



Gigabit Interface Converter Installation Note

Product Numbers: WS-G5484(=), WS-G5486(=), WS-G5487(=)

This installation note provides the technical specifications and installation instructions for the Gigabit Interface Converters (GBICs) that you install in the Catalyst 6000, Catalyst 5000, and Catalyst 4000 family Gigabit Ethernet ports that accept GBICs.

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Overview

The GBIC is a hot-swappable input/output device that plugs into a Gigabit Ethernet port, linking the module port with the fiber-optic network. There are two physical GBIC models available; one model has a locking handle that secures the GBIC in the module; the other model uses two clips, one on each side of the GBIC, that secure the GBIC in the module. GBICs are also available in three optical models. The three optical models differ in the distance light can be sent through a fiber-optic network. The two physical models are shown in Figure 1. The three optical models are listed in Table 1.

Figure 1 Physical GBIC Models

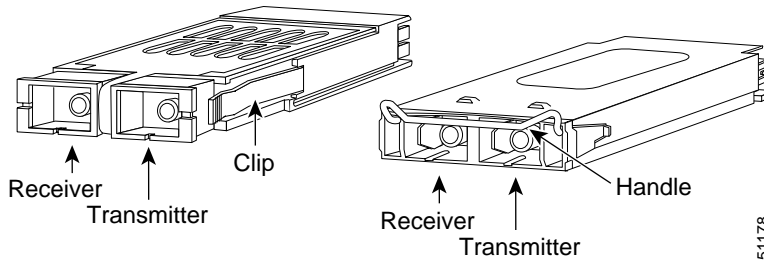


Table 1 is a list of the available GBIC optical models.

Table 1 GBIC Optical Models

GBIC	Product Number
Short wavelength (1000BASE-SX)	WS-G5484
Long wavelength/long haul (1000BASE-LX/LH)	WS-G5486
Extended distance (1000BASE-ZX)	WS-G5487

WS-G5484

The WS-G5484 GBIC (1000BASE-SX) operates on ordinary multimode fiber (MMF) link spans of up to 1804 feet (550 meters) in length (See Table 5 on page 4).

WS-G5486

The WS-G5486 GBIC (1000BASE-LX/LH) interfaces fully comply with the IEEE 802.3z 1000BASE-LX standard. However, their higher optical quality allows them to reach 10 km over single-mode fiber (SMF) versus the 5 km specified in 802.3z.

When using an LX/LH GBIC with a 62.5-micron diameter MMF, you must install a mode-conditioning patch cord (CAB-GELX-625 or equivalent) between the GBIC and the MMF cable on both the transmit and receive ends of the link in the following situations:

- Less than 328 feet (100 meters). When illuminating short lengths of MMF with an LX/LH GBIC, the mode-conditioning patch cord reduces the amount of optical power coupled into the MMF. Excessive power can saturate the LX/LH receiver causing an elevated bit error rate (BER).
- Greater than 984 feet (300 meters). When illuminating long lengths of MMF with an LX/LH GBIC, the mode-conditioning patch cord offsets the laser light to reduce the possibility of differential mode delay.

WS-G5487

The WS-G5487 GBIC (1000BASE-ZX) operates on ordinary SMF link spans of up to 70 km in length. Link spans of up to 100 km are possible using premium SMF or dispersion-shifted SMF (premium SMF has a lower attenuation per unit length than ordinary SMF; dispersion-shifted SMF has both lower attenuation per unit length and less dispersion).

The WS-G5487 GBIC must be coupled to SMF cable, which is the cable type typically used in long-haul telecommunications applications. The WS-G5487 GBIC will not operate correctly when coupled to MMF cable, and it is not intended to be used in application environments (e.g., building backbones or horizontal cabling) where MMF is frequently used.

The WS-G5487 GBIC is intended to be used as a physical medium dependent (PMD) component for Gigabit Ethernet interfaces. This GBIC operates at a signaling rate of 1250 MBaud, transmitting and receiving 8B/10B encoded data.

When you have shorter distances of SMF, you might need to insert an in-line optical attenuator in the link to avoid overloading the receiver:

- Insert a 10-dB in-line optical attenuator between the fiber-optic cable plant and the receiving port on the WS-G5487 GBIC at each end of the link whenever the fiber-optic cable span is less than 15.5 miles (25 km).
- Insert a 5-dB in-line optical attenuator between the fiber-optic cable plant and the receiving port on the WS-G5487 GBIC at each end of the link whenever the fiber-optic cable span is equal to or greater than 15.5 miles (25 km) and less than 31 miles (50 km).



Note

The maximum number of installed 1000BASE-ZX GBICs is limited in each Catalyst chassis. These limits fall within the emission specifications for these products. Table 2 lists the 1000BASE-ZX GBIC limits for the different Catalyst systems.

Table 2 Maximum Number of 1000BASE-ZX (WS-G5487) GBICs Per Platform

Platform	Maximum number of 1000BASE-ZX GBICs
Catalyst 4000 family	12 to comply with EN55022 Class B and FCC Class A
Catalyst 5000 family	12 to comply with FCC Class A
Catalyst 6000 family	12 to comply with EN55022 Class B 24 to comply with FCC Class A

Specifications

GBIC specifications are listed in Table 3. GBIC transmitter power and receiver sensitivity values are listed in Table 4.

Table 3 *GBIC Specifications*

Specification	Description
Dimensions (H x W x D)	0.39 x 1.18 x 2.56 inches (1 x 3 x 6.5 cm)
Weight	1 ounce maximum (28.4 grams)
Connectors	Multimode fiber-optic: SC Single-mode fiber-optic: SC
Connector polishing	SX — The SX GBIC uses ball lenses and an air gap. A flat polish on the fiber-optic interface connectors is suggested. LX/LH — Super Physical Contact with a 20 micron radius

Table 4 *GBIC Channel Insertion Loss*

Specification	1000BASE-SX	1000BASE-LX/LH	1000BASE-ZX
Transmitter output power (minimum/maximum)	0/−9.5 dBm	−3/−9.5 dBm	0/4.77 dBm
Receiver maximum input power	0 dBm	−3 dBm	−3 dBm
Receiver sensitivity	−17 dBm	−19 dBm	−23 dBm
Channel insertion loss			
50 micron MMF	3.4 dB	4.4 dB	N/A
62.5 micron MMF	3.2 dB	6 dB	N/A
9 micron SMF	N/A	6.5 dB	21.5 dB

Port Cabling Specifications

Table 5 provides cabling specifications for the GBICs that you install in the Gigabit Ethernet port. Note that all GBIC ports have SC-type connectors, and the minimum cable distance for all GBICs listed (MMF and SMF) is 6.5 feet (2 meters).

Table 5 GBIC Port Cabling Specifications

GBIC	Wavelength (nm)	Fiber Type	Core Size ¹ (micron)	Modal Bandwidth (MHz/km)	Cable Distance
SX ² (WS-G5484)	850	MMF	62.5	160	722 feet (220 meters)
			62.5	200	902 feet (275 meters)
			50.0	400	1640 feet (500 meters)
			50.0	500	1804 feet (550 meters)
LX/LH (WS-G5486)	1310	MMF ³	62.5	500	1804 feet (550 meters)
			50.0	400	1804 feet (550 meters)
			50.0	500	1804 feet (550 meters)
		SMF	8.3/9/10	–	6.2 miles (10 km)
ZX (WS-G5487)	1550	SMF	8.3/9/10	–	43.5 miles (70 km)
			8	–	62.1 miles (100 km) ⁴

1. The numbers given for multimode fiber-optic cable refer to the core diameter. For single-mode fiber-optic cable, 8.3 microns refers to the core diameter. The 9-micron and 10-micron values refer to the mode-field diameter (MFD), which is the diameter of the light-carrying portion of the fiber. This area consists of the fiber core plus a small portion of the surrounding cladding. The MFD is a function of the core diameter, the wavelength of the laser, and the refractive index difference between the core and the cladding.
2. Use with MMF only.
3. When using an LX/LH GBIC with 62.5-micron diameter MMF, you must install a mode-conditioning patch cord (CAB-GELX-625 or equivalent) between the GBIC and the MMF cable on both the transmit and receive ends of the link. The mode-conditioning patch cord is required for link distances less than 328 feet (100 m) or greater than 984 feet (300 m). The mode-conditioning patch cord prevents overdriving the receiver for short lengths of MMF and reduces differential mode delay for long lengths of MMF.
4. Requires dispersion-shifted single-mode fiber-optic cable.

**Note**

The mode-conditioning patch cord (CAB-GELX-625 or equivalent) is required to comply with IEEE standards. The IEEE found that link distances could not be met with certain types of fiber-optic cable cores. The solution is to launch light from the laser at a precise offset from the center by using the mode-conditioning patch cord. At the output of the patch cord, the LX/LH GBIC is compliant with the IEEE 802.3z standard for 1000BASE-LX.

Safety Overview

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, may harm you. A warning symbol precedes each warning statement.



Warning

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. To see translations of the warnings that appear in this publication, refer to the "Translated Safety Warnings" section in this document.

Waarschuwing

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 standaard maatregelen om ongelukken te voorkomen. Voor vertalingen van de waarschuwingen die in deze publicatie verschijnen, kunt u het gedeelte "Translated Safety Warnings" (Vertalingen van veiligheidsvoorschriften) raadplegen in dit document.

Varoitus

Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. Tässä julkaisussa esiintyvien varoitusten käännökset löydät tämän asiakirjan "Translated Safety Warnings" (käännetyt turvallisuutta koskevat varoitukset).

Attention

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions d'avertissements figurant dans cette publication, consultez la section « Translated Safety Warnings » (Traduction des avis de sécurité) de ce document.

Warnung

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt. Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise finden Sie im Abschnitt "Translated Safety Warnings" (Übersetzung der Warnhinweise) in diesem Dokument.

Avvertenza

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti. La traduzione delle avvertenze riportate in questa pubblicazione si trova nella documento "Translated Safety Warnings" (Traduzione delle avvertenze di sicurezza) nel presente documento.

- Advarsel** Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskada. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker. Hvis du vil se oversettelser av de advarslene som finnes i denne publikasjonen, kan du se i avsnittet "Translated Safety Warnings" [Oversatte sikkerhetsadvarsler] i dette dokumentet.
- Aviso** Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes. Para ver as traduções dos avisos que constam desta publicação, consulte a secção "Translated Safety Warnings" - "Traduções dos Avisos de Segurança" neste documento.
- ¡Advertencia!** Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes. Para ver una traducción de las advertencias que aparecen en esta publicación, consultar la sección titulada "Translated Safety Warnings" que aparece en este documento.
- Varning!** Denna varningssymbol 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 vanligt förfarande för att förebygga skador. Om du vill se översättningar av de varningar som visas i denna publikation, se avsnittet "Translated Safety Warnings" [Översatta säkerhetsvarningar] i detta dokument.



Warning

Before you install, operate, or service the system, read the *Site Preparation and Safety Guide*. This guide contains important safety information you should know before working with the system.



Warning

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



Warning

Class 1 laser product.



Warning

Because invisible laser radiation may be emitted from the aperture of the port when no cable is connected, avoid exposure to laser radiation and do not stare into open apertures.

**Warning**

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

**Warning**

During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

Required Tools

No tools are required to remove or install a GBIC.

Installing the GBIC

Two physical GBIC models are available. One GBIC model has a locking handle to secure the GBIC in the module; the other model uses two clips, one on each side of the GBIC. This section contains the procedures for installing both GBIC models.

Installing a GBIC with Clips

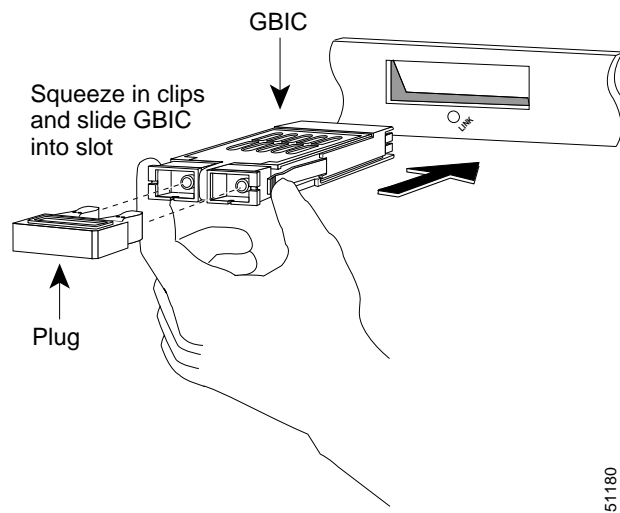
To install a GBIC that has clips, follow these steps:

-
- Step 1** Remove the GBIC from its protective packaging.
 - Step 2** Check the label on the GBIC to verify that the GBIC is the correct model (SX, LX/LH, or ZX) for your network.
 - Step 3** Grip the sides of the GBIC with your thumb and forefinger and insert the GBIC into the module socket, as shown in Figure 2.

**Note**

GBICs are keyed to prevent incorrect insertion.

Figure 2 *Installing a GBIC (With Clips)*



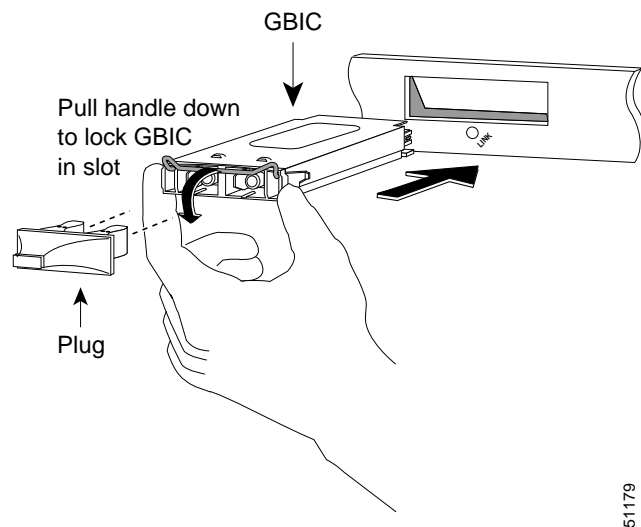
- Step 4** Slide the GBIC through the flap covering the socket opening until you hear a click indicating the GBIC is locked into the slot.
- Step 5** When you are ready to attach the network interface fiber-optic cable, remove the plug from the GBIC optical bore and save the plug for future use.

Installing a GBIC with a Handle

To install a GBIC that has a handle, follow these steps:

-
- Step 1** Remove the GBIC from its protective packaging.
 - Step 2** Check the label on the GBIC to verify that the GBIC is the correct model (SX, LX/LH, or ZX) for your network.
 - Step 3** Remove the plug from the optical bore.
 - Step 4** Slide the GBIC into the module socket. See Figure 3. You can install the GBIC with the handle either up or down.
 - a. If the handle is up during insertion, you must lower the handle after insertion to lock the GBIC in place.
 - b. If the handle is down during insertion, you will hear a click that indicates that the GBIC is locked in place.
 - Step 5** Verify that the GBIC handle is in the down position.
-

Figure 3 *Installing a GBIC (With Handle)*



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Removing a GBIC

Two physical GBIC models are available. One GBIC model has a locking handle to secure the GBIC in the module; the other model uses two clips, one on each side of the GBIC. This section contains procedures for removing both GBIC models.

Removing a GBIC with Clips

If you are removing a GBIC that has clips, follow these steps:

-
- Step 1** Disconnect the network fiber-optic cable from the GBIC SC-type connector.
 - Step 2** Release the GBIC from the slot by simultaneously squeezing the two plastic tabs (one on each side of the GBIC).
 - Step 3** Slide the GBIC out of the Gigabit Ethernet module slot. A flap drops down to protect the Gigabit Ethernet module connector.
 - Step 4** Place the GBIC in an antistatic bag.
-

Removing a GBIC with a Handle

If you are removing a GBIC with a handle, follow these steps:

-
- Step 1** Disconnect the network fiber-optic cable from the GBIC SC-type connector.
 - Step 2** Rotate the handle up to release the GBIC from the slot.
 - Step 3** Grip the handle or the sides of the GBIC and slide the GBIC out of the slot. A flap drops down to protect the slot.
 - Step 4** Place the GBIC in an antistatic bag.
-

Standards Compliance Specifications

This section provides compliance information for the GBIC.

FCC Class A Compliance

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

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Cisco equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- 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.)

Modifications to this product not authorized by Cisco Systems could void the FCC approval and negate your authority to operate the product.

Class 1 Laser Compliance

This product has been tested and found to comply with the limits for Class 1 laser for IEC825, EN60825, and 21CFR1040 specifications.

Translated Safety Warnings

This section contains the translations of the warnings included in this document.

Safety Information Referral Warning



Warning

Before you install, operate, or service the system, read the *Site Preparation and Safety Guide*. This guide contains important safety information you should know before working with the system.

Waarschuwing

Lees de handleiding *Vorbereiding en veiligheid van de locatie Handleiding* voordat u het systeem installeert of gebruikt of voordat u onderhoud aan het systeem uitvoert. Deze handleiding bevat belangrijke beveiligingsvoorschriften waarvan u op de hoogte moet zijn voordat u met het systeem gaat werken.

Varoitus

Ennen kuin asennat järjestelmän tai käytät tai huollat sitä, lue *Asennuspaikan valmistelu-jaturvaopas* -opasta. Tässä oppaassa on tärkeitä turvallisuustietoja, jotka tulisi tietää ennen järjestelmän käyttämistä.

Attention

Avant d'installer le système, de l'utiliser ou d'assurer son entretien, veuillez lire le *Guide de sécurité et de préparation du site*. Celui-ci présente des informations importantes relatives à la sécurité, dont vous devriez prendre connaissance.

Warnung	Warnhinweis Bevor Sie das System installieren, in Betrieb setzen oder warten, lesen Sie die <i>Anleitung zur Standortvorbereitung und Sicherheitshinweise</i> . Dieses Handbuch enthält wichtige Informationen zur Sicherheit, mit denen Sie sich vor dem Verwenden des Systems vertraut machen sollten.
Avvertenza	Prima di installare, mettere in funzione o effettuare interventi di manutenzione sul sistema, leggere le informazioni contenute nella documentazione sulla <i>Guida alla sicurezza</i> . Tale guida contiene importanti informazioni che è necessario acquisire prima di iniziare qualsiasi intervento sul sistema.
Advarsel	Før du installerer, tar i bruk eller utfører vedlikehold på systemet, må du lese <i>Veiledning for stedsklargjøring og sikkerhet</i> . Denne håndboken inneholder viktig informasjon om sikkerhet som du bør være kjent med før du begynner å arbeide med systemet.
Aviso	Antes de instalar, funcionar com, ou prestar assistência ao sistema, leia o <i>Guia de Preparação e Segurança do Local</i> . Este guia contém informações de segurança importantes que deve conhecer antes de trabalhar com o sistema.
¡Advertencia!	Antes de instalar, manejar o arreglar el sistema, le aconsejamos que consulte la <i>Guía de prevención y preparación de una instalación</i> . Esta guía contiene importante información para su seguridad que debe saber antes de comenzar a trabajar con el sistema.
Varning!	Innan du installerar, använder eller utför service på systemet ska du läsa <i>Förberedelser och säkerhet Handbok</i> . Denna handbok innehåller viktig säkerhetsinformation som du bör känna till innan du arbetar med systemet.

Qualified Personnel Warning



Warning

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

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door bevoegd geschoold personeel.

Varoitus

Tämän laitteen saa asentaa, vaihtaa tai huoltaa ainoastaan koulutettu ja laitteen tunteva henkilökunta.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

Avvertenza

Questo apparato può essere installato, sostituito o mantenuto unicamente da un personale competente.

Advarsel	Bare opplært og kvalifisert personell skal foreta installasjoner, utskiftninger eller service på dette utstyret.
Aviso	Apenas pessoal treinado e qualificado deve ser autorizado a instalar, substituir ou fazer a revisão deste equipamento.
¡Advertencia!	Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.
Varning!	Endast utbildad och kvalificerad personal bör få tillåtelse att installera, byta ut eller reparera denna utrustning.

Class 1 Laser Product Warning



Warning Class 1 Laser Product

Waarschuwing: Waarschuwing voor klasse 1 laserprodukten

Varoitus: lasertuote luokka 1

Avertissement : Produits Laser Class 1

Warnung: Produkt-Warnhinweis zu Lasergeräten der Klasse 1

Avvertenza. Prodotto Laser di Classe 1

Advarsel! Advarsel for laserprodukter i klasse 1

Aviso Aviso sobre produtos a laser da Classe 1

Aviso É Aviso sobre producto láser de Clase 1

Varning! Varning beträffande laserprodukt, klass 1

Invisible Laser Radiation Warning



Warning	Because invisible laser radiation may be emitted from the aperture of the port when no cable is connected, avoid exposure to laser radiation and do not stare into open apertures.
Waarschuwing	Omdat er onzichtbare laserstraling uit de opening van de poort geëmitteerd kan worden wanneer er geen kabel aangesloten is, dient men om blootstelling aan laserstraling te vermijden niet in de open openingen te kijken.
Varoitus	Kun porttiin ei ole kytketty kaapelia, portin aukosta voi vuotaa näkymätöntä lasersäteilyä. Älä katso avoimiin aukkoihin, jotta et altistu säteilylle.
Attention	Etant donné qu'un rayonnement laser invisible peut être émis par l'ouverture du port quand aucun câble n'est connecté, ne pas regarder dans les ouvertures béantes afin d'éviter tout risque d'exposition au rayonnement laser.
Warnung	Aus der Öffnung des Ports kann unsichtbare Laserstrahlung austreten, wenn kein Kabel angeschlossen ist. Kontakt mit Laserstrahlung vermeiden und nicht in offene Öffnungen blicken.
Avvertenza	Poiché quando nessun cavo è collegato alla porta, da quest'ultima potrebbe essere emessa radiazione laser invisibile, evitare l'esposizione a tale radiazione e non fissare con gli occhi porte a cui non siano collegati cavi.
Advarsel	Usynlige laserstråler kan sendes ut fra åpningen på utgangen når ingen kabel er tilkoblet. Unngå utsettelse for laserstråling og se ikke inn i åpninger som ikke er tildekket.
Aviso	Evite uma exposição à radiação laser e não olhe através de aberturas expostas, porque poderá ocorrer emissão de radiação laser invisível a partir da abertura da porta, quando não estiver qualquer cabo conectado.
¡Advertencia!	Cuando no esté conectado ningún cable, pueden emitirse radiaciones láser invisibles por el orificio del puerto. Evitar la exposición a radiaciones láser y no mirar fijamente los orificios abiertos.
Varning!	Osynliga laserstrålar kan sändas ut från öppningen i porten när ingen kabel är ansluten. Undvik exponering för laserstrålning och titta inte in i ej täckta öppningar.

Product Disposal Warning



Warning

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

Waarschuwing

Het uiteindelijke wegruimen van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

Varoitus

Tämä tuote on hävitettävä kansallisten lakien ja määräysten mukaisesti.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

Avvertenza

Lo smaltimento di questo prodotto deve essere eseguito secondo le leggi e regolazioni locali.

Advarsel

Endelig kassering av dette produktet skal være i henhold til alle relevante nasjonale lover og bestemmelser.

Aviso

Deitar fora este produto em conformidade com todas as leis e regulamentos nacionais.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Varning!

Vid deponering hanteras produkten enligt gällande lagar och bestämmelser.

Wrist Strap Warning



Warning

During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

Waarschuwing

Draag tijdens deze procedure aardingspolsbanden om te vermijden dat de kaart beschadigd wordt door elektrostatische ontlading. Raak het achterbord niet rechtstreeks aan met uw hand of met een metalen werktuig, omdat u anders een elektrische schok zou kunnen oplopen.

Varoitus

Käytä tämän toimenpiteen aikana maadoitettuja rannesuojia estääksesi kortin vaurioitumisen sähköstaattisen purkauksen vuoksi. Älä kosketa taustalevyä suoraan kädelläsi tai metallisella työkalulla sähköiskuvaaran takia.

Attention

Lors de cette procédure, toujours porter des bracelets antistatiques pour éviter que des décharges électriques n'endommagent la carte. Pour éviter l'électrocution, ne pas toucher le fond de panier directement avec la main ni avec un outil métallique.

Warnung

Zur Vermeidung einer Beschädigung der Karte durch elektrostatische Entladung während dieses Verfahrens ein Erdungsband am Handgelenk tragen. Bei Berührung der Rückwand mit der Hand oder einem metallenen Werkzeug besteht Elektroschockgefahr.

Avvertenza

Durante questa procedura, indossare bracciali antistatici per evitare danni alla scheda causati da un'eventuale scarica elettrostatica. Non toccare direttamente il pannello delle connessioni, né con le mani né con un qualsiasi utensile metallico, perché esiste il pericolo di folgorazione.

Advarsel

Bruk jordingsarmbånd under prosedyren for å unngå ESD-skader på kortet. Unngå direkte berøring av bakplanet med hånden eller metallverktøy, slik at di ikke får elektrisk støt.

Aviso

Durante este procedimento e para evitar danos ESD causados à placa, use fitas de ligação à terra para os pulsos. Para evitar o risco de choque eléctrico, não toque directamente na parte posterior com a mão ou com qualquer ferramenta metálica.

¡Advertencia!

Usartiras conectadas a tierra en las muñecas durante este procedimiento para evitar daños en la tarjeta causados por descargas electrostáticas. No tocar el plano posterior con las manos ni con ninguna herramienta metálica, ya que podría producir un choque eléctrico.

Varning!

Använd jordade armbandsremmar under denna procedur för att förhindra elektrostatisk skada på kortet. Rör inte vid baksidan med handen eller metallverktyg då detta kan orsaka elektrisk stöt.

Related Documentation

For more detailed installation and configuration information, refer to these publications:

- *Site Preparation and Safety Guide*
- *Catalyst 4003 and 4006 Switch Installation Guide*
- *Catalyst 5000 Family Installation Guide*
- *Catalyst 6000 Family Installation Guide*
- *Catalyst 6000 Family Module Installation Guide*

Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
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Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

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To access Cisco.com, go to the following website:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

This document is to be used in conjunction with the *Catalyst 6000 or Catalyst 5000 Family Installation Guide*.

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