



Cisco 40-Gigabit QSFP+ Transceiver Modules Installation Note

Revised: October 3, 2012

Product Numbers:	QSFP-H40G-CU1M=	QSFP-H40G-CU3M=	QSFP-H40G-CU5M=
	QSFP-4SFP10G-CU1M=	QSFP-4SFP10G-CU3M=	QSFP-4SFP10G-CU5M=
	QSFP-40G-SR4=	QSFP-40G-CSR4=	QSFP-H40G-ACU7M=
	QSFP-H40G-CU10M=	QSFP-4X10G-AC7M=	QSFP-4X10G-AC10M=
	QSFP-40GE-LR4=		

This installation note provides the installation instructions for the 40-Gigabit Quad Small Form-Factor Pluggable Plus (QSFP+) transceiver modules. The modules are hot-swappable input/output (I/O) devices that connect the system's module port electrical circuitry with either a copper or a fiber-optic network.

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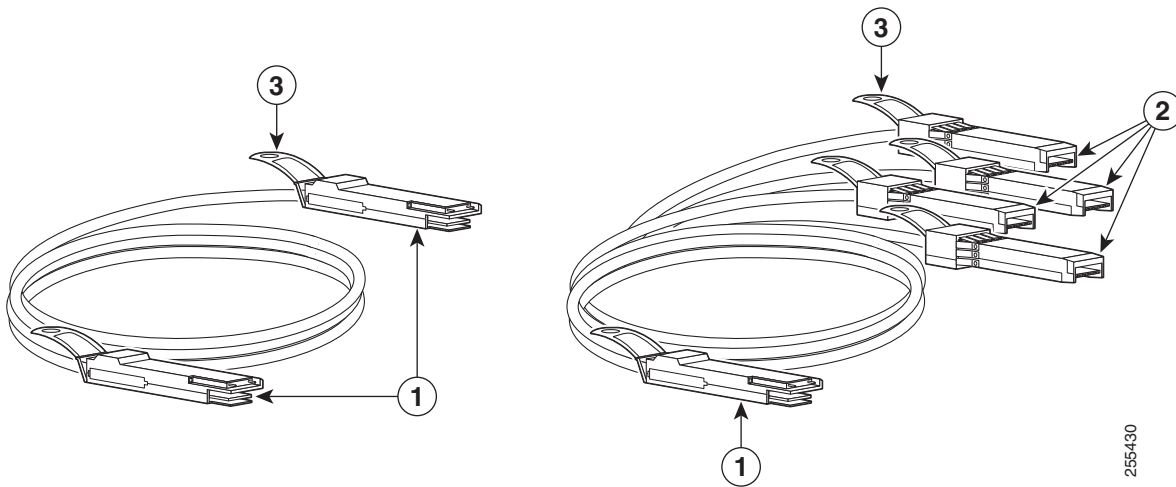


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Overview

The 40-Gigabit QSFP+ transceiver module is a hot-swappable, parallel fiber-optical module with four independent optical transmit and receive channels. These channels can terminate in another 40-Gigabit QSFP+ transceiver, or the channels can be broken out to four separate 10-Gigabit SFP+ transceivers. (See [Figure 1](#).) The QSFP+ transceiver module connects the electrical circuitry of the system with either a copper or an optical external network. (See [Figure 2](#) for a view of the optical QSFP+ transceiver.) The transceiver is used primarily in short reach applications in switches, routers, and data center equipment where it provides higher density than SFP+ modules.

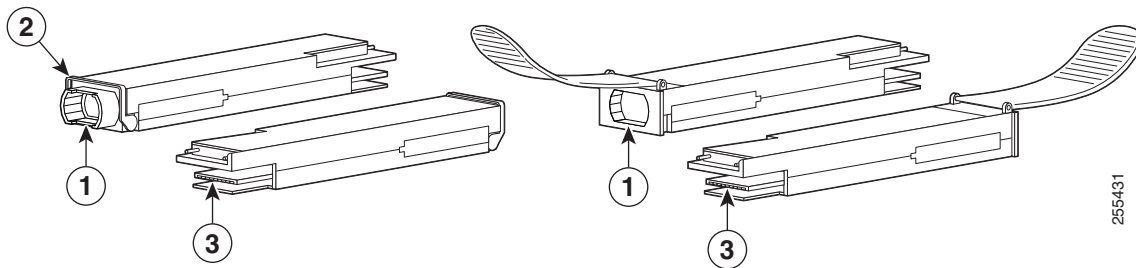
Figure 1 40-Gigabit QSFP+ Transceiver Module (Copper)



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1	QSFP+ transceiver body	3	Pull tab
2	10GBASE SFP+ transceivers		

Figure 2 40-Gigabit QSFP+ Transceiver Module (Optical)



255431

1	40GBASE QSFP+ transceiver body	3	Electrical connection to the module circuitry
2	Bail-clasp latch		

Table 1 lists the different QSFP+ transceiver module types.

Table 1 40-Gigabit QSFP+ Transceiver Modules

QSFP+ Transceiver Module Product Number	Description
QSFP-H40G-CU1M=	Cisco 40GBASE-CR4 QSFP+ passive direct-attach copper transceiver module assembly, 1 meter
QSFP-H40G-CU3M=	Cisco 40GBASE-CR4 QSFP+ passive direct-attach copper transceiver module assembly, 3 meter
QSFP-H40G-CU5M=	Cisco 40GBASE-CR4 QSFP+ passive direct-attach copper transceiver module assembly, 5 meter
QSFP-H40G-ACU7M=	Cisco 40GBASE-CR4 QSFP+ active direct-attach copper transceiver module assembly, 7 meter
QSFP-H40G-ACU10M=	Cisco 40GBASE-CR4 QSFP+ active direct-attach copper transceiver module assembly, 10 meter
QSFP-4SFP10G-CU1M=	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ passive direct-attach copper transceiver assembly, 1 meter
QSFP-4SFP10G-CU3M=	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ passive direct-attach copper transceiver assembly, 3 meter
QSFP-4SFP10G-CU5M=	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ passive direct-attach copper transceiver assembly, 5 meter
QSFP-4X10G-AC7M=	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ active direct-attach copper transceiver assembly, 7 meter
QSFP-4X10G-AC10M=	Cisco 40GBASE-CR4 QSFP+ to 4 10GBASE-CU SFP+ active direct-attach copper transceiver assembly, 10 meter
QSFP-40G-SR4=	Cisco 40GBASE-SR4 QSFP+ transceiver module for MMF, multi-fiber MPO connector
QSFP-40G-CSR4=	Cisco 40GBASE-CSR4 QSFP+ transceiver module for MMF, multi-fiber MPO connector
QSFP-40GE-LR4=	Cisco 40GBASE-LR4 QSFP+ transceiver module for SMF, duplex LC connector



Note

The multiple-fiber push-on (MPO) connectors and the duplex LC connectors on the optical QSFP+ transceivers support network interface cables with either Physical Contact (PC) or Ultra-Physical Contact (UPC) flat-polished face types. The MPO connectors and the duplex LC connectors on the optical QSFP+ transceivers do not support network interface cables with an angle-polished contact (APC) face type.

Table 2 lists the 40-Gigabit optical QSFP+ port cabling specifications.

Table 2 QSFP+ Transceiver Port Cabling Specifications

QSFP+ Product Number	Nominal Wavelength (nm)	Cable Type	Core Size (microns)	Modal Bandwidth (MHz/km)	Maximum Cabling Distance
QSFP-40G-SR4=	850	MMF	50.0	500 (OM2)	30 m (98 ft)
			50.0	2000 (OM3)	100 m (328 ft)
			50.0	4700 (OM4)	150 m (492 ft)
QSFP-40G-CSR4=	850	MMF	62.5	200 (OM1)	33 m (108 ft)
			50.0	500 (OM2)	82 m (269 ft)
			50.0	2000 (OM3)	300 m (984 ft)
			50.0	4700 (OM4)	400 m (1312 ft)
QSFP-40GE-LR4=	1310	SMF	G.652	—	10 km (6.2 miles)

Table 3 lists the QSFP+ transceiver modules optical transmit and receive specifications.

Table 3 QSFP+ Transceiver Optical Transmit and Receive Specifications

QSFP+ Product Number	Transceiver Operating Mode	Transmit Power (dBm)	Receive Power (dBm)	Transmit and Receive Wavelength (nm)
QSFP-40G-SR4=	40GBASE-SR4, 4 lanes, 850 nm	-1 per lane (Max) -7.6 per lane (Min)	2.4 per lane (Max) -9.5 per lane (Min)	Four lanes, 840 to 860
QSFP-40G-CSR4=	40GBASE-CSR4, 4 lanes, 850 nm	-1.2 per lane (Max) -7.3 per lane (Min)	-1 per lane (Max) -9.9 per lane (Min)	Four lanes, 840 to 860
QSFP-40GE-LR4=	40GBASE-LR4, 1310 nm	2.3 per lane (Max) -7 per lane (Min)	2.3 per lane (Max) -13.7 per lane (Min)	Four lanes, 1271, 1291, 1311, 1331

Safety

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

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.

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 käsittelit laitteistoa, huomioi sähköpiirien käsittelyyn 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 figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielőtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető 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**

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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 legemeskadedigelse. 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 للصدمة الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في آخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز. قم بحفظ هذه الإرشادات

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 כדי לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה**Opomena VAŽNI BEZBEDNOSNI NAPATSTVIJA**

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 ОБИЕ 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**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. Statement 70

**Warning**

Class 1 laser product. Statement 1008

**Warning**

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

**Warning**

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

Required Tools

You need these tools to install the 40-Gigabit QSFP+ transceiver modules:

- Wrist strap or other personal grounding device to prevent ESD occurrences.
- Antistatic mat or antistatic foam to set the transceiver on.
- Fiber-optic end-face cleaning tools and inspection equipment.

For complete information on inspecting and cleaning fiber-optic connections, see the white-paper document at this URL:

http://www.cisco.com/en/US/tech/tk482/tk876/technologies_white_paper09186a0080254eba.shtml

Installing the 40-Gigabit QSFP+ Transceiver Module

The QSFP+ transceiver module can have either a bail-clasp latch or a pull-tab latch. Installation procedures for both types of latches are provided.



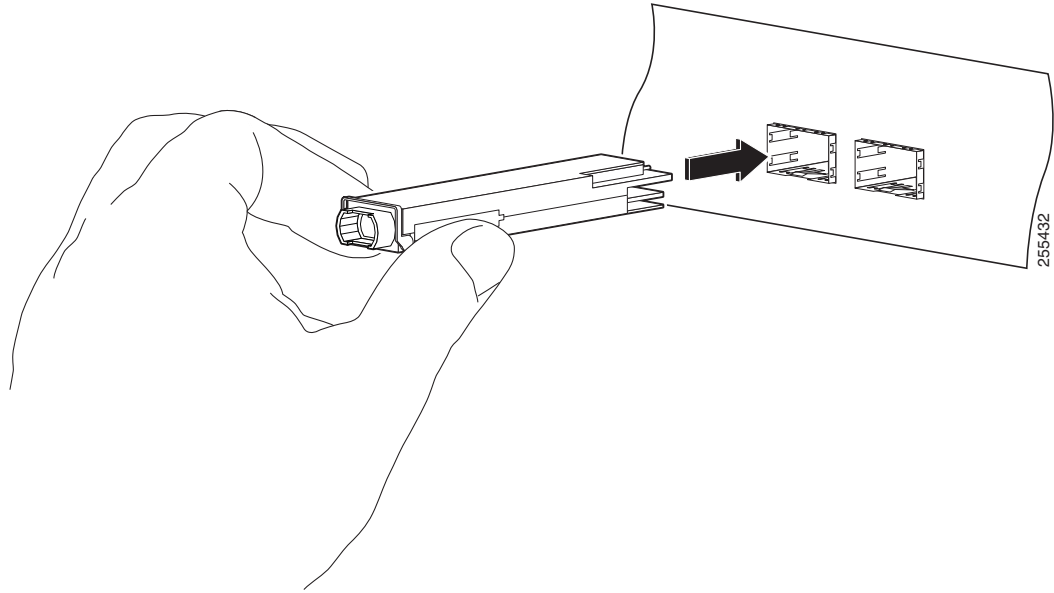
Caution

The QSFP+ transceiver module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling QSFP+ transceiver modules or coming into contact with system modules.

To install an QSFP+ transceiver module, follow these steps:

- Step 1** Attach an ESD wrist strap to yourself and a properly grounded point on the chassis or the rack.
- Step 2** Remove the QSFP+ transceiver module from its protective packaging.
- Step 3** Check the label on the QSFP+ transceiver module body to verify that you have the correct model for your network.
- Step 4** For optical QSFP+ transceivers, remove the optical bore dust plug and set it aside.
- Step 5** For transceivers equipped with a bail-clasp latch:
 - a. Keep the bail-clasp aligned in a vertical position.
 - b. Align the QSFP+ transceiver in front of the module's transceiver socket opening and carefully slide the QSFP+ transceiver into the socket until the transceiver makes contact with the socket electrical connector. (See [Figure 3](#).)
- Step 6** For QSFP+ transceivers equipped with a pull-tab:
 - a. Hold the transceiver so that the identifier label is on the top.
 - b. Align the QSFP+ transceiver in front of the module's transceiver socket opening and carefully slide the QSFP+ transceiver into the socket until the transceiver makes contact with the socket electrical connector.

Figure 3 *Installing the 40-Gigabit QSFP+ Transceiver Module (Optical Transceiver Equipped with a Bail-Clasp Latch Shown)*

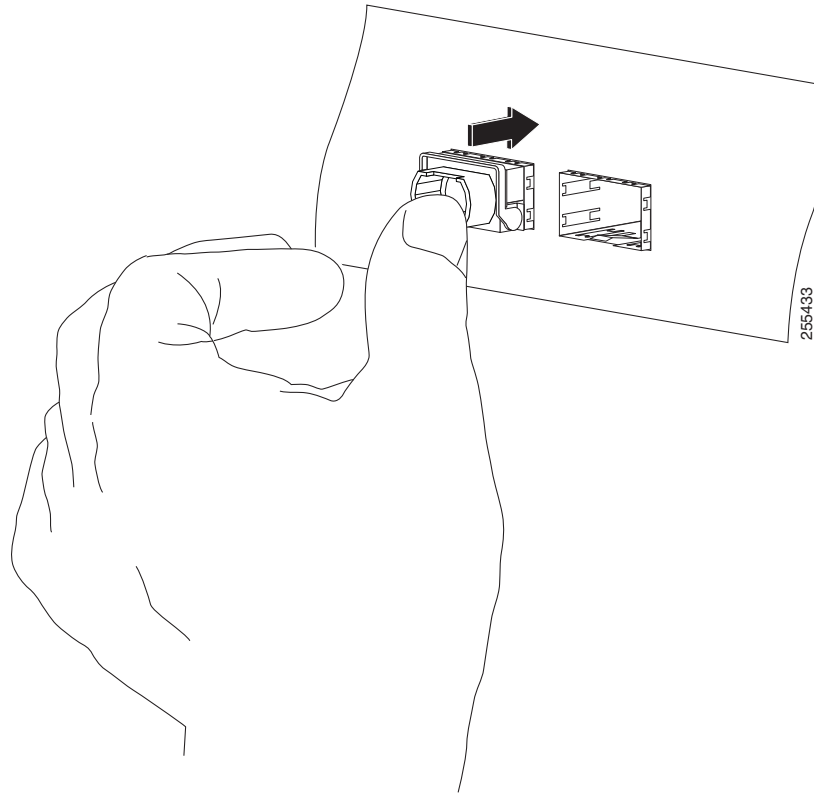


Step 7 Press firmly on the front of the QSFP+ transceiver with your thumb to fully seat the transceiver in the module's transceiver socket. (See [Figure 4](#).)



Caution If the latch is not fully engaged, you might accidentally disconnect the QSFP+ transceiver module.

Figure 4 Seating the 40-Gigabit QSFP+ Transceiver Module (Optical Transceiver Equipped with a Bail-Clasp Latch Shown)



- Step 8** For optical QSFP+ modules, reinstall the dust plug into the QSFP+ transceivers optical bore until you are ready to attach the network interface cable. Do not remove the dust plug until you are ready to attach the network interface cable.

Attaching the Optical Network Cable

Before removing the dust plugs and making any optical connections, follow these guidelines:

- Keep the protective dust plugs installed in the unplugged fiber-optic cable connectors and in the transceiver optical bores until you are ready to make a connection.
- Inspect and clean the MPO connector or the duplex LC connector end faces just before you make any connections. See the Tip following step 2 in the next procedure for a pointer to a fiber-optic inspection and cleaning white paper.
- Grasp the MPO or the duplex LC connector only by the connector housing to plug or unplug a fiber-optic cable.



Note The MPO connectors on the 40-Gigabit SR4 and CSR4 QSFP+ transceiver modules are keyed to prevent incorrect insertion.



Note

The multiple-fiber push-on (MPO) connectors and the duplex LC connectors on the optical QSFP+ transceivers support network interface cables with either physical contact (PC) or ultra-physical contact (UPC) flat polished face types. The MPO and duplex LC connectors on the optical QSFP+ transceivers do not support network interface cables with an angle-polished contact (APC) face type.

Step 1 Remove the dust plugs from the optical network interface cable MPO connectors. Save the dust plugs for future use.

Step 2 Inspect and clean the MPO or duplex LC connector's fiber-optic end faces. See 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, see this URL:

http://www.cisco.com/en/US/tech/tk482/tk876/technologies_white_paper09186a0080254eba.shtml

Step 3 Remove the dust plugs from the QSFP+ transceiver module optical bores.

Step 4 Immediately attach the network interface cable MPO connector (see [Figure 5](#)) or duplex LC connector (see [Figure 6](#)) to the QSFP+ transceiver module.

Figure 5 *Cabling a 40-Gigabit QSFP+ Transceiver Module Equipped with an MPO Connector*

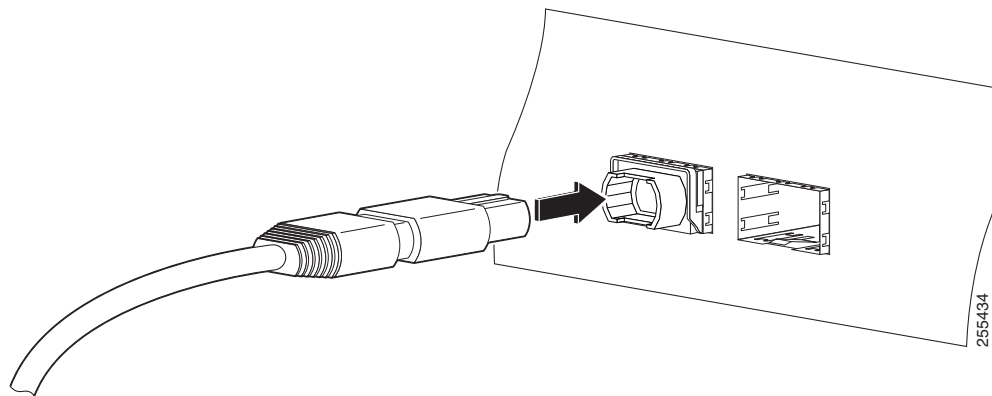
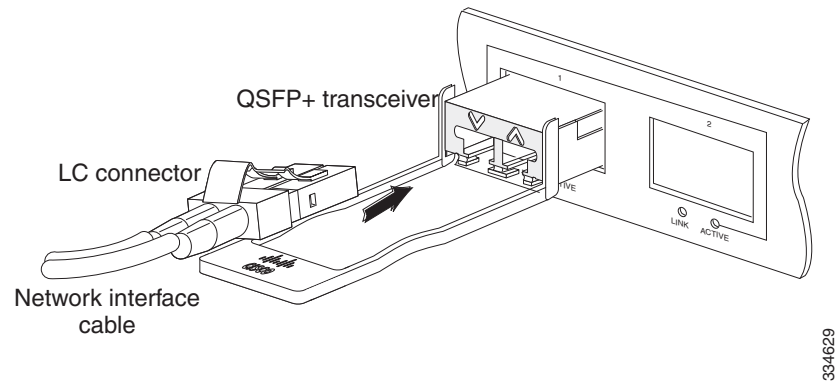


Figure 6 Cabling a 40-Gigabit QSFP+ Transceiver Module Equipped with a Duplex LC Connector



- Step 5** Verify that the optical network cable is fully seated by pulling gently on the cable's MPO or duplex LC connector boot. If the network cable disconnects, reinstall it and make sure that the cable connector is fully seated and that the connector latch engages.

Removing the 40-Gigabit QSFP+ Transceiver Module



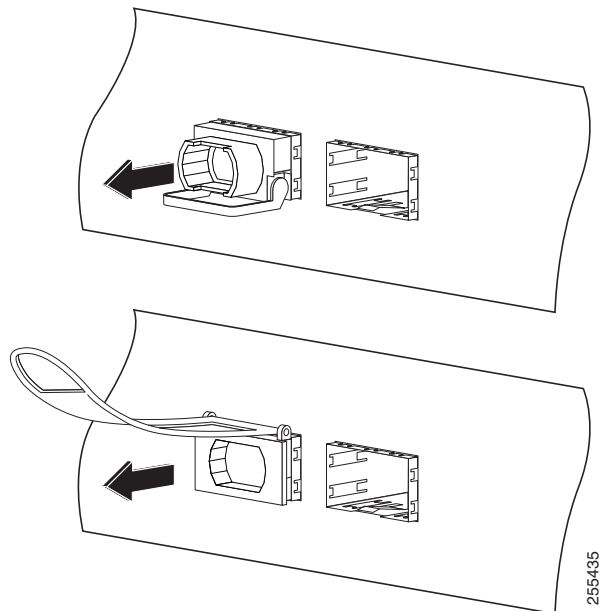
Caution

The QSFP+ transceiver module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling QSFP+ transceiver modules or coming into contact with modules.

To remove a QSFP+ transceiver, follow these steps:

- Step 1** For optical QSFP+ transceivers, disconnect the network interface cable from the QSFP+ transceiver connector.
- Step 2** For QSFP+ transceivers equipped with a bail-clasp latch (See [Figure 7](#), top view):
 - a. Pivot the bail-clasp down to the horizontal position.
 - b. Immediately install the dust plug into the transceivers optical bore.
 - c. Grasp the sides of the QSFP+ transceiver and slide it out of the module socket.
- Step 3** For QSFP+ transceivers equipped with a pull tab latch (See [Figure 7](#), bottom view):
 - a. Immediately install the dust plug into the transceiver’s optical bore.
 - b. Grasp the tab and gently pull to release the transceiver from the socket.
 - c. Slide the transceiver out of the socket.
- Step 4** Place the QSFP+ transceiver into an antistatic bag.

Figure 7 Removing the 40-Gigabit QSFP+ Transceiver Module



Translated Safety Warnings

This section repeats in multiple languages the basic warnings that appear in this document.

Statement 70—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 kaapelina, 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!	Quando 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.

Statement 1008—Class 1 Laser Product



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.
¡Advertencia!	Producto láser Clase I.
Varning!	Laserprodukt av klass 1.
Figyelem	Class 1 besorolású lézeres termék.
Предупреждение	Лазерное устройство класса 1.
警告	这是 1 类激光产品。
警告	クラス1レーザー製品です。
주의	클래스 1 레이저 제품.
Aviso	Produto a laser de classe 1.
Advarsel	Klasse 1 laserprodukt.
تحذير	منتج 1 Laser Class
Upozorenje	Laserski proizvod klase 1
Upozornění	Laserový výrobek třídy 1.

Προειδοποίηση	Προϊόν λέιζερ κατηγορίας 1.
אזהרה	מוצר לייזר Class 1.
Opomena	Ласерски производ од класа 1.
Ostrzeżenie	Produkt laserowy klasy 1.
Upozornenie	Laserový výrobok triedy 1.

Statement 1040—Product Disposal



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.

Figyelem

A készülék végső elhelyezéséről az adott országban érvényes törvények és előírások szerint kell intézkedni.

Предупреждение

Окончательная установка данного изделия должна выполняться в соответствии со всеми региональными и местными правилами и нормами.

警告	本产品的废弃处理应根据所有国家的法律和规章进行。
警告	この製品を廃棄処分する際は、各国の法律および規制に従って取り扱ってください。
주의	해당 국가의 관련 법규 및 규정에 따라 이 장치를 폐기해야 합니다.
Aviso	O descarte definitivo deste produto deve estar de acordo com todas as leis e regulamentações nacionais.
Advarsel	Endelig bortskaffelse af dette produkt skal ske i henhold til gældende love og regler.
تحذير	عند التخلص من المنتج يجب اتباع القوانين والتشريعات المحلية.
Upozorenje	Zbrinjavanje ovoga proizvoda u otpad treba provesti u skladu s važećim zakonima i odredbama.
Upozornění	Upozornění: Likvidace tohoto výrobku musí být provedena podle platných zákonů a předpisů.
Προειδοποίηση	Η τελική απόρριψη αυτού του προϊόντος πρέπει να γίνεται σύμφωνα με όλους τους εθνικούς νόμους και κανονισμούς.
אזהרה	סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות ולחוקי המדינה.
Opomena	Крајното фрлање на овој производ треба да се изврши во согласност со сите национални закони и прописи.
Ostrzeżenie	Ostateczna likwidacja tego urządzenia po jego wycofaniu z eksploatacji powinna odbywać się zgodnie z przepisami krajowymi.
Upozornenie	Upozornenie Likvidácia tohto výrobku musí byť vykonaná podľa platných zákonov a predpisov.

Statement 1057—Hazardous Radiation Exposure



Warning

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

Waarschuwing

Het gebruik van regelaars of bijstellingen of het uitvoeren van procedures anders dan opgegeven kan leiden tot blootstelling aan gevaarlijke straling.

Varoitus	Säätimien tai säätöjen käyttö ja toimenpiteiden suorittaminen ohjeista poikkeavalla tavalla voi altistaa vaaralliselle säteilylle.
Attention	L'utilisation de commandes, de réglages ou de procédures autres que ceux spécifiés peut entraîner une exposition dangereuse à des radiations.
Warnung	Die Verwendung von nicht spezifizierten Steuerelementen, Einstellungen oder Verfahrensweisen kann eine gefährliche Strahlenexposition zur Folge haben.
Avvertenza	L'adozione di controlli, regolazioni o procedure diverse da quelle specificate può comportare il pericolo di esposizione a radiazioni.
Advarsel	Bruk av kontroller eller justeringer eller utførelse av prosedyrer som ikke er spesifiserte, kan resultere i farlig strålingseksposering.
Aviso	O uso de controles, ajustes ou desempenho de procedimentos diferentes dos especificados pode resultar em exposição prejudicial de radiação.
¡Advertencia!	La aplicación de controles, ajustes y procedimientos distintos a los especificados puede comportar una exposición peligrosa a la radiación.
Varning!	Om andra kontroller eller justeringar än de angivna används, eller om andra processer än de angivna genomförs, kan skadlig strålning avges.
Figyelem	Az előírtaktól különböző kezelőszervek és módosítások használata, vagy ilyen eljárások végrehajtása sugárzásveszélyt rejt magában.
Предупреждение	Использование других элементов управления и регулировки, а также не указанные здесь действия могут привести к воздействию опасного излучения.
警告	不按照规定的步骤控制、调整或操作有可能造成危险的辐射外泄。
警告	記載されている手順以外の方法で性能を調節しようとする、レーザー光線の放射に曝される危険性があります。
주의	명시되어 있지 않은 제어기의 사용, 조절, 또는 절차의 수행으로 위험한 방사열이 노출될 수 있습니다.
Aviso	O uso de controles, ajustes ou procedimentos diferentes daqueles especificados pode resultar em exposição perigosa à radiação.
Advarsel	Brug af kontrolfunktioner, justeringer, eller udførelse af procedurer andre end de, der er angivet, kan resultere i udsættelse for farlig bestråling.
تحذير	قد ينتج عن استخدام أدوات التحكم أو التعديلات أو القيام بأداء عمليات غير تلك المذكورة، التعرض للإشعاعات الضارة.

Upozorenje	Korištenje kontrola, podešavanja i obavljanje postupaka koji nisu dozvoljeni može za posledicu imati izlaganje opasnim količinama zračenja.
Upozornění	Používání ovladačů a úprav nebo provádění jiných než stanovených operací může mít za následek vystavení působení nebezpečného záření.
Προειδοποίηση	Η χρήση χειριστηρίων, ρυθμίσεων ή η εκτέλεση άλλων διαδικασιών από αυτές που προδιαγράφονται μπορεί να οδηγήσει σε επικίνδυνη έκθεση σε ακτινοβολία.
אזהרה	שימוש בפקדים, התאמות או נהלי ביצוע, להוציא אלה המצוינים, עלול להסתיים בחשיפה לקרינה מסוכנת.
	Употребата на контроли, дотерувањата или вршењето на постапки поинакви од оние што се определени може да ве изложат на опасни зрачења.
Ostrzeżenie	Użycie elementów sterujących, przeprowadzanie regulacji lub wykonywanie czynności innych niż opisane może narazić użytkownika na niebezpieczne promieniowanie.
Upozornenie	Používanie ovládačov a úprav alebo uskutočňovanie iných ako stanovených operácií môže mať za následok vystavenie pôsobeniu nebezpečného žiarenia.

Related Documentation

For hardware installation and maintenance information on specific Cisco routers and switches, see the installation and configuration guide for your router or switch.

For software configuration information and support, see the Cisco IOS software configuration and command reference publications for the installed Cisco IOS software release or the Catalyst operating system software configuration and command reference publications for the installed Catalyst operating system software release.

Platform support summaries and software requirements for all QSFP+ transceivers are located at the following url:

http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

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