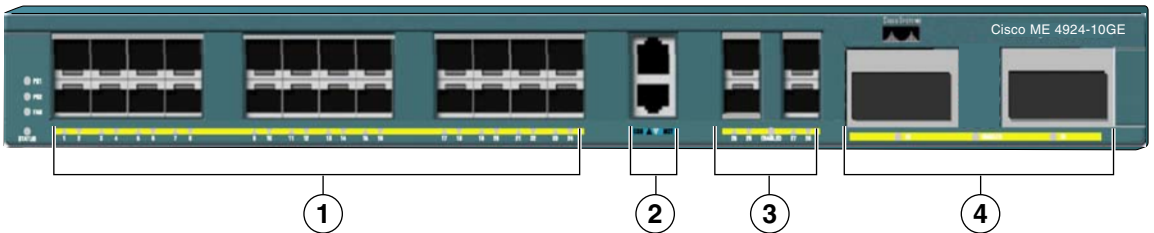


| **1** | 24 Standard SFP ports | **3** | 4 enhanced services SFP ports |
|---|---|---|---|
| **2** | Console and management ports | **4** | 2 X2 module ports |

The standard SFP ports are numbered 1 to 24 (left to right). The uplink SPF ports are numbered 25 to 28 (left to right). The X2 module ports are numbered 29 and 30 (left to right).

## Console Port

You can connect the switch to a PC by means of the console port and the supplied RJ-45-to-DB-9 female cable. If you want to connect the switch console port to a terminal, you need to provide an RJ-45-to-DB-25 female DTE adapter. You can order a kit (part number ACS-DSBUASYN=) containing that adapter from Cisco. For console port and adapter pinout information, see the "Connector and Cable Specifications" section on page B-1.

This port can be used to create an initial configuration as described in Appendix C, "Initial Configuration for the Switch."

# Management Port

The management port is used (in ROMMON mode only) to recover a switch software image that has been corrupted or destroyed due to a network catastrophe. This port is not active while the switch is operating normally.

You should designate one of the normalports on your switch as a management port, used for configuration and monitoring traffic. D o not connect the management port to this network, it is only intended to be used from a direct console connection.

# SFP Module Ports

The switch uses Gigabit Ethernet SFP modules to establish fiber-optic connections. These transceiver modules are field-replaceable, providing the uplink interfaces when inserted in an SFP module port. You can use the SFP modules for Gigabit uplink connections to other switches. You use fiber-optic cables with LC connectors to connect to a fiber-optic SFP module. You use Category 5 cable with RJ-45 connectors to connect to a copper SFP module.

For more information about these SFP modules, refer to your SFP module documentation.

# LEDs

You can use the switch LEDs to monitor switch activity and performance. Figure 1-2 and Figure 1-3 show the switch LEDs.
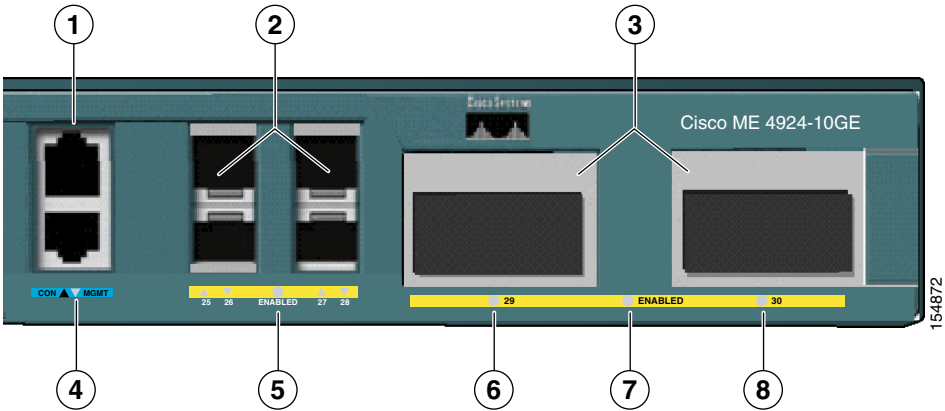
*Figure 1-2*        *Cisco ME 4924-10GE  Switch LEDs*
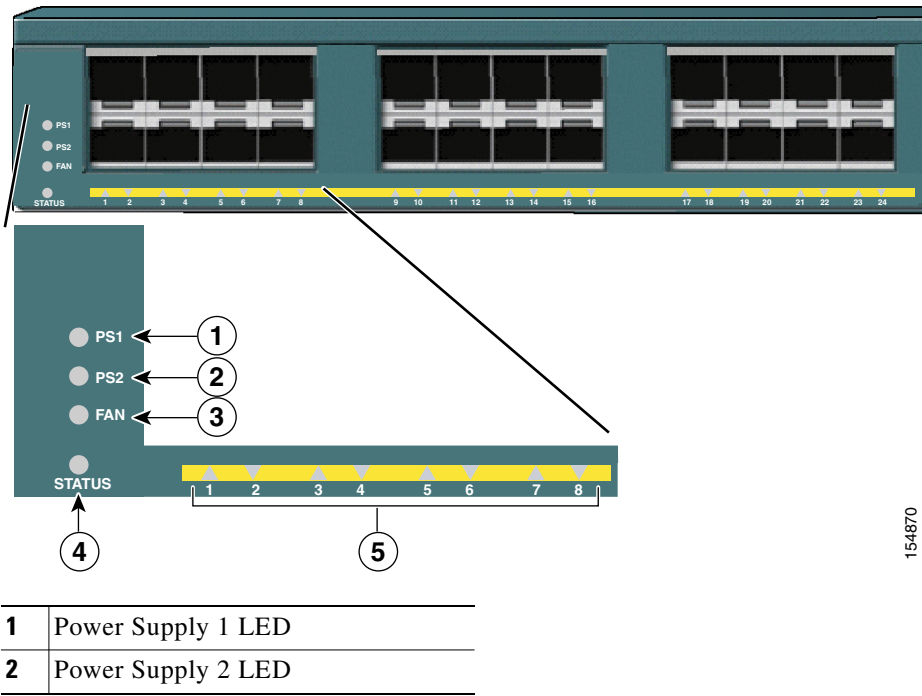


| 1 | Power Supply 1 LED |
|---|---|
| 2 | Power Supply 2 LED |

| 3 | FAN LED |
|---|---------|
| 4 | STATUS LED |
| 5 | Port LED |

*Figure 1-3        Cisco ME 4924-10GE  Switch Uplinks and Management Ports*



| 1 | Management port | 5 | Enabled LED for enhanced services ports |
|---|-----------------|---|------------------------------------------|
| 2 | Uplink SFPs | 6 | X2-1 Port status LED |
| 3 | X2 ports | 7 | Enabled LED for X2 Ports |
| 4 | Management port LED | 8 | X2-2 Port status LED |

The LEDs on the front panel of the Cisco ME 4924-10GE switch (see Figure 1-2 and Figure 1-3) provide status information as follows:

- STATUS LED indicates the operating state of the Cisco ME 4924-10GE switch.
- PS1 LED indicates the internal power supply status.
- PS2 LED indicates the internal power supply status.
- FAN LED indicates the fan tray status.
- A link status LED is below the 10/100/1000 BASE-T management port.

Table 1-1 provides a description of the LED functions.

*Table 1-1    LED Descriptions*

| LED | Color or State | Description |
|---|---|---|
| STATUS | Green<br>Red<br>Flashing Amber<br>Amber<br><br>Off | At startup, the Cisco ME 4924-10GE performs a series of diagnostic tests:<br>All tests pass<br>A test other than an individual port test fails<br>System boot or diagnostic tests in progress<br>System is in rommon mode or a power supply has failed<br>Switch is disabled |
| MGT | Green<br><br>Off | 10/100/1000 BASE-T Management port is in link-up state<br><br>10/100/1000 BASE-T Management port is in link-down state or not connected<br><br>There are no blinking, red, or amber states for this port |
| Port 1-28 | Green<br>Amber<br>Flashing amber<br>Off | Port is operational<br>Port is disabled by user<br>Power-on self-test indicates faulty port<br>No signal detected or link configuration failure |
| FAN | Off<br><br><br>Green<br>Red | No power to the switch or fans (the tray may not be plugged in especially if one or more of the power supplies status LED is green)<br>Fan tray operational<br>Fault detected |
| PS1 and PS2 | Off<br>Green<br>Red | No power to the PS<br>Operational[1]<br>Fault detected or the on/off switch is set to off while the power supply is plugged in |
| ENABLED | Off<br><br><br>Green | Switch start up<br>Cisco IOS is running |

1. If either LED is green and the other is OFF the power supply is probably not plugged in. If it is red, the supply is either plugged in and not switched on or it is faulty. It may be necessary to interrogate the system for further status using the CLI.

# Rear Panel Description

The switch rear panel has two power bays anda field replaceable fan tray. (See Figure 1-4.)

*Figure 1-4*        *Cisco ME 4924-10GE  Switch Rear Panel*
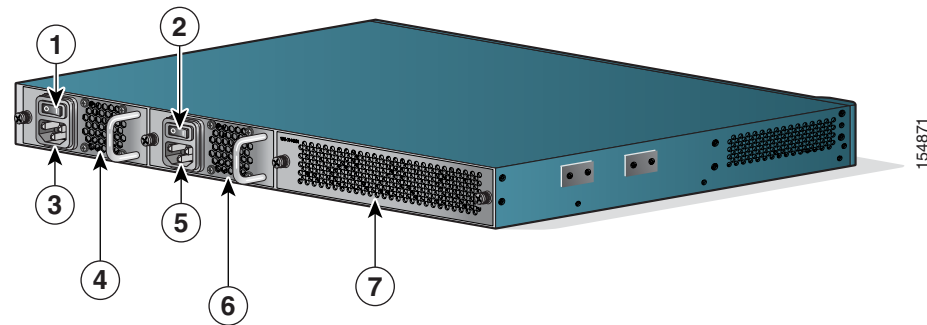


| **1** | Power supply PS1 on/off switch | **5** | Power supply PS2 AC cable connection |
|---|---|---|---|
| **2** | Power supply PS2 on/off switch | **6** | Power supply PS2 |
| **3** | Power supply PS1 AC cable connection | **7** | Fan tray |
| **4** | Power supply PS1 | | |

The hot-swappable system fan tray provides cooling air for the internal chassis components. The fans exhaust air to the rear, and fresh air is drawn in from the sides of the chassis.

**Note**    For environmental specifications, see Chapter 2, "Site Planning."

**Caution**    When the fan tray is removed, internal circuitry is exposed that should not be touched by tools or fingers. The system should not be left operating without a fan tray for longer than is necessary to replace a faulty fan tray with a new one.

# Power Supplies

**Note**    For complete power specifications for the Cisco ME 4924-10GE switch, see Appendix A, "Specifications."

The Cisco 4924-10GE switch has two redundant internal 300 W AC or 300 W DC power supplies.

The internal power supplies have individual power cords and status LEDs (PS1 and PS2 on the front panel). There are also LEDs on the power supplies that show status for the input (Input OK) and output (Output OK) currents. A power cord is used to connect the power supplies to the site AC power source. There is a power switch on the AC Cisco ME 4924-10GE switch power supplies; AC power is present when a power cord is plugged into a power supply and the switch is set to the On position. DC power supplies do not use a power supply cord or have an on/off switch

The switch will start with only one power supply plugged in, but redundant failover and load sharing will not be available in this configuration. We recommend that you always connect both power supplies to separate AC or DC circuits for optimal power reliability.

For safety reasons, the AC power supply needs to be switched off and unplugged before it is removed from a chassis or inserted into a chassis. DC supplies should have power shut off from the source before they are removed.

If only one power supply will be used, you must use the blank faceplate supplied to cover the empty power bay.

# Environmental Monitoring of the Power Supplies

Using the environmental monitoring and reporting functions, you can maintain normal system operation by resolving adverse environmental conditions prior to loss of operation.

Each power supply monitors its own temperature and output voltages. If conditions reach critical thresholds, the power supply might shut down to avoid damage from excessive heat or electrical current. The Cisco ME 4924-10GE switch senses the operating condition of the power supply and reports status through software.

# Power Management for the Cisco ME 4924-10GE  Switch

You can select AC or DC power supplies for your switch. The Cisco ME 4924-10GE  switch supports the following power supplies:

- 300 W AC
- 300 W DC

A redundant power supply can be identified and diagnosed by a running system regardless of its input status. AC and DC supplies are interchangeable.

## Power Management Modes

The Cisco ME 4924-10GE  switch supports the redundant power management mode. In this mode, if both power supplies are operating normally, each provides from 20/80 to 45/55 percent of the total system power requirements at all times. If one power supply fails, the other unit increases power to 100 percent of the total power requirement.

# Management Options

The switch offers several management options:

- Cisco IOS command-line interface (CLI)

  You can fully configure and monitor the switch from the CLI. You can access the CLI either by connecting your management station directly to the switch console port or by using Telnet from a remote management station. To create a partial configuration that will allow remote setup using the CLI, see Appendix C, "Initial Configuration for the Switch," and refer to the *Catalyst 4500 Command Reference* on Cisco.com for more information about using the CLI for a more complete configuration.

- CiscoView application

  The CiscoView device-management application displays the switch image that you can use to set configuration parameters and to view switch status and performance information. The CiscoView application, which you purchase separately, can be a standalone application or part of a Simple Network Management Protocol (SNMP) platform. Refer to the CiscoView documentation for more information.

- SNMP network management

  You can manage switches from a SNMP-compatible management station that is running platforms such as HP OpenView or SunNet Manager. The switch supports a comprehensive set of Management Information Base (MIB) extensions and four Remote Monitoring (RMON) groups. Refer to the switch software configuration guide on Cisco.com and the documentation that came with your SNMP application for more information.

- Cisco Intelligence Engine 2100 (IE2100)

  Cisco IE200 Series Configuration Registrar is a network management device that works with embedded CNS agents in the switch software. You can automate initial configurations and configuration updates by generating switch-specific configuration changes, sending them to the switch, executing the configuration change, and logging the results.

# Network Configurations

Refer to the switch software configuration guide on Cisco.com for network configuration concepts and examples of using the switch to create dedicated network segments and interconnecting the segments through Gigabit Ethernet connections.

# Switch Installation

This chapter describes how to start your switch and how to interpret the power-on self-test (POST) that ensures proper operation. It describes how to install the switch and make connections to the switch. Read the topics and perform the procedures in this order:

- Preparing for Installation, page 2-1
- Verifying Switch Operation, page 2-4
- Rack-Mounting the Switch, page 2-6
- Installing and Removing SFP Modules, page 2-7
- Connecting to an SFP Module, page 2-10
- Where to Go Next, page 2-18

# Preparing for Installation

This section covers these topics:

- Warnings, page 2-1
- Installation Guidelines, page 2-3
- Verifying Package Contents, page 2-3
- Verifying Switch Operation, page 2-4

## Warnings

These warnings are translated into several languages in the *Regulatory Compliance and Safety Information Guide for the Cisco ME 4924-10GE Switch*, which ships with the switch.

⚠️

**Warning**   **Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.** Statement 43

⚠️

**Warning**   **Do not stack the chassis on any other equipment. If the chassis falls, it can cause severe bodily injury and equipment damage.** Statement 48

**Warning**    **Ethernet cables must be shielded when used in a central office environment.** Statement 171

**Warning**    **Do not work on the system or connect or disconnect cables during periods of lightning activity.** Statement 1001

**Warning**    **Read the installation instructions before connecting the system to the power source.** Statement 1004

**Warning**    **To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:**

- **This unit should be mounted at the bottom of the rack if it is the only unit in the rack.**
- **When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.**
- **If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.** Statement 1006

**Warning**    **Class 1 laser product.** Statement 1008

**Warning**    **Avoid direct exposure to the laser beam.** Statement 1012

**Warning**    **This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.** Statement 1017

**Warning**    **A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.** Statement 1022

**Warning**    **This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024

**Warning**    **This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.** Statement 1028

**Warning**    **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 1030

**Warning**    **Ultimate disposal of this product should be handled according to all national laws and regulations.** Statement 1040

**Warning**    **When installing or replacing the unit, the ground connection must always be made first and disconnected last.** Statement 1046

**Warning**    **No user-serviceable parts inside. Do not open.** Statement 1073

**Warning**    **Installation of the equipment must comply with local and national electrical codes.** Statement 1074

**Caution**    To comply with the Telcordia GR-1089 Network Equipment Building Systems (NEBS) standard for electromagnetic compatibility and safety, connect the Ethernet cables only to intrabuilding or unexposed wiring or cabling.

**Note**    For a list of EMC regulatory statements, see the *Regulatory Compliance and Safety Information for the Cisco ME 4924-10GE  Ethernet Switch*.

# Installation Guidelines

Installation instructions and cabling distances vary from module to module. Refer to the information at http://www.cisco.com/en/US/products/hw/modules/ps5455/prod_installation_guides_list.html as it applies to your site.

# Verifying Package Contents

**Note**    Carefully remove the contents from the shipping container, and check each item for damage. If any item is missing or damaged, contact your Cisco representative or reseller for support. Return all packing material to the shipping container, and save it.

The switch is shipped with these items:

- *Cisco ME 4924-10GE Ethernet Switch Getting Started Guide*
- *Regulatory Compliance and Safety Information for the Cisco ME 4924-10GE Ethernet Switch*
- AC power supply (installed) or a DC power supply (installed with ground lug installed)
- AC power cord (AC-powered switches)
- One fan tray
- One grounding lug
- One ESD strap
- One RJ-45-to-DB-9 adapter cable
- One RJ-45-to-RJ-45 crossover cable
- Mounting kit containing:
  - Two 19-inch rack-mounting brackets
  - Four Phillips flat-head screws for attaching the brackets to the switch
  - Four Phillips machine screws for attaching the brackets to a rack
  - One cable guide and one black Phillips machine screw for attaching the cable guide to one of the mounting brackets

# Verifying Switch Operation

Before installing the switch in a rack, on a wall, or on a table or shelf, you should power the switch and verify that the switch passes POST. These sections describe the steps required to connect a PC to the switch console port and to power on the switch:

- Connecting a PC or Terminal to the Console Port, page 2-4
- Powering On the Switch and Running POST, page 2-5

## Connecting a PC or Terminal to the Console Port

To connect a PC to the console port, use the supplied RJ-45-to-DB-9 adapter cable. To connect the switch console port to a terminal, you need to provide a RJ-45-to-DB-25 female DTE adapter. You can order a kit (part number ACS-DSBUASYN=) containing that adapter from Cisco. For console port and adapter pinout information, see the "Cable and Adapter Specifications" section on page B-3.

The terminal-emulation software—frequently a PC application such as Hyperterminal or Procomm Plus—makes communication between the switch and your PC or terminal possible.

Follow these steps to connect the PC or terminal to the switch:

**Step 1**   Configure the baud rate and character format of the PC or terminal to match these console port default characteristics:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity

- None (flow control)

**Step 2**    Use the supplied RJ-45-to-DB-9 adapter cable to insert the RJ-45 connector into the console port, as shown in Figure 2-1.

*Figure 2-1      Connecting to the Console Port*
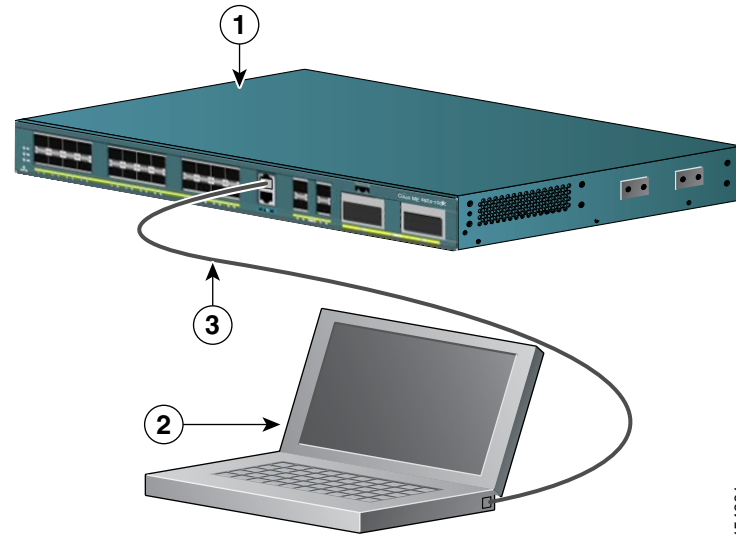


| **1** | Cisco ME 4924-10GE | **2** | PC | **3** | Console cable |
|---|---|---|---|---|---|

**Step 3**    Attach the DB-9 female DTE adapter of the RJ-45-to-DB-9 adapter cable to a PC, or attach an appropriate adapter to the terminal.

**Step 4**    Start the terminal-emulation program if you are using a PC or terminal.

## Powering On the Switch and Running POST

To power on the switch, follow these steps:

**Step 1**    Make sure that you have started the terminal emulation software program (such as ProComm, HyperTerminal, tip, or minicom) from your management station. See the "Connecting a PC or Terminal to the Console Port" section on page 2-4 for information on connecting to the switch console port.

**Step 2**    If you are using an AC power supply, connect one end of the AC power cord to the AC power connector on the switch, and then connect the other end of the power cord to an AC power outlet.

**Step 3**    If you are using a DC power supply, see the "Connecting DC Power to the Cisco ME 4924-10GE Switch" section on page 3-3 for instructions on how to connect the DC power supply.

**Step 4**    Secure the power cord with the power cord retainer. For more information, see the "Connecting AC Power to the Cisco ME 4924-10GE Switch" section on page 3-2.

As the switch powers on, it begins POST, a series of tests that run automatically to ensure that the switch functions properly. When the switch begins POST, the STATUS LED flashes amber for a minute, then turns green when successfully completed. If POST fails, the STATUS LED stops flashing and stays a steady Amber. If this happens, contact Cisco Systems to determine a course of action.

## Powering Off the Switch and Disconnecting the Console Port

Disconnect the power cord from the switch. Disconnect the cable from the switch console port. Install the switch in a rack, on a wall, or on a table or shelf as described in the "Rack-Mounting the Switch" section on page 2-6.

# Rack-Mounting the Switch

To install the switch in a 19-inch or 24-inch rack (24-inch racks require optional mounting hardware), follow the instructions described in these procedures:

- Attaching Brackets to the Switch, page 2-6
- Mounting the Switch in a Rack, page 2-7
- Attaching the Cable Guide, page 2-7

**Warning**  **To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:**

- **This unit should be mounted at the bottom of the rack if it is the only unit in the rack.**
- **When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.**
- **If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.** Statement 1006

## Attaching Brackets to the Switch

Figure 2-2 shows how to attach the bracket to the switch. Follow the same steps to attach the second bracket to the opposite side.
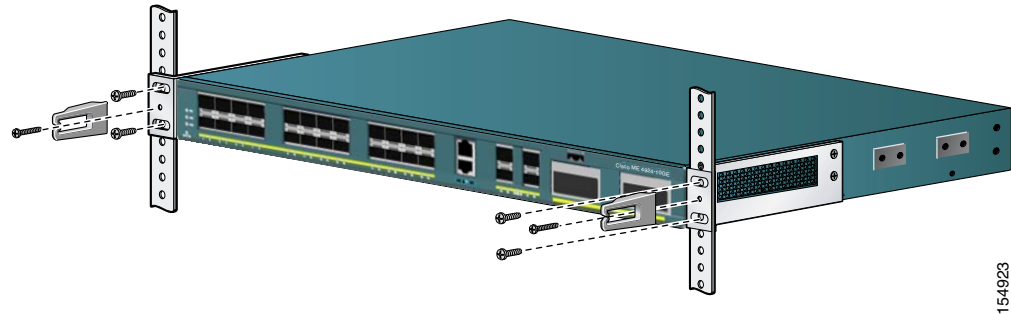
*Figure 2-2        Attaching Brackets*
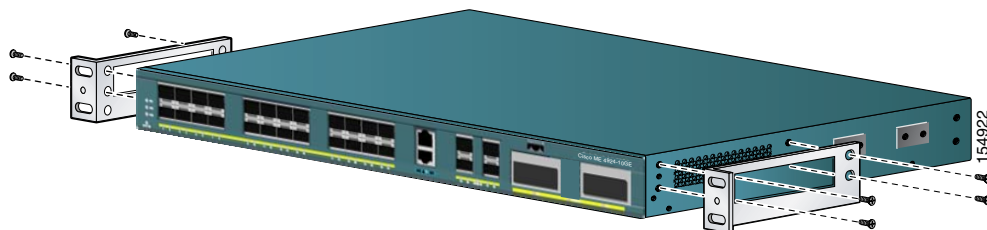
## Mounting the Switch in a Rack

After the brackets are attached to the switch, use the four supplied number-12 Phillips machine screws to securely attach the brackets to the rack, as shown in Figure 2-3.

*Figure 2-3*        *Mounting the Switch in a Rack*



After the switch is mounted in the rack, perform these tasks to complete the installation, run the setup program, and access the switch:

- Connect to the console port and start the emulation software. See the "Connecting to the Switch" section on page C-1 and the "Starting the Terminal-Emulation Software" section on page C-2.

- Power on the switch. See the "Connecting to a Power Source" section on page C-3.

- Run the setup program. See the "Performing the Initial Configuration" section on page C-4.

- Connect to the front-panel ports. See the "Connecting to an SFP Module" section on page 2-10 to complete the installation.

To use the CLI, enter commands at the Switch> prompt through the console port by using a terminal program or through the network by using Telnet. For full configuration information, refer to the switch software configuration guide or the switch command reference.

## Attaching the Cable Guide

We recommend that you attach the cable guide to prevent the cables from obscuring the front panel of the switch and the other devices installed in the rack. Use the supplied black screw, as shown in Figure 2-3, to attach the cable guide to the left or right bracket.

# Installing and Removing SFP Modules

These sections describe how to install and remove SFP modules. SFP modules are inserted into SFP module ports on the front of the switch. These field-replaceable modules provide uplink interfaces.

You can use any combination of SFP modules. Refer to the release notes for this release for the list of SFP modules that the Cisco ME 4924-10GE  switch supports. Each port must match the wave-length specifications on the other end of the cable, and the cable must not exceed the stipulated cable length for reliable communications. See the "Installation Guidelines" section on page 2-3 for cable stipulations for SFP connections.

Use only Cisco SFP modules on the Cisco ME 4924-10GE  switch. Each SFP module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the SFP module meets the requirements for the switch.

For detailed instructions on installing, removing, and cabling the SFP module, refer to your SFP module documentation.

# Installing SFP Modules into SFP Module Ports

This section provides instructions for installing an SFP module that has a bale-clasp latch.

⚠️

**Caution**    We strongly recommend that you do not install or remove fiber-optic SFP modules with cables attached because of the potential damage to the cables, the cable connector, or the optical interfaces in the SFP module. Disconnect all cables before removing or installing an SFP module.

Removing and installing an SFP module can shorten its useful life. Do not remove and insert SFP modules more often than is absolutely necessary.

✎

**Note**    Refer to the *Installation Notes for the Cisco Small Form-Factor Pluggable Module*s on cisco.com for instructions to install SFPs that use other types of latches.

Figure 2-4 shows an SFP module that has a bale-clasp latch.

*Figure 2-4*        *SFP Module with a Bale-Clasp Latch*
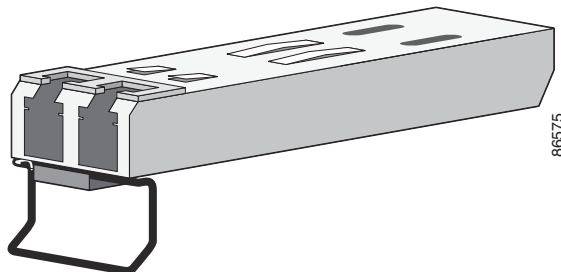


To insert an SFP module into the SFP module port, follow these steps:

**Step 1**    Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.

**Step 2**    Find the send (TX) and receive (RX) markings that identify the top side of the SFP module.

✎

**Note**    On some SFP modules, the send and receive (TX and RX) markings might be replaced by arrows that show the direction of the connection, either send or receive (TX or RX).

**Step 3**    Align the SFP module in front of the port opening.

**Step 4**    Insert the SFP module into the port until you feel the connector on the module snap into place in the rear of the port.

*Figure 2-5        Installing an SFP Module into an SFP Module Port*
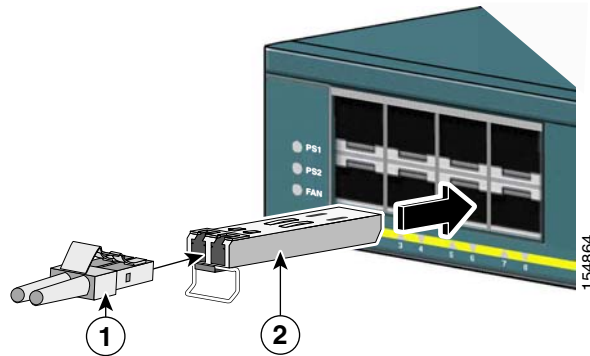


| **1** | Cable connector | **2** | SFP module |
|---|---|---|---|

**Step 5**    For fiber-optic SFP modules, remove the dust plugs from the optical ports and store them for later use.

⚠

**Caution**    Do not remove the dust plugs from the fiber-optic SFP module port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the SFP module ports and cables from contamination and ambient light.

**Step 6**    Insert the cable connector into the SFP module:

  – For fiber-optic SFP modules, insert the LC or MT-RJ cable connector into the SFP module.

  – For copper SFP modules, insert the RJ-45 cable connector into the SFP module.

✎

**Note**    When you connect to 1000BASE-T SFP modules, be sure to use a twisted four-pair, Category 5 cable.

# Removing SFP Modules from SFP Module Ports

To remove an SFP module from a module receptacle, follow these steps:

**Step 1**    Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.

**Step 2**    Disconnect the cable from the SFP module.

🔎

**Tip**    For reattachment, note which cable connector plug is send (TX) and which is receive (RX).

**Step 3**    For fiber-optic SFP modules, insert a dust plug into the optical ports of the SFP module to keep the optical interfaces clean.

**Step 4**    Unlock and remove the SFP module, as shown in Figure 2-6.

Pull the bale-clasp latch out and down to eject the module. If the bale-clasp latch is obstructed and you cannot use your index finger to open it, use a small, flat-blade screwdriver or other long, narrow instrument to open the bale-clasp latch.

*Figure 2-6*        *Removing a Bale-Clasp Latch SFP Module by Using a Flat-Blade Screwdriver*
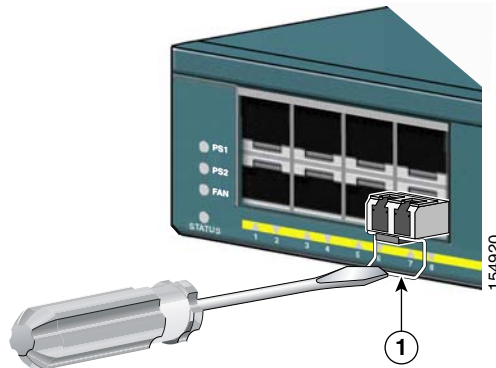


| 1 | Bale clasp |
|---|------------|

**Step 5**    Grasp the SFP module between your thumb and index finger, and carefully remove it from the port.

**Step 6**    Place the removed SFP module in an antistatic bag or other protective environment.

# Connecting to an SFP Module

This section describes how to connect to SFP modules. For instructions on how to connect to fiber-optic SFP modules, see the "Connecting to 1000BASE-T SFP Modules" section. For instructions on how to connect to 1000BASE-T SFP modules, see the "Connecting to 1000BASE-T SFP Modules" section.

For instructions about how to install or remove an SFP module, see the "Installing and Removing SFP Modules" section on page 2-7.

# Connecting to a Fiber-Optic SFP Module

Follow these steps to connect a fiber-optic cable to an SFP module:

⚠

**Caution**    Do not remove the rubber plugs from the SFP module port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the SFP module ports and cables from contamination and ambient light.

Before connecting to the SFP module, be sure that you understand the port and cabling information in the "Installation Guidelines" section on page 2-3 and in the "SFP Module Ports" section on page 1-4. See Appendix B, "Connector and Cable Specifications," for information about the LC on the SFP module.

**Step 1**    Remove the rubber plugs from the module port and fiber-optic cable, and store them for future use.

**Step 2**    Insert one end of the fiber-optic cable into the SFP module port (see Figure 2-7).

**Step 3**    Insert the other cable end into a fiber-optic receptacle on a target device.

**Step 4** Observe the port status LED.

The LED turns green when the switch and the target device have an established link.

If the LED is amber or off, the target device might not be turned on, there might be a cable problem, or there might be problem with the adapter installed in the target device. See Chapter 4, "Troubleshooting," for solutions to cabling problems.

*Figure 2-7*        ***Connecting to a Fiber-Optic SFP Module Port***
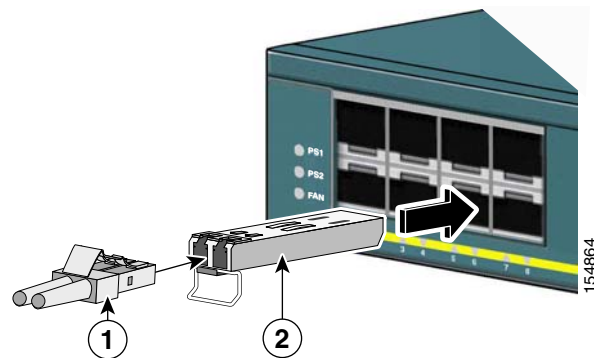


| **1** | LC connector | **2** | SFP module |
|-------|--------------|-------|------------|

**Step 5** If necessary, reconfigure and restart the switch or target device.

**Note**    For detailed instructions on removing the SFP modules, refer to your SFP documentation.

## Connecting to 1000BASE-T SFP Modules

Follow these steps to connect a Category 5 cable to a 1000BASE-T SFP module:

⚠

**Caution**   To prevent ESD damage, follow your normal board and component handling procedures. Keep components in antistatic bags or on antistatis mats when not in use, wear a grounding strap while handling components, and follow other ESD prevention guidelines appropriate to your environment.

**Step 1**   When connecting to servers, workstations, and routers, insert a four-twisted-pair, straight-through cable in the RJ-45 connector. When connecting to switches or repeaters, insert a four-twisted-pair crossover cable. (See Figure 2-8.)

✎

**Note**   When connecting to a 1000BASE-T device, be sure to use a four-twisted-pair, Category 5 cable.

*Figure 2-8*        *Connecting to a 1000BASE-T SFP Module Port*
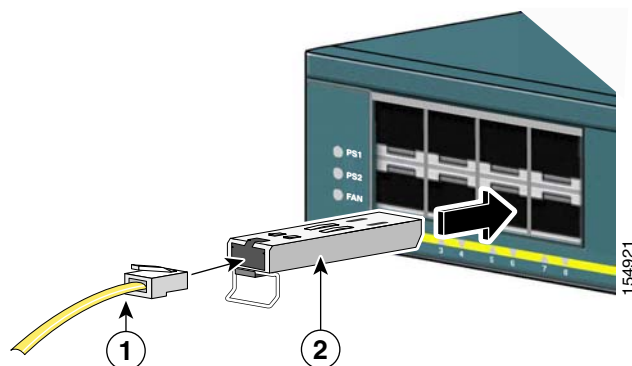


| 1 | RJ-45 connector | 2 | SFP module |
|---|---|---|---|

**Step 2**   Insert the other cable end in an RJ-45 connector on a target device.

**Step 3**   Observe the port status LED.

The LED turns green when the switch and the target device have an established link.

If the LED is off, the target device might not be turned on, there might be a cable problem, or there might be problem with the adapter installed in the target device. See Chapter 4, "Troubleshooting" for solutions to cabling problems.

**Step 4**   If necessary, reconfigure and restart the switch or target device.

## X2 Module Handling Guidelines and Installation

An X2 module (see Figure 2-9) is a hot-swappable input/output device that plugs into the 10-Gigabit Ethernet port of the Cisco ME 4924-10GE switch and links the switch with a fiber-optic network.

**Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide**

*Figure 2-9    10-Gigabit Ethernet X2 Module*
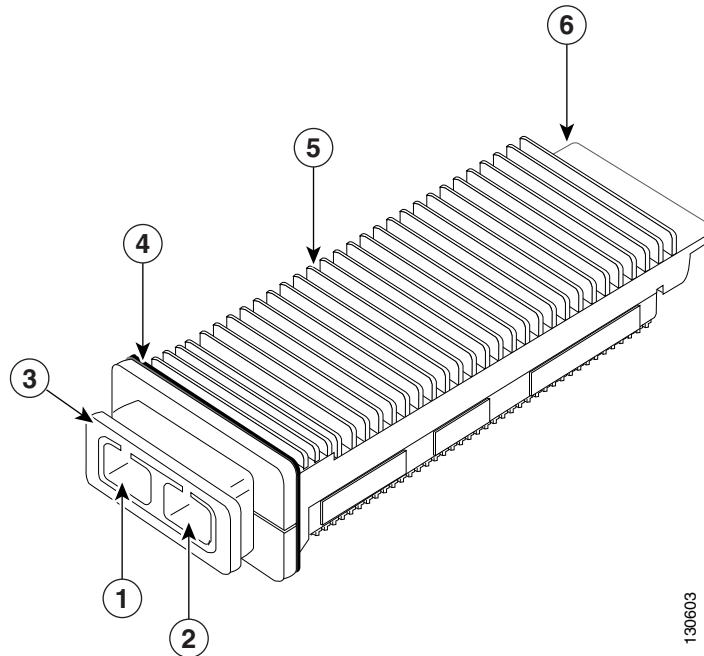


| 1 | Transmit optical bore | 4 | EMI gasket |
|---|---|---|---|
| 2 | Receive optical bore | 5 | Module heat sink |
| 3 | Sleeve latching mechanism | 6 | Module connector |

Table 2-1 lists the specifications for the 10-Gigabit Ethernet X2 module.

*Table 2-1    Module Specifications*

| Specification | Description |
|---|---|
| Wavelength | 1310 nm (1260 nm–1355 nm) |
| Speed | 10-Gigabit Ethernet |
| Cabling distance | Up to 10 km (6.2 miles) |
| Connector | SC Duplex |
| Mean launch power (maximum) | +0.5 dBm |
| Minimum sensitivity | –14.4 dBm |
| Dimensions | 89.05 mm x 40.05 mm x 19.25 mm (3.5 in x 1.58 in x 0.76 in) |

⚠ **Warning**    **Class 1 laser product.** Statement 1008

⚠ **Warning**    **Do not stare into the beam or view it directly with optical instruments.** Statement 1011

**Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide**

**Warning**    **Use of controls, adjustments, or performing procedures other than those specified may result in hazardous radiation exposure.** Statement 1057

If a module designed for operation on an SMF cable is directly coupled to an MMF cable, an effect known as Differential Mode Delay (DMD) might occur. See the *Catalyst 4500 Series Module Installation Guide* for more information.

# Installing the 10-Gigabit Ethernet X2 Module

**Caution**    The 10-Gigabit Ethernet X2 module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling modules or coming into contact with modules.

To install a 10-Gigabit Ethernet X2 module, follow these steps:

**Step 1**    Using a small flat-blade screwdriver, carefully pry the module port cover off of the module faceplate.

Use the two arrows on the port cover as guides for inserting the screwdriver blade. Save the port cover for future use.

**Step 2**    Remove the module from its protective packaging.

**Step 3**    Check the label on the module to verify that it is the correct model for your network.

**Step 4**    Insert the module with the cooling fins up. (See Figure 2-10.)

*Figure 2-10    Installing the 10-Gigabit Ethernet X2 Module*



**Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide**
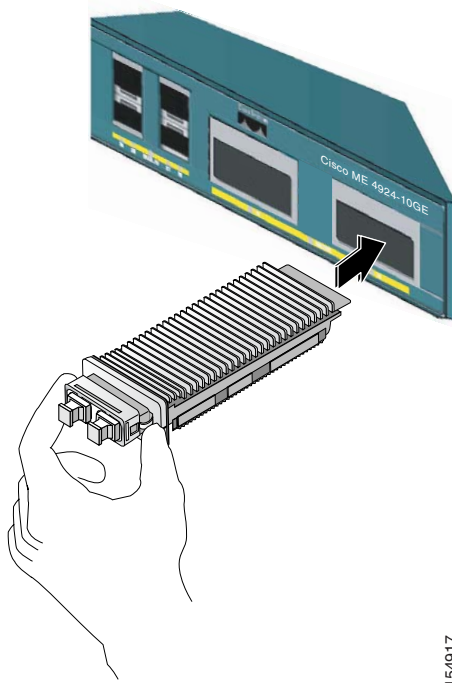
**a.** Grip the sides of the module sleeve with your thumb and forefinger, and insert the module into the socket on the module front panel. You will hear a click when the module is approximately 90 percent installed.

**b.** Continue sliding the module into the socket until you hear a second click. The module connector is now mated to the socket connector.

**c.** Verify that the module EMI gasket is in contact with the faceplate.

**Tip** With some modules you might need to pull out the latching sleeve as you slide the module into the socket. When the EMI gasket makes contact with the module faceplate, slide the latching sleeve in to secure the module in the socket.

**Caution** If you attempt to insert the bottom X2 module with the cooling fins pointing up, you will probably permanently damage the connector.

**Note** Before removing the dust plugs and making any optical connections, observe the following guidelines:

- Always keep the protective dust plugs on the unplugged fiber-optic cable connectors and the module optical bores until you are ready to make a connection.
- Always inspect and clean the SC connector end-faces just before making any connections. Refer to the Tip on this page for a pointer to a fiber-optic inspection and cleaning white paper.
- Always grasp the SC connector housing to plug or unplug a fiber-optic cable.

**Step 5** Remove the dust plugs from the network interface cable SC connectors.

Save the dust plugs for future use.

**Step 6** Inspect and clean the SC connector's fiber-optic end-faces. Refer to the Tip below for a pointer to a fiber-optic inspection and cleaning white paper.

**Tip** For complete information on inspecting and cleaning fiber-optic connections, refer to the document at this URL:

http://www.cisco.com/en/US/tech/tk482/tk607/technologies_white_paper09186a0080254eba.shtml

**Step 7** Remove the dust plugs from the module optical bores.

**Step 8** Immediately attach the network interface cable SC connectors to the module.
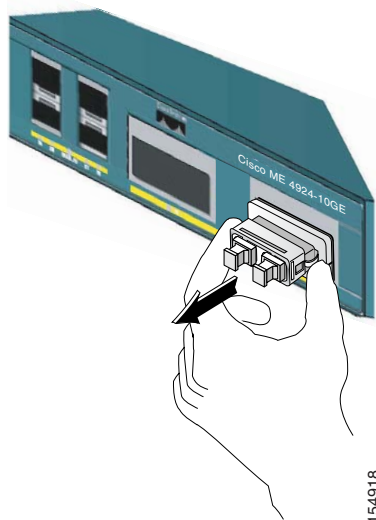
# Removing the 10-Gigabit Ethernet X2 Module

⚠

**Caution**    The 10-Gigabit Ethernet X2 module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling modules or coming into contact with modules.

If you are removing a 10-Gigabit Ethernet X2 module, follow these steps:

**Step 1**    Disconnect the network fiber-optic cable from the module connectors. Immediately reinstall the dust plugs in the module optical bores and the fiber-optic cable SC connectors.

**Step 2**    Grip the sides of the module sleeve with your thumb and forefinger, and pull the sleeve out to release the module from the socket connector. (See Figure 2-11.)

*Figure 2-11    Removing the 10-Gigabit Ethernet X2 Module*



**Step 3**    Slide the 10-Gigabit Ethernet X2 module out of the socket and immediately place it in an antistatic bag.

**Step 4**    Reinstall the socket cover if you are not installing an X2 module in the empty socket.

   **a.**    Position the socket cover in front of the socket opening.

   **b.**    Snap the socket cover in place.

## Module Maintenance Guidelines

To properly maintain X2 modules, follow these guidelines:

*   To prevent ESD damage, follow normal handling procedures.

*   When the module is stored or when a fiber-optic cable is not plugged in, always keep plugs in the optical bores.

- The most common source of contaminants in the optical bores is debris picked up on the ferrules of the optical connectors. Use an alcohol swab or Kim-Wipe to clean the ferrules of the optical connector.

⚠ **Warning**    **Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.** Statement 1051

# Cleaning the Fiber-Optic Connectors

In a fiber-optic system, light is transmitted through an extremely small fiber core, often 62.5 microns or less in diameter. Because dust particles range from a tenth of a micron to several microns in diameter, dust and any contamination at the end of the fiber core can degrade the performance of the connector interface where the two cores meet. Therefore, the connector must be precisely aligned, and the connector interface must be absolutely free of trapped foreign material.

Connector loss, or insertion loss, is a critical performance characteristic of a fiber-optic connector. Return loss is also an important factor. Return loss specifies the amount of reflected light; the lower the reflection, the better the connection. The best physical contact connectors have return losses greater than –40 dB, although –20 to –30 dB is more common.

The connection quality depends on the type of connector and the proper cleaning and connection techniques. Dirty fiber connectors are a common source of light loss. Keep the connectors clean at all times, and keep the dust covers installed when the connectors are not in use.

Before installing any type of cable or connector, use a lint-free alcohol pad from a cleaning kit to clean the ferrule, the protective white tube around the fiber, and the end-face surface of the fiber.

As a general rule, whenever there is a significant, unexplained loss of light, clean the connectors.

⚠ **Caution**    Use extreme care when removing or installing connectors so that you do not damage the connector housing or scratch the end-face surface of the fiber. Always install protective covers on unused or disconnected components to prevent contamination. Always clean fiber connectors before installing them.

To clean the optical connectors, use a CLETOP cassette cleaner (type A for SC connectors or type B for MT-RJ connectors) and follow the product directions. If a CLETOP cassette cleaner is not available, follow these steps:

**Step 1**    Use a lint-free tissue soaked in 99 percent pure isopropyl alcohol to gently wipe the faceplate. Wait five seconds for the surfaces to dry, and repeat.

**Step 2**    Remove any residual dust from the faceplate with clean, dry, oil-free compressed air.

⚠ **Warning**    **Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.** Statement 1051

**Step 3**    Use a magnifying glass or inspection microscope to inspect the ferrule at an angle. Do not look directly into the aperture. Repeat the process if any contamination is detected.

The connectors used inside the system have been cleaned by the manufacturer and connected to the adapters in the proper manner. The operation of the system should be error free if the customer provides clean connectors on the application side, follows the previous directions, and follows these guidelines:

- Clean the connectors using either a CLETOP cassette cleaner (Type A for SC connectors and Type B for MT-RJ connectors) or lens tissues before connecting to the adapters. Use pure alcohol to remove contamination.

- Do not clean the inside of the connector adapters.

- Do not use force or quick movements when connecting the fiber-optic connectors in the adapters.

- Cover the connectors and adapters to keep the inside of the adapters or the surface of the connectors from getting dirty when you are not using the connectors or while you are cleaning the chassis.

# Where to Go Next

If the default configuration is satisfactory, the switch does not need further configuration. You can use any of these management options to change the default configuration:

- Use the CLI to configure the switch from the console. See Appendix C, "Initial Configuration for the Switch," and refer to the switch command reference on Cisco.com for information on using the CLI with a Cisco ME 4924-10GE  switch.

- Start an SNMP application such as the CiscoView application.

# Connecting the Power Supply

This chapter describes how to connect the AC and DC power supply units and to remove them.
See these sections:

- Grounding Requirements, page 3-1
- Connecting AC Power to the Cisco ME 4924-10GE Switch, page 3-2
- Connecting DC Power to the Cisco ME 4924-10GE Switch, page 3-3

⚠ **Warning**    **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**
Statement 1030

⚠ **Caution**    If you use only one power supply in your switch, always cover the other power bay with the bay cover.

# Grounding Requirements

Grounding is recommended on all AC or DC installations, using only approved copper connectors.
Attach the provided two hole ground lug to the chassis using M4x 8mm bolts and then to the central
office (CO) or other interior ground system with number 6 AWG wire. The grounding connectors are on
the right side of the chassis, and either one may be used.

*Figure 3-1    Grounding Pad Locations*



| 1 | Grounding pads |
|---|---|

# Connecting AC Power to the Cisco ME 4924-10GE Switch

Follow these steps and warnings when connecting power to the Cisco ME 4924-10GE switch:

**Step 1**   Prior to connecting the power supply to a power source, ensure that all of the site power and grounding requirements described in Chapter 2, "Site Planning," have been met and the chassis is properly grounded as described in the "Grounding Requirements" section on page 2-4.

**Step 2**   Plug the power cords into the power supplies.

*Figure 3-2    AC Power Supply*
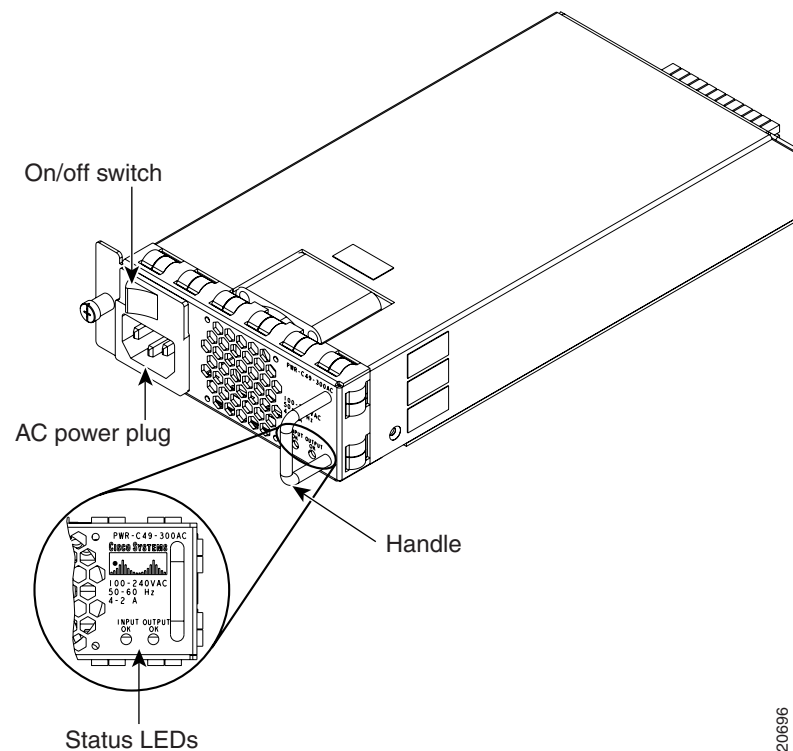


**Step 3**   Connect the other end of the power cords to an AC-power input source. If both power supplies will be used, make sure they are on different circuits.

**Step 4**   Turn the power switches to the ON position.

**Step 5**   Verify power supply operation by looking at the front panel power supply LEDs:

- The PS1 or PS2 LED is green when the power supply and fans are functioning normally.

- The PS1 or PS2 LED is red when the power supply is not functioning normally. The on/off switch may be set to off while the power supply is plugged in, or the power supply may be defective and not providing DC power to the switch. There may also be a fan failure.

- The PS1 or PS2 LED is off when there is no power supply installed.

From the system console, enter the **show power** command to display the power supply and system status. For more information on this command, see the command reference publication for your software release.

If the LEDs or **show power** command indicate a power or other system problem, see Chapter 5, "Troubleshooting the Installation," for troubleshooting information.

# Connecting DC Power to the Cisco ME 4924-10GE Switch

Follow these steps and warnings when connecting DC power to the Cisco 4924-10GE switch:

> ⚠ **Warning**    **Before performing any of the following procedures, ensure that power is removed from the DC circuit.** Statement 1003

> ⚠ **Warning**    **This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.** Statement 1017

> ⚠ **Warning**    **This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.** Statement 1045

> ⚠ **Warning**    **Hazardous voltage or energy may be present on DC power terminals.  Always replace cover when terminals are not in service.  Be sure uninsulated conductors are not accessible when cover is in place.** Statement 1075

**Step 1**    Prior to connecting the power supply to a power source, ensure that all of the site power and grounding requirements described in Chapter 2, "Site Planning," have been met and the chassis is properly grounded as described in the "Grounding Requirements" section on page 2-4.

**Step 2**    Remove the safety cover from the power terminal.

**Step 3**    Connect the power supply ground terminal to earth ground.

*Figure 3-3    DC Power Supply*
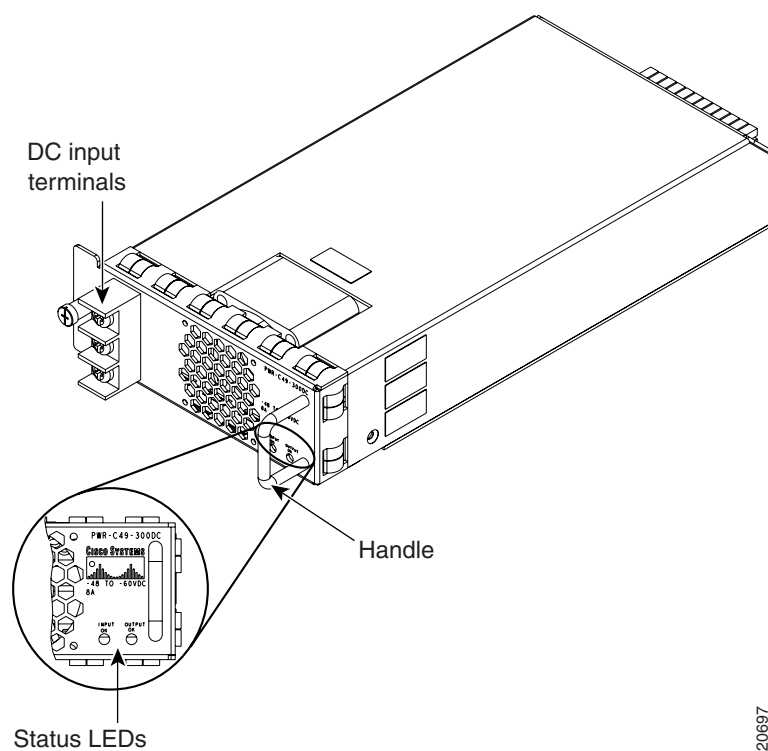


**Step 4**    Connect the positive and negative power cables into the power supplies using a number 2 Phillips screwdriver.

> **Note**    The DC power cables may use AWG #10 to AWG #12 wire.

**Step 5**    Replace the safety cover over the power terminals.

**Step 6**    Connect the other end of the power cables to an DC-power input source. If both power supplies will be used, make sure they are on different circuits.

**Step 7**    Turn on the power from the power source. The DC supply does not have an on/off switch.

**Step 8**    Verify power supply operation by looking at the front panel power supply LEDs:

- The PS1 or PS2 LED is green when the power supply is functioning normally.
- The PS1 or PS2 LED is red when the power supply is not functioning normally.
- The PS1 or PS2 LED is off when the power supply is not connected to a power source.

From the system console, enter the **show power** command to display the power supply and system status. For more information on this command, see the command reference publication for your software release.

If the LEDs or **show power** command indicate a power or other system problem, see Chapter 5, "Troubleshooting the Installation," for troubleshooting information.

# Troubleshooting

The LEDs on the front panel provide troubleshooting information about the switch. They show failures in the power-on self-test (POST), port-connectivity problems, and overall switch performance. For a full description of the switch LEDs, see the "LEDs" section on page 1-4.

You can also get statistics from the command-line interface (CLI) or from a Simple Network Management Protocol (SNMP) workstation. Refer to the software configuration guide, the switch command reference guide on Cisco.com, or the documentation that came with your SNMP application for details.

This chapter describes these topics for troubleshooting problems:

- Understanding POST Results, page 4-1
- Diagnosing Problems, page 4-2
- Troubleshooting the Hardware Components, page 4-3
- Contacting Customer Service, page 4-6

## Understanding POST Results

When the switch powers on the PS1, PS2, and FAN LEDs should all be green. If one of the power supplies is off or has insufficient power to work, its LED will be red. If the fan tray has a problem the FAN LED will be red. The switch immediately begins POST (Power on Self-Test), a series of tests that run automatically to ensure that the switch functions properly. When the switch begins POST, the STATUS LED flashes amber, and it should flash for about a minute.

When the POST is complete and the switch has passed, the STATUS LED turns green. If problems were detected on individual ports, the link LED for that port will flash amber. The switch may still pass traffic depending on the type of error.

If the switch fails POST, the STATUS LED stays a steady amber and stops blinking. Port link LEDs are off.

Note     For information on operating status for the LEDs, go to the "LEDs" section on page 1-4.

Note     POST failures are may or may not be fatal. Check console output for the nature of the failure and call Cisco Systems if your switch does not pass POST.

# Diagnosing Problems

Common switch problems fall into these categories:

- Poor performance
- No connectivity
- Corrupted software

Table 4-1 describes how to detect and resolve these problems.

*Table 4-1*        ***Common Problems and Solutions***

| Symptom | Possible Cause | Resolution |
|---|---|---|
| **Poor performance or excessive errors** | Duplex autonegotiation mismatch. | Refer to the switch software configuration guide for information on identifying autonegotiation mismatches. |
| | **Cabling distance exceeded**<br><br>• Port statistics show excessive frame check sequence (FCS), late-collision, or alignment errors.<br><br>• For SFP port connections:<br>  – The distance between the SFP port and the attached device exceeds the SFP cabling guidelines. | • Refer to the switch software configuration guide for information on displaying port statistics.<br><br>• Refer to your SFP documentation for cabling guidelines. |
| | **Bad adapter in attached device**<br><br>• Excessive errors found in port statistics. | • Run adapter card diagnostic utility. |
| **No connectivity** | **Incorrect or bad cable**<br><br>These are results of no link at both ends:<br><br>• A crossover cable was used when a straight-through was required, or the reverse.<br><br>• The cable is wired incorrectly.<br><br>• A crossover or straight-through cable is wired incorrectly. | • For the correct pinouts and the proper application of crossover vs. straight-through cables, see the "Identifying a Crossover Cable" section on page B-2.<br><br>• Replace with a tested good cable.<br><br>• For 1000BASE-T connections, be sure to use a twisted four-pair, Category 5 cable. |

*Table 4-1    Common Problems and Solutions (continued)*

| Symptom | Possible Cause | Resolution |
| --- | --- | --- |
| **Unreadable characters on the management console** | Incorrect baud rate. | Reset the emulation software to 9600 baud. |
| **Amber STATUS LED** | POST error detected. It may or may not be a fatal error. | Contact Cisco Systems. |
| **The switch port is placed in error-disabled state after SFP is inserted** | Bad or non-Cisco-approved SFP. | Remove the SFP module from the switch, and replace it with a Cisco-approved module. Use the **errdisable recovery cause gbic-invalid** global configuration command to verify the port status, and enter a time interval to recover from the error-disable state.<br><br>Refer to the switch command reference guide for information on the **errdisable recovery** command. |
| **Switch does not recognize the SFP module** | The SFP module might be installed upside down. | Verify that the SFP module is not installed upside down. |
| | The SFP module does not snap into the port. | Remove the SFP module. Inspect for physical damage to the connector, the module, and the port.<br><br>Replace the SFP module with a known good SFP module. |

# Troubleshooting the Hardware Components

This chapter describes how to troubleshoot the Cisco ME 4924-10GE-10GE switch hardware and contains these sections:

- Getting Started, page 4-4
- Problem Solving to the System Component Level, page 4-4
- Identifying Startup Problems, page 4-4
- Troubleshooting the Power Supply, page 4-6
- Contacting Customer Service, page 4-6

If your system has problems starting up, use the information in this chapter to help isolate the cause. Problems with the initial startup are often caused by poor or improper connections. Although temperature conditions above the maximum acceptable level rarely occur at initial startup, environmental monitoring functions are included because they also monitor DC-line voltages.

**Note**    For configuration questions or problems, refer to the software configuration guide or the command reference publication to configure or enable the interfaces.

# Getting Started

When the initial system boot is complete, verify the following:

- Power supplies are supplying power to the system.
- The system fan assembly is operating.
- System software boots successfully.

If all of these conditions are met and the hardware installation is complete, refer to the Software Configuration Guide and the Command Reference publications to troubleshoot the software. However, if any of these conditions are not met, use the procedures in this chapter to isolate and, if possible, resolve the problem.

# Problem Solving to the System Component Level

The key to success when troubleshooting the system is to isolate the problem to a specific system component. The first step is to compare what the system *is doing* to what it *should be doing*. Because a startup problem can usually be attributed to a single component, it is more efficient to isolate the problem to a subsystem rather than troubleshoot each separate component in the system.

The switch consists of the following subsystems:

- Power supply—Includes the power supply and power supply cooling. (See the "Troubleshooting the Power Supply" section on page 4-6.)
- Fan assembly system—The chassis fan assembly should operate whenever system power is on. Usually, it continues to operate even when the environmental monitor shuts down the system because of an overtemperature or overvoltage condition. (It will shut down for a power supply shutdown.) You should be able to hear the fan assembly to determine whether or not it is operating. If the FAN LED is orange and you determine that the fan assembly is not operating, you should immediately contact a customer service representative. There are no installation adjustments that you can make if the fan assembly does not function properly at the initial startup.

# Identifying Startup Problems

When you connect the power cords to the Cisco ME 4924-10GE, follow these steps:

**Step 1**  Flip the power switches to the on position (AC powered systems only ).

**Step 2**  Verify that power is available to the power supplied from the site AC or DC source. Flip breakers and fuses if necessary.

**Step 3**  Listen for the system fan assembly. If you do not immediately hear the system fan assembly begin to operate, see "Troubleshooting the Power Supply" section on page 4-6.

**Step 4**  If you determine that the power supplies are functioning normally and that the fan assembly is faulty, contact a customer service representative. If the system fan assembly does not function properly at initial startup, there are no installation adjustments that you can make.

# LED Readings

LEDs indicate all system states in the startup sequence. By checking the LEDs, you can determine when and where the system failed in the startup sequence. To check the LEDs, follow these steps:

**Step 1**    Compare the LED states to Table 4-2:

*Table 4-2    Power Supply LED Meanings*

| LED and Color | Meaning |
|---|---|
| INPUT OK (AC) | This LED should turn green immediately when power is applied to the supply and the power switch is set to ON. |
| Green | AC input voltage is greater than 82 +/-3V. |
| Red | In a dual power supply configuration (alternate unit powered) the AC input is less than 73 +/-3V, or the power supply is turned off. |
| Off | AC input voltage is less than 73 +/-3V, or the power supply is turned off. |
| INPUT OK (DC) | This LED should turn green immediately when power is applied to the supply. |
| Green | DC input voltage is greater than -38.25 +/-2.25V. |
| Red | In a dual power supply configuration (alternate unit powered) the DC input is less than 33 +/-3V, or the power supply is turned off. |
| Off | In a single supply configuration, the LED shall be off to signal that DC input is less than 33 +/-3V, or the power supply is turned off. |
| OUTPUT OK | |
| Green | DC output voltages are within the normal operating range. |
| Red | Output voltage between the minimum and maximum limits will not create an output fail alarm. Output voltages below the minimum or above the maximum will create an output fail alarm and cause the LED to illuminate red. |

**Step 2**    Verify that the LEDs on the front panel are lit:

- The STATUS LED flashes amber during diagnostic boot tests. It is green when the switch is operational (online). If the system software is unable to start up, this LED stays orange.
- The port LEDs (1-48) are green when the module is operational (online). If no signal is detected, the LINK LED is off. The port LED remains amber if the port is disabled. The port LED flashes amber if the port tested faulty at startup.

**Step 3**    If a STATUS LED is red, contact a customer service representative for instructions.

**Step 4**    If the boot information and system banner are not displayed, verify that the terminal is set correctly and that it is connected properly to the console port.

# Troubleshooting the Power Supply

Follow these steps to help isolate a power subsystem problem:

**Step 1**    Verify that the power supply is plugged in and that the on/off switch is set to ON (if the power supply is an AC supply).

**Step 2**    Look at the power supply LED (PS1 or PS2). If the LED is off or if the LED is red, unplug the power cord, and then plug the power cord in. Be sure the on/off switch is OFF before removing the power cord from the power supply.

**Step 3**    If the LED remains off, there might be a problem with the AC or DC source or the power cable.

**Step 4**    Connect the power cord to another power source if one is available.

**Step 5**    If the LED then lights, the problem is the first power source.

**Step 6**    If the LED fails to light after you connect the power supply to a new power source, replace the power cord.

**Step 7**    If the LED still fails to light when the switch is connected to a different power source with a new power cord, the power supply is probably faulty.

If you are unable to resolve the problem, contact a customer service representative for instructions.

# Contacting Customer Service

If you are unable to solve a startup problem after using the troubleshooting suggestions in this chapter, contact a customer service representative for assistance and further instructions. Before you call, have the following information ready to help your service provider assist you as quickly as possible:

- Date you received the switch
- Chassis serial number (located on a label on the right of the rear of the chassis, see Figure 4-1)
- Type of software and release number
- Maintenance agreement or warranty information
- Brief description of the problem
- Brief explanation of the steps you have already taken to isolate and resolve the problem

*Figure 4-1    Serial Number Location*



SN: AAANNNNNXXXX
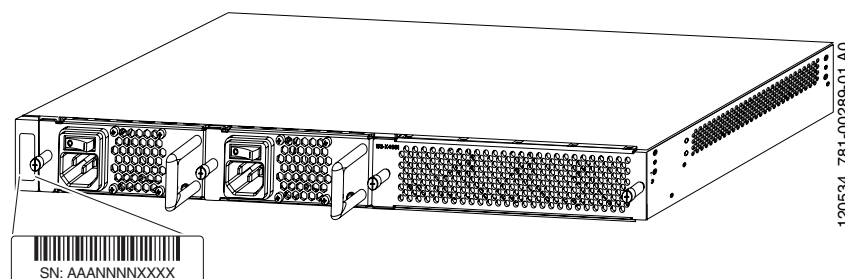
# Technical Specifications

This appendix lists the switch technical specifications in Table A-1and the regulatory agency approvals in Table A-2.

*Table A-1      Specifications for Cisco ME 4924-10GE  Switch*

| **Environmental** | |
| --- | --- |
| Temperature ambient operating | 32°F (0°C) to 104°F (40°C) |
| Temperature ambient nonoperating and storage | –40 to 167°F (–40 to 75°C) |
| Humidity (RH), ambient (noncondensing) operating | 10% to 90% |
| Humidity (RH), ambient (noncondensing) nonoperating and storage | 5% to 95% |
| Altitude operating and nonoperating | –60 to 2000 m |
| Switch heat dissipation | 1023 BTU/hour |
| **Physical Characteristics** | |
| Dimensions (H x W x D) | 1.75 x 17.5 x 16 in. (4.5 x 44.5 x 40.6 cm) |
| Weight | 17 lb (7.8 kg) for a system with two power supplies |
| Airflow | Sides in, rear out |
| **AC Power** | |
| Power supply output | 300 W |
| System power dissipation | 150 W |
| AC-input | 4 A maximum @ 100 VAC<br>2 A maximum @ 240 VAC |
| AC frequency | 50 to 60 Hz |
| Output current | 25A max |

*Table A-1        Specifications for Cisco ME 4924-10GE  Switch (continued)*

| | |
|---|---|
| Output voltage | 12V |
| Input KVA rating | 0.375 KVA |
| **DC Power** | |
| Power supply output | 300 W |
| System power dissipation | 150 W |
| DC-input | 8A  @ –48 to –60 VDC |
| Output current | 25A max |
| Output voltage | 12V |

*Table A-2        Cisco ME 4924-10GE  Switch Agency Approvals*

| Safety | EMC |
|---|---|
| UL to UL 60950, Third Edition | FCC Part 15 Class A |
| c-UL to CAN/CSA -C22.2 No. 60950-00, Third Edition | EN 55022 1998 Class A (CISPR 22) |
| | EN 55024 1998 Class A (CISPR 24) |
| TUV/GS to EN 60950:2000 | VCCI Class A |
| CB to IEC 60950 with all country deviations | AS/NZS 3548 Class A |
| NOM to NOM-019-SCFI | CNS13438 Class A |
| CE Marking | CE |
| | MIC |

# Connector and Cable Specifications

This appendix describes the Cisco ME 4924-10GE switch ports and the cables and adapters that you use to connect the switch to other devices.

## Connector Specifications

These sections describe the connectors used with the switch.

### Connecting to 1000BASE-T Devices

When connecting the ports to 1000BASE-T devices, such as servers, workstations, and routers, you must use a four-twisted-pair, Category 5, straight-through cable wired for 10BASE-T, 100BASE-TX, and 1000BASE-T.

When connecting the ports to other devices, such as switches or repeaters, you must use a four-twisted-pair, Category 5, crossover cable. Be sure to use a four-twisted-pair, Category 5 cable when connecting to a 1000BASE-T-compatible device.

**Note** Use a straight-through cable to connect two ports only when one port is designated with an X. Use a crossover cable to connect two ports when both ports are designated with an X or when both ports do not have an **X**.

## SFP Module Ports

The Cisco ME 4924-10GE switch uses SFP modules for fiber-optic and copper uplink ports. Refer to the Cisco ME 4924-10GE switch release notes for a list of supported SFP modules.

*Figure B-1*        *Fiber-Optic LC Connector*
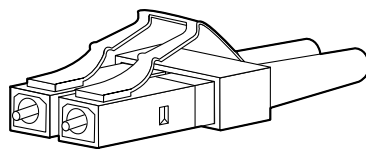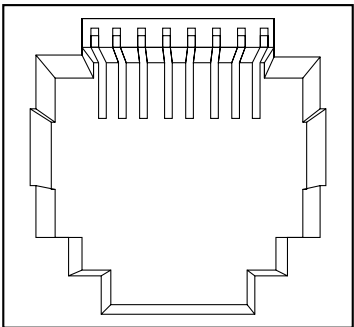


58476

**Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide**

Appendix B      Connector and Cable Specifications

Connector Specifications


**Warning**    **Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.**

*Figure B-2*      *Copper SFP Module RJ-45 Connector*

| Pin | Label | 1 2 3 4 5 6 7 8 |
|-----|-------|-----------------|
| 1 | TP0+ | |
| 2 | TP0- | |
| 3 | TP1+ | |
| 4 | TP2+ | |
| 5 | TP2- | |
| 6 | TP1- | |
| 7 | TP3+ | |
| 8 | TP3- | |

# Console Port

The console port uses an 8-pin RJ-45 connector, which is described in Table B-1 on page B-3 and Table B-2 on page B-3. The supplied RJ-45-to-DB-9 adapter cable is used to connect the console port of the switch to a console PC. You need to provide a RJ-45-to-DB-25 female DTE adapter if you want to connect the switch console port to a terminal. You can order a kit (part number ACS-DSBUASYN=) containing that adapter from Cisco. For console port and adapter pinout information, see Table B-1 on page B-3 and Table B-2 on page B-3.

## Identifying a Crossover Cable

To identify a rollover cable, compare the two modular ends of the cable. Hold the cable ends side-by-side, with the tab at the back. The wire connected to the pin on the outside of the left plug should be the same color as the wire connected to the pin on the outside of the right plug. (See Figure B-3.)

*Figure B-3*      *Identifying a Crossover Cable*

Pin 1 on one connector and pin 8 on the other connector should be the same color.

Pin 1 →        ← Pin 8

Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide

B-2

OL-10071-01

Downloaded from www.Manualslib.com manuals search engine
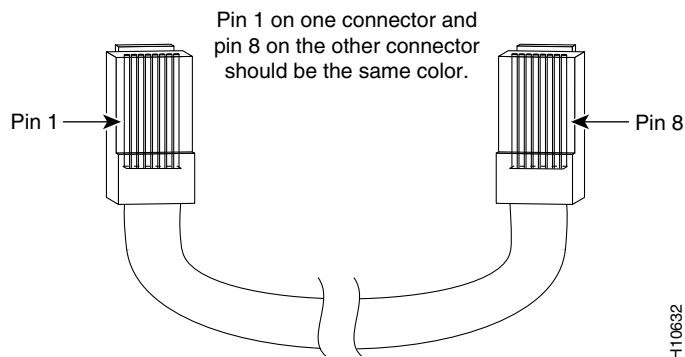
# Cable and Adapter Specifications

These sections describe the cables and adapters used with the Cisco ME 4924-10GE switch.

## Adapter Pinouts

Table B-1 lists the pinouts for the console port, the RJ-45-to-DB-9 adapter cable, and the console device.

*Table B-1        Console Port Signaling Using a DB-9 Adapter*

| Switch Console Port (DTE) | RJ-45-to-DB-9 Terminal Adapter | Console Device |
|---|---|---|
| Signal | DB-9 Pin | Signal |
| RTS | 8 | CTS |
| DTR | 6 | DSR |
| TxD | 2 | RxD |
| GND | 5 | GND |
| GND | 5 | GND |
| RxD | 3 | TxD |
| DSR | 4 | DTR |
| CTS | 7 | RTS |

Table B-2 lists the pinouts for the console port, RJ-45-to-DB-25 female DTE adapter, and the console device.

**Note**    The RJ-45-to-DB-25 female DTE adapter is not supplied with the switch. You can order a kit (part number ACS-DSBUASYN=) containing this adapter from Cisco.

*Table B-2        Console Port Signaling Using a DB-25 Adapter*

| Switch Console Port (DTE) | RJ-45-to-DB-25 Terminal Adapter | Console Device |
|---|---|---|
| Signal | DB-25 Pin | Signal |
| RTS | 5 | CTS |
| DTR | 6 | DSR |
| TxD | 3 | RxD |
| GND | 7 | GND |
| GND | 7 | GND |
| RxD | 2 | TxD |

*Table B-2        Console Port Signaling Using a DB-25 Adapter (continued)*

| Switch Console Port (DTE) | RJ-45-to-DB-25 Terminal Adapter | Console Device |
|---|---|---|
| Signal | DB-25 Pin | Signal |
| DSR | 20 | DTR |
| CTS | 4 | RTS |

# Console Port

The console port is an RJ-45 receptacle. The Request to Send (RTS) signal tracks the state of the Clear to Send (CTS) input. Table B-3 lists the console port pinouts.

*Table B-3    Console Port Pinouts*

| Pin | Signal | Direction | Description |
|---|---|---|---|
| 1 | RTS | output | request to send |
| 2 | DTR | output | data terminal ready |
| 3 | TXD | output | transmit data |
| 4 | GND | — | — |
| 5 | GND | — | — |
| 6 | RXD | input | receive data |
| 7 | DSR | input | data set ready |
| 8 | CTS | input | clear to send |

# Initial Configuration for the Switch

This chapter provides a quick step-by-step initial setup procedure for a switch.

**Note** For detailed installation procedures on rack mounting your switch or connecting to the small form-factor pluggable (SFP) modules, see Chapter 2, "Switch Installation." For product overview information, see Chapter 1, "Product Overview."

These steps describe how to do a simple installation:

1. Connecting to the Switch, page C-1
2. Starting the Terminal-Emulation Software, page C-2
3. Connecting to a Power Source, page C-3
4. Entering the Initial Configuration Information, page C-4

**Note** If you are using a DC power supply, see the "Connecting DC Power to the Cisco ME 4924-10GE Switch" section on page 3-3 for more information about setting up your switch with a DC power supply.

**Note** You need to provide the Category 5 straight-through cables to connect the switch ports to other Ethernet devices.

## Connecting to the Switch

You must use the console port to perform the initial configuration. To connect the switch console port to a PC, use the supplied RJ-45-to-DB-9 adapter cable.

Follow these steps to connect the PC or terminal to the switch:

**Step 1** Using the supplied RJ-45-to-DB-9 adapter cable, insert the RJ-45 connector into the console port that is located on the front of the switch, as shown in Figure C-1.

**Step 2** Attach the DB-9 female DTE of the adapter cable to a PC serial port, or attach an appropriate adapter to the terminal.

*Figure C-1        Connecting a Switch to a PC*
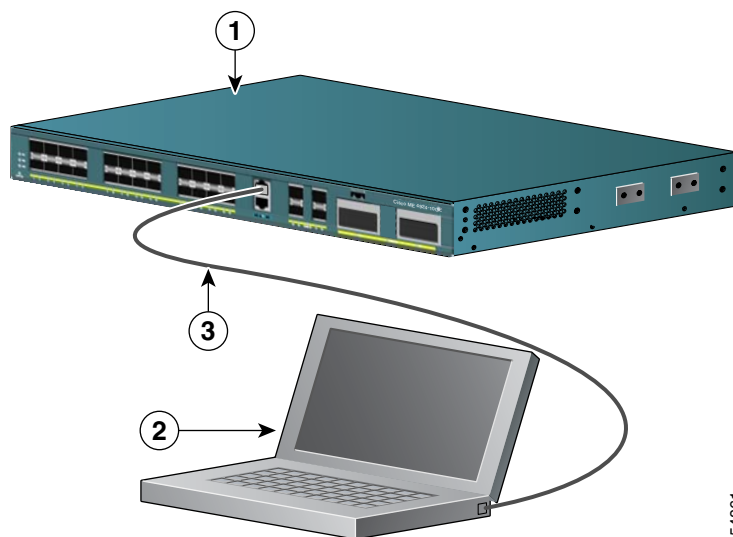


| 1 | Switch | 2 | Laptop | 3 | RJ-45-to-DB-9 adapter cable |
|---|--------|---|--------|---|----------------------------|

# Starting the Terminal-Emulation Software

Before you power on the switch, start the terminal-emulation session so that you can see the output display from the power-on self-test (POST).

The terminal-emulation software—frequently a PC application such as Hyperterminal or ProcommPlus—makes communication between the switch and your PC or terminal possible.

**Step 1**    Start the terminal-emulation program if you are using a PC or terminal.

**Step 2**    Start a terminal-emulation session.

**Step 3**     Configure the baud rate and character format of the PC or terminal to match these console port default characteristics:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity
- None (flow control)

# Connecting to a Power Source

Follow these steps to connect to a power source:

**Step 1**     If you are using an AC power supply, connect one end of the supplied AC power cord to the power connector on the switch rear panel, and then connect the other end of the power cable to a grounded AC outlet. (See Figure C-1.)

**Step 2**     If you are using a DC power supply, see the "Connecting DC Power to the Cisco ME 4924-10GE Switch" section on page 3-3 for instructions on how to install the DC power supply.

As the switch powers on, it begins the POST, a series of tests that runs automatically to ensure that the switch functions properly.

POST lasts approximately 1 minute. After POST is complete, the system and status LEDs remain green (see the "LEDs" section on page 1-4 for more information).

If the switch fails POST, the system LED turns amber.

**Note**     POST failures are usually fatal. Call Cisco Systems if your switch does not pass POST.

If you started the terminal-emulation program before you powered on your switch, the PC or terminal displays the bootloader sequence. You need to press Enter to display the setup program prompt.

# Entering the Initial Configuration Information

To set up the switch, you need to assign an IP address and other configuration information necessary for the switch to communicate with the local routers and the Internet. The minimal configuration provided here does not cover most of the features, it simply allows you to preform other configuration tasks using a telnet connection from your management network. To configure other features and interfaces, please refer to the *Catalyst 4500 Series Switch Software Configuration Guide.*

## IP Settings

You will need this information from your network administrator:

* Switch IP address
* Subnet mask (IP netmask)
* Default gateway (router)
* Enable secret password
* Enable password
* Telnet password

## Performing the Initial Configuration

Follow these steps to complete the initial configuration for the switch:

**Step 1**    At the terminal prompt, enter the enable command to enter priveleged exec mode:

```
Switch> enable
Password: password
Switch#
```

**Step 2**    Set the system time using the **clock set** command in privileged EXEC mode.

```
Switch# clock set 20:09:01 3 Apr 2006
```

**Step 3**    Verify the change by entering the **show clock** command.

```
Switch# show clock
20:09:06.079 UTC Thu Apr 3 2006
```

**Step 4**    Enter the **configure terminal** command to enter global configuration mode.

```
Switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch (config)#
```

**Step 5**    Configure a host name for the switch, and press **Return**.

```
Switch (config)# hostname Switch1
```

**Step 6**    Configure the system prompt for the switch, and press **Return**. To remove the new prompt and return the prompt to its default, use the **no prompt** command.

```
Switch (config)# prompt Switch1>
```

**Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide**

**Step 7**  Use the **banner motd** global configuration command to set location information in the login banner. You can also set a system contact using this command.

```
Switch1(config)# banner motd c 170 West Tasman Drive, San Jose, CA c
```

or

```
Switch1 (config)# banner motd c 170 West Tasman Drive, San Jose, CA; Tech Support 408 123
4567 c
```

**Step 8**  Configure an enable secret password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows spaces, but ignores leading spaces. The secret password is encrypted and the enable password is in plain text.

```
Switch1 (config)# enable secret SecretPassword
```

**Step 9**  Configure an enable password, and press **Return**.

```
Switch1 (config)# enable password EnablePassword
```

**Step 10**  Configure a virtual terminal (Telnet) password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, is case sensitive, allows spaces, but ignores leading spaces.

```
Switch1 (config)# password terminal-password
Switch1 (config)# line vty 0 15
```

**Step 11**  Configure the interface that connects to the management network. (The IP address and subnet mask shown are for example only. Use an address appropriate for your network.)

```
Switch1 (config)# ip routing
Switch1 (config)# interface gigabitethernet 24
Switch1 (config-if)# no switchport
Switch1 (config-if)# no shutdown
Switch1 (config-if)# ip address 10.4.120.106 255.0.0.0
Switch1 (config-if)# exit
```

*At this point do we also do a barebones SNMP config? Passwords and community strings?*

**Step 12**  Exit from global configuration mode:

```
Switch (config)# exit
Switch #
```

**Step 13**  View the configuration you just created and confirm that it is what you want.

```
Switch1# show run
!
hostname Switch1
!
banner motd ^C
170 West Tasman Drive, San Jose, CA ^C
!

!--- Output suppressed.
```

**Step 14**  Verify the IP information by using the **show ip interface brief** and **show ip route** commands.

```
Switch1# show ip interface brief
```

| Interface | IP-Address | OK? | Method | Status | Protocol |
|-----------|-----------|-----|--------|--------|----------|
| Vlan1 | 172.16.1.2 | YES | manual | up | up |

**Cisco ME 4924-10GE Ethernet Switch Hardware Installation Guide**

```
FastEthernet1    unassigned        YES     unset        up           up

!--- Output suppressed.
Switch1# show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - ISIS level-1, L2 - ISIS level-2, ia - ISIS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is 172.16.1.1 to network 0.0.0.0

     172.16.0.0/24 is subnetted, 1 subnets
C       172.16.1.0 is directly connected, Vlan1
S*   0.0.0.0/0 [1/0] via 172.16.1.1
Switch1#
```

**Step 15**    Save the running configuration:

```
Switch1# copy system:running-config nvram:startup-config
```

You have now completed the initial configuration of the switch.

---

To use the CLI to perform additional configuration or management tasks, enter commands at the Switch> prompt through the console port by using a terminal program or through the network by using Telnet. For configuration information, refer to the switch software configuration guide or the switch command reference.