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Using FC-to-SC FDDI Adapters in the Cisco 4000 Series, Cisco 7000 Series, and Cisco 7500 Series Routers

Product Number: FC-SC-ADAPTER=

This publication contains instructions for making single-mode connections using FC-to-SC interface adapters (FC-SC-ADAPTERS=) in the Cisco 4000 series, Cisco 7000 series, and Cisco 7500 series routers.

FC-to-SC FDDI adapters allow newer versions of the Cisco 4000 series FDDI network processor module, and the FDDI Interface Processor (FIP), to be connected to existing FC-type optical fiber. All newer FDDI products are equipped with SC-type connectors and replace older versions of these products equipped with FC-type connectors; this FC-to-SC adapter prevents you from having to change the existing connectors on your FC-type fiber-optic cables. (You can also reverse the FC-to-SC adapter and use older FC-type, single-mode FDDI products with SC-type, single-mode optical fiber.)

This publication is for the FC-to-SC adapter installer, who should be familiar with electronic circuitry and wiring practices and have experience as an electronic or electromechanical technician.

This publication is to be used in conjunction with the following publications:

- For Cisco 4000 series users—*Cisco 4000 Series Public Network Certification* publication. If you have a Cisco 4000-M, Cisco 4500-M, or Cisco 4700-M router, also use this publication with the *Cisco 4000 Series Installation Guide* publication that shipped with your router. If you have a Cisco 4000, refer to the *Cisco 4000 Hardware Installation and Maintenance* publication. If you have a Cisco 4500 or Cisco 4700, refer to the *Cisco 4000 Series Hardware Installation and Maintenance* publication.
- For Cisco 7000 series or Cisco 7500 series users—use the *FDDI Interface Processor (FIP) Installation and Configuration* configuration note that shipped with your FIP. You can also refer to the hardware installation and configuration publications that shipped with your Cisco 7000 series or Cisco 7500 series routers.

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Document Contents

This document contains the following sections, including step-by-step procedures for using an FC-to-SC adapter:

All users should review the following three sections before proceeding with the installation:

- Safety Recommendations
- Safety with Electricity, page 3
- Tools and Equipment Required, page 4

Cisco 4000 series (FDDI network processor module) users should refer to the following procedure:

- Cisco 4000 Series—Making Single-Mode FDDI Network Connections, page 5

Cisco 7000 series and Cisco 7500 series (FIP) users should refer to the following procedure:

- FIP—Making Single-Mode FDDI Network Connections, page 6

The following section is for general reference for all users:

- Cisco Connection Online, page 9

Note Translations for all safety warnings included in this document can be found in the appendix “Translated Safety Warnings” in the *Cisco 4000 Series Installation Guide*.

Safety Recommendations

Follow these guidelines to ensure general safety:

- Keep tools away from walk areas where you or others could fall over them.
- Do not wear loose clothing that may get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- Wear safety glasses when working under conditions that may be hazardous to your eyes.



Warning Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI card when no cable is connected. *Avoid exposure and do not stare into open apertures.*

Following is an example of the warning label that appears on the product:

Figure 1 Warning Label on the Cisco 4000 series

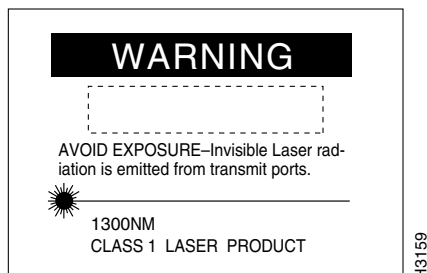


Figure 2 Warning Label on the FIP

Note The single-mode transmitter is designed to comply with specification 21, Code of Federal Regulations (CFR), Chapter 1, Subchapter J. The single-mode transmitter uses a small laser to transmit the light signal to the ring. Keep the transmit port covered whenever a cable is not connected to it.

- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.

Safety with Electricity



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. This can cause serious burns or even result in welding to the terminals.

Follow these guidelines when working on equipment powered by electricity:

- Locate the room's emergency power-off switch. Then, if an electrical accident occurs, you can quickly shut the power OFF.
- Before working on the system, turn OFF the power and unplug the power cord.
- Disconnect all power before doing the following:
- Do not work alone if potentially hazardous conditions exist.
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- Never assume that power is disconnected from a circuit. Always check.
- If an electrical accident occurs, proceed as follows:
 - Use caution, and do not become a victim yourself.
 - Turn OFF power to the system.
 - If possible, send another person to get medical aid. Otherwise, determine the condition of the victim and then call for help.
 - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

Tools and Equipment Required

No additional tools or equipment are required to replace FC-to-SC connector adapters.

Older versions of the single-mode Cisco 4000 series network processor module and Cisco 7000 series and Cisco 7500 series FIP use simplex FC-type connectors (see Figure 3) for the transmit and receive ports. Newer versions of these products use simplex SC-type connectors. (See Figure 4.) The connector accepts standard 8.7 to 10/125-micron single-mode fiber-optic cable. The single-mode interface supports connections at distances up to 6 miles (10 kilometers).

Figure 3 Older, FC-type Single-Mode FDDI Network Interface Connector

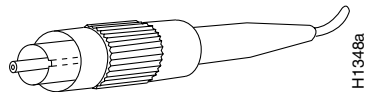
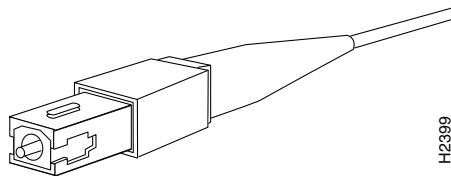


Figure 4 Newer, SC-type Single-Mode FDDI Network Interface Connector



The FC-to-SC adapter (FC-SC-ADAPTER=) allows the newer, SC-type connector single-mode FDDI products to be used with cables installed for the earlier, FC-type connector versions. (See Figure 5 and Figure 6.)

Figure 5 Single-Mode FDDI Network Interface FC-to-SC Adapter, FC End

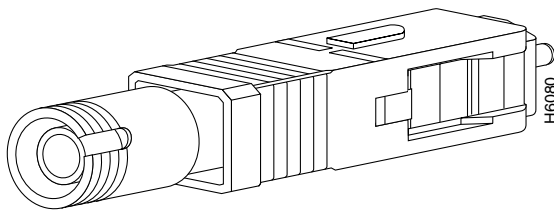
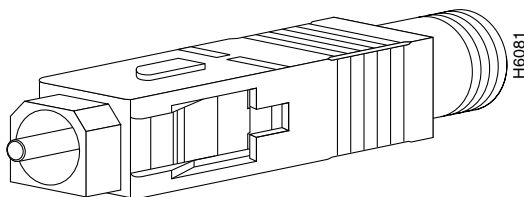


Figure 6 Single-Mode FDDI Network Interface FC-to-SC Adapter, SC End



Cisco 4000 Series—Making Single-Mode FDDI Network Connections

Take the following steps to connect a single-mode FDDI module using the FC-to-SC FDDI adapter:



Caution Failure to observe these guidelines will prevent the FDDI interface from initializing correctly.

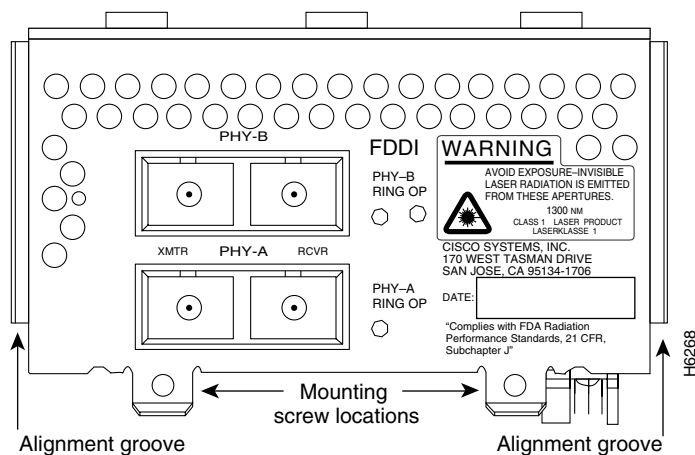


Warning Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI card when no cable is connected. *Avoid exposure and do not stare into open apertures.*

Step 1 Insert the FC-to-SC adapters in the SC ports of the module.

Step 2 Connect the cable from the primary ring (from PHY-B at the primary ring upstream station) to the FC-to-SC adapter in the module's PHY-A Receive port, labeled RCVR on the module. (See Figure 7.)

Figure 7 Dual Attachment Single-Mode FDDI Network Processor Module with SC-type Connectors—End View



Step 3 Connect the cable to the primary ring (to PHY- A at the primary ring downstream station) to the FC-to-SC adapter in the module's PHY- B transmit port, labeled XMTR.

Step 4 Connect the incoming cable from the secondary ring to the FC-to-SC adapter in the module's PHY- B receive port.

Step 5 Connect the outgoing cable to the secondary ring to the FC-to-SC adapter in the module's PHY- A transmit port, labeled XMTR.

This completes the FC-to-SC adapter single-mode FDDI network connections procedure. If you assistance, refer to the section "Cisco Connection Online."

FIP—Making Single-Mode FDDI Network Connections

Take the following steps to connect a single-mode FIP using the FC-to-SC FDDI adapter:



Caution Failure to observe these guidelines will prevent the FDDI interface from initializing correctly.



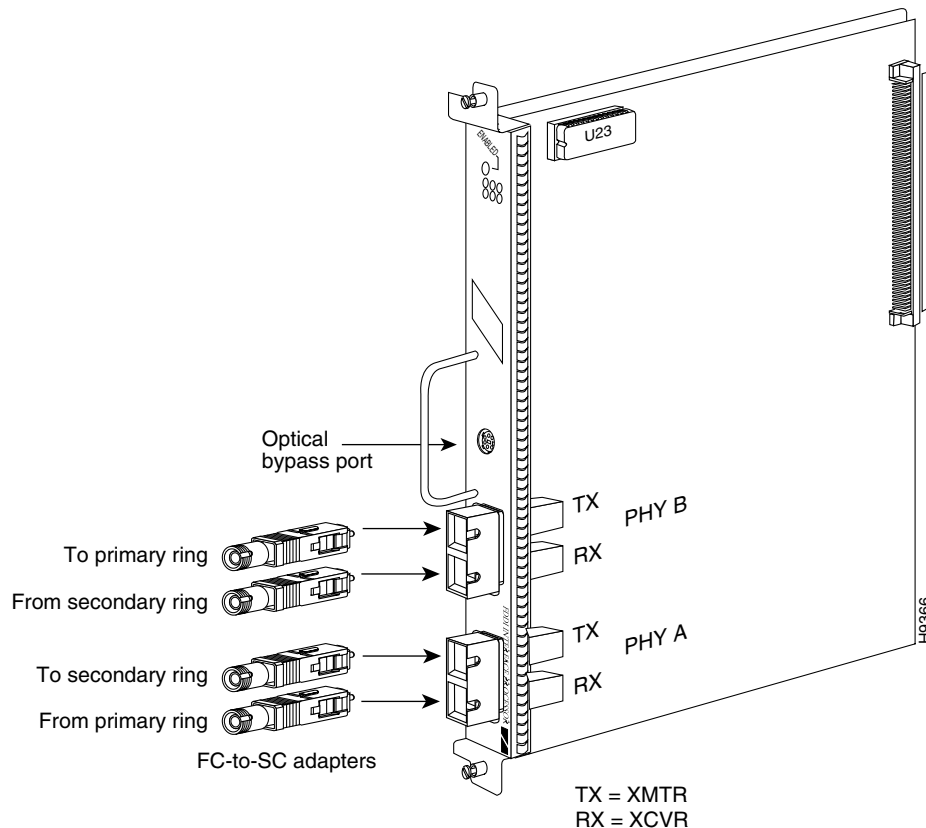
Warning Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI card when no cable is connected. *Avoid exposure and do not stare into open apertures.*

Step 1 Insert the appropriate number of FC-to-SC adapters into the SC ports of your FIP.

Note The CX-FIP-SM and CX-FIP-MS each have two SC ports; the CX-FIP-SS has four SC ports.

Step 2 Connect the cable from the primary ring (from PHY-B at the primary ring upstream station) to the FC-to-SC adapter in the FIP's PHY-A Receive port, labeled RX on the FIP. (See the CX-FIP-SS shown in Figure 8.)

Figure 8 CX-FIP-SS with Four FC-type Connectors—Vertical FIP View



- Step 3** Connect the cable to the primary ring (to PHY- A at the primary ring downstream station) to the FC-to-SC adapter in the FIP's PHY- B transmit port, labeled TX on the FIP.
- Step 4** Connect the incoming cable from the secondary ring to the FC-to-SC adapter in the FIP's PHY- B receive port, labeled RX on the FIP.
- Step 5** Connect the outgoing cable to the secondary ring to the FC-to-SC adapter in the FIP's PHY- A transmit port, labeled TX on the FIP.

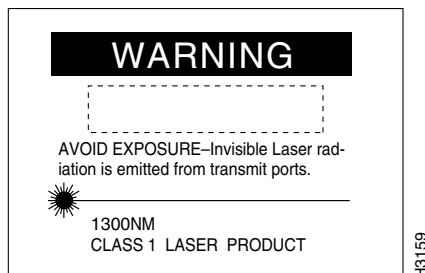
This completes the FC-to-SC adapter single-mode FDDI network connections procedure for the FIP. If you assistance, refer to the section "Cisco Connection Online" on page 9.

Translated Safety Warnings



Warning Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI card when no cable is connected. *Avoid exposure and do not stare into open apertures.*

Following is an example of the laser warning label that appears on the Cisco 4000 series FDDI processor module:



Following is an example of the laser warning labels that appear on the FIP:



Waarschuwing Wanneer geen kabel aangesloten is, kan er onzichtbare laserstraling geëmitteerd worden uit de apertuurpoorten van de enkelvoudige-modus FDDI-kaart ("Fiber Distributed Data Interface" = "Interface van door glasvezels gedistribueerde gegevens"). *Vermijd blootstelling en staar niet in de open aperturen.*

Varoitus Yksitoimintoisen FDDI-kortin avoimista porteista saattaa vapautua näkymättömiä lasersäteitä kaapelin ollessa irrotettuna. *Vältä säteilyä ja avoimiin aukkoihin katsomista.*

Attention Des rayons laser invisibles peuvent s'échapper des ouvertures prévues pour la carte d'interface des données distribuées par fibres optiques monomode (Fiber Distributed Data Interface ou FDDI) quand un câble n'est pas connecté. *Eviter toute exposition et ne pas approcher les yeux des ouvertures.*

Warnung Wenn kein Kabel angeschlossen ist, wird möglicherweise unsichtbare Laserstrahlung von den Steckanschlüssen der Monomode-FDDI-Karte (Glasfaserdatenübertragungs-Schnittstelle; Fiber Distributed Data Interface) ausgestrahlt. *Schützen Sie sich vor Strahlung, und blicken Sie nicht direkt in offene Steckanschlüsse.*

Avvertenza Radiazioni laser invisibili potrebbero essere emesse dalle porte di apertura della scheda FDDI (Fiber Distributed Data Interface - Interfaccia di dati distribuiti a fibre) a modo singolo quando il cavo non è stato collegato. *Evitare l'esposizione a tali radiazioni e non fissare alcuna porta aperta.*

Advarsel Usynlig laserstråling kan emitteres fra åpningsutgangene på FDDI-kort med kabel av monomodusfiber når de ikke er tilkoblet en ledning. *Unngå utsettelse for stråling, og stirr ikke inn i åpne åpninger.*

Aviso Radiação laser invisível poderá ser emitida através das portas de abertura da placa FDDI (Interface de Dados Distribuídos por Fibra Óptica) de modo simples, mesmo quando não houver nenhum cabo ligado. *Evite exposição e não espreite por estas aberturas.*

¡Atención! La tarjeta FDDI modo sencillo puede emitir radiaciones láser invisibles por los orificios de los puertos cuando no se haya conectado ningún cable. *Evitar la exposición y no mirar fijamente los orificios abiertos.*

Warning! Osynlig laserstrålning kan avges från portöppningarna för FDDI-kortet för enkelmodsfiber när ingen kabel är ansluten (FDDI: Fiber Distributed Data Interface = gränssnitt för dataöverföring med fiberoptik). *Utsätt dig inte för denna strålning och titta inte in i öppningarna.*



Warning Class 1 laser product.

Waarschuwing Klasse-1 laser produkt.

Varoitus Luokan 1 lasertuote.

Attention Produit laser de classe 1.

Warnung Laserprodukt der Klasse 1.

Avvertenza Prodotto laser di Classe 1.

Advarsel Laserprodukt av klasse 1.

Aviso Produto laser de classe 1.

¡Atención! Producto láser Clase I.

Warning! Laserprodukt av klass 1.

Cisco Connection Online

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You can access CCO in the following ways:

- WWW: <http://www.cisco.com>.
- WWW: <http://www-europe.cisco.com>.
- WWW: <http://www-china.cisco.com>.
- Telnet: cco.cisco.com.
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and transmission rates up to 14.4 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

This document is to be used in conjunction with the *Cisco 4000 Series Public Network Certification*, *Cisco 4000 Series Installation Guide*, the *Cisco 4000 Series Hardware Installation and Maintenance*, and the *Cisco 4000 Hardware Installation and Maintenance* publications. (3549fsc.fm[-02])

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