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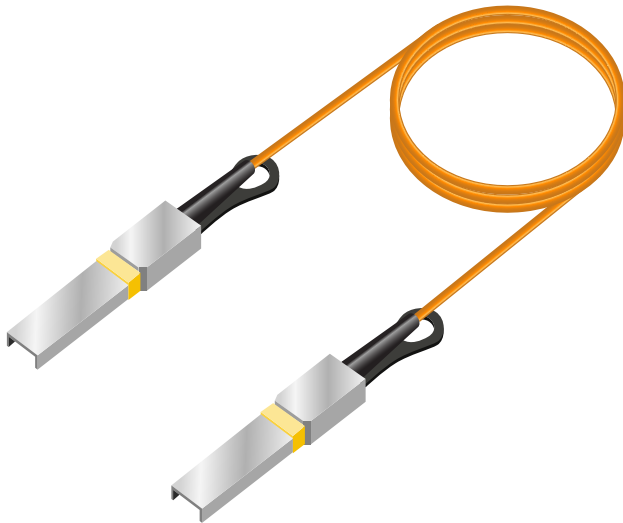
Go to: <https://supportforums.adtran.com/welcome>

Registration is required.

ADTRAN offers training courses on our products, including customized training and courses taught at our facilities or at customer sites.

For inquiries, go to: <http://adtran.com/training>

The following online documents and resources provide additional information for this product: SFP/XFP/SFP+ Compatibility Matrix (online tool, go to: <http://www.adtran.com/sfp>)



DESCRIPTION

This Job Aid supports the following SFPs:

Part Number	Length	CLEI
1442400F1C	3 meters	BVPQAFAM_ _
1442400F2C	5 meters	BVPQAFBM_ _
1442400F3C	1 meter	BVPQAFEM_ _

The Small Form-Factor Pluggable Active Optical Cable (MMF SFP+ AOC) is a fully duplex serial electric/serial optical device with both transmit and receive functions contained in a single module that provides a high-speed serial link at 10 Gbs.

These SFP+ active optical cables are two SFP+ modules connected with a multi-mode fiber of different lengths. Installed into appropriate host modules, the MMF SFP+ provides a 10 Gigabit interface to the supporting system. The transmit side of the SFP+ converts serial non-return-to-zero (NRZ) electrical data at the 10 Gbs line rate to a standard compliant optical signal. The receive side of the SFP+ converts the incoming DC-balanced serial NRZ optical data at the 10 Gbs line rate into serial electrical data.

The following features are supported on the SFP+:

- 850 nm optical signals are transmitted through the cable
- Case temperature hardened range from 0°C to 70°C
- Low power consumption (<1 W max)
- Bit error rate (<1x10⁻¹²)
- Excellent EMI performance

⚠ CAUTION

Due to compliance certification requirements, only SFP+s supplied by ADTRAN are to be used with the host module. ADTRAN cannot certify system integrity with other SFP+s.

Operational Specifications

- Optical Specifications:
 - ◆ 850 nm optical signals
 - ◆ Data rate: 9.95 to 11.3 Gbs
 - ◆ Minimum fiber bend radius: 30 mm
- Extended Environmental Support:
 - ◆ Operational temperature range: 0°C to +70°C
 - ◆ Storage temperature range: -10°C to +70°C
 - ◆ Relative humidity to 80%, noncondensing

INSTALLATION

Before installing the equipment, inspect the SFP+ AOC. If damage has occurred during shipping, file a claim with the carrier, and then contact ADTRAN Customer Support. For more information, refer to the warranty.

⚠ CAUTION

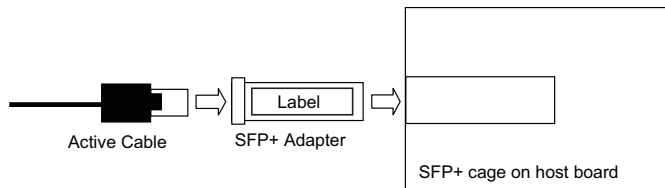
The connectors on the optical cable convert electrical signals from the adapters' copper connections into light that is transmitted along fiber to the opposing ends, where the light is then reconverted to electrical signals. Because the cable contains optical fiber, care must be taken with regard to bend radius tolerances (refer to the Operational Specifications section above).

To install the SFP+ AOC into an appropriate module, complete the following steps:

NOTE

This SFP+ AOC is shipped with the connector ends of the active optical cable already inserted into the SFP+ adapters.

1. Use standard ESD precautions when installing an AOC.
2. Ensuring that the bail release lever on the SFP+ adapter of the AOC is properly oriented for the cage, slide the SFP+ adapter into an SFP+ cage until a connection is made and an audible “click” is heard.



NOTE

The bail lever (latch) on the SFP+ adapter is for removal only.

3. Continue the installation and turn-up of the host module using the instructions in the Job Aid provided with the module or other system-level documentation available online at www.adtran.com.

REMOVAL

To remove the SFP+ AOC from a module, refer to the following procedures:

1. Use standard ESD precautions when removing an AOC.
2. Depress the tab on top of the active optical cable plug and extract the cable from the SFP+ adapter.
3. Pivot the SFP+ adapter’s bail release lever to release the adapter from the SFP+ cage.
4. Grasp the SFP+ adapter’s housing and slide it out of the cage. Pivot the bail lever back to the closed position and reinsert the cable plug.

PROVISIONING

The SFP+ AOC is not provisionable. For configuration or status information, access the menu system of the host module. Refer to the “Provisioning” section of the host module documentation for provisioning details.

MAINTENANCE

The SFP+ AOC does not require routine hardware maintenance for normal operation. ADTRAN does not recommend that repairs be attempted in the field. Repair services may be obtained by returning the defective unit to ADTRAN. Refer to the warranty for further information. Field support for software is provided through upgrade facilities.

SAFETY AND REGULATORY COMPLIANCE

⚠ WARNING

- Read all warnings and cautions before installing or servicing this equipment.
- To provide proper airflow and protection in this system, **all** chassis slots must be populated with either a module or an appropriate blank panel. Failure to install blank panels in **all** unpopulated slots will void the warranty for modules installed in a misconfigured system.

⚠ CAUTION

This product is a Class 1 Laser that complies with FDA 21 CFR 1040.10 and 1040.11 and IEC 60825-1 and -2. The product is NRTL Listed and CB Certified to all applicable American and European safety standards.

⚠ CAUTION

- Electrostatic Discharge (ESD) can damage electronic modules. When handling modules, wear an antistatic discharge wrist strap to prevent damage to electronic components. Place modules in antistatic packing material when transporting or storing. When working on modules, always place them on an approved antistatic mat that is electrically grounded.
- Per GR-1089-CORE the system is designed and intended for installation as part of a Common Bonding Network (CBN). The system is not designed nor intended for installation as part of an Isolated Bonding Network (IBN).
- Per GR-1089-CORE Section 9, this product does not have an internal DC connection between battery return and frame ground. This product can be installed in a DC-I (isolated) or DC-C (common) installation. For installations where other cards or the host system have internal connections between battery return and frame ground, the system would be intended for deployment only in a DC-C installation.
- The chassis frame ground terminal must be connected to an earth ground to ensure that the metal enclosure of the SFP is properly grounded via the backplane connector.

NOTE

- The Gigabit Ethernet port(s) are optical and therefore are not classified as any type of port as defined in Appendix B of GR-1089-CORE.
- This product is compliant with SFF-8472 “Digital Diagnostics Monitoring Interface for Optical Transceivers,” Revision 9.3.
- This product is compliant with the SFP Multi-Source Agreement (MSA).
- This product is designed to be deployed in GR-3108-CORE environmental class 1 as defined in GR-3108-CORE.

This product meets or exceeds all the applicable requirements of NEBS, Telcordia GR-63-CORE, GR-1089-CORE, and ETSI EN 300386. This product is intended for deployment in Central Office type facilities, EEEs, EECs, and locations where the NEC applies (for example, Customer Premises).

This product is to be installed in ADTRAN products in Restricted Access Locations only, and installed by trained service personnel.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate this equipment.

This product is designed to meet the following environmental classes:

- ETSI EN 300 019-1-1: "Classification of environmental conditions; Storage," Class 1.2
- ETSI EN 300 019-1-2: "Classification of environmental conditions; Transportation," Class 2.3
- ETSI EN 300 019-1-3: "Classification of environmental conditions; Stationary use at weather-protected locations," Class 3.2

The equipment is designed to function without degradation during exposure to all test severities per Class 3.2 of ETSI EN 300 019-1-3.

This product meets the EU RoHS Directive 2011/65/EU and/or applicable exemptions. Refer to www.adtran.com for further information on RoHS/WEEE.

Français

WARNING

- Lisez tous les avertissements et mises en garde avant l'installation de cet équipement ou la réalisation de toute opération de maintenance.
- Afin d'assurer une ventilation et une protection adéquates du système, **toutes** les fentes du châssis doivent être comblées par un module ou un panneau de remplissage. L'absence de panneaux de remplissage dans **toutes** les fentes non occupées entraîne l'annulation de la garantie pour les modules installés dans un système mal configuré.

CAUTION

Ce produit est un laser de classe 1 conforme à la norme FDA 21 CFR 1040.10 et 1040.11 et IEC 60825-1 et -2. Le produit est NRTL et CB certifiée à toutes les normes de sûreté américaines et européennes.

CAUTION

- L'ESD (décharge électrostatique) peut endommager les modules électroniques. Lors de la manipulation des modules, portez un bracelet de décharge antistatique pour éviter d'endommager les composants électroniques. Placez les modules dans un emballage antistatique lors du transport ou du stockage. Lorsque vous travaillez sur les modules, placez-les toujours sur un tapis antistatique certifié muni d'un branchement de mise à la terre.
- La borne de mise à la terre du châssis doit être branchée à une prise de terre afin d'assurer que le boîtier métallique de la SFP est correctement mis à la terre grâce au connecteur de face arrière.

Ce produit est conçu pour répondre aux classes environnementales suivantes :

- ETSI EN 300 019-1-1: "Classification des conditions d'environnement; Entreposage," classe 1.2
- ETSI EN 300 019-1-2: "Classification des conditions d'environnements; Transport," classe 2.3
- ETSI EN 300 019-1-3: "Classification des conditions d'environnements; l'utilisation à poste fixe dans des endroits protégés contre les intempéries," classe 3.3

L'équipement est conçu pour fonctionner sans dégradation lors des tests à tous les niveaux de sévérité, suivant les spécifications de la classe 3.3 de l'ETSI EN 300 019-1-3.

Ce produit est conforme à la directive européenne RoHS 2011/65/EU et/ou aux exonérations applicables. Reportez-vous à www.adtran.com pour de plus amples renseignements sur RoHS/WEEE.

Deutsch

WARNING

- Lesen Sie sich alle Warn- und Sicherheitshinweise durch, bevor Sie dieses Gerät installieren oder warten.
- Zur Gewährleistung eines angemessenen Luftstroms und der Sicherheit dieses Systems müssen **alle** Steckplätze im Gehäuse entweder mit einem Modul oder geeigneten Leerblenden belegt sein. Widrigenfalls verfällt die Garantie für **alle** jene Module, die in dem nicht angemessen konfigurierten System installiert sind.

CAUTION

Dieses Produkt ist ein Klasse 1 Laser, die mit FDA 21 CFR 1040.10 und 1040.11 und IEC 60825-1 und -2 entspricht. Das Produkt ist NRTL gelistet und CB Certified allen geltenden amerikanischen und europäischen Sicherheitsnormen.

CAUTION

- Elektrostatische Entladung können elektronische Module beschädigen. Tragen Sie beim Umgang mit Modulen ein Erdungsarmband, um Schäden an den elektronischen Komponenten zu vermeiden. Transportieren oder lagern Sie Module in antistatischem Verpackungsmaterial. Bei der Arbeit an den Modulen, achten Sie darauf, diese stets auf antistatische, elektrisch geerdete Matten zu legen.
- Die Erdungsschiene des Rahmens muss an eine Bodenstation angeschlossen werden, um sicherzustellen, dass das Metallgehäuse des SFP vorschriftsmäßig über den Rückwandanschluss geerdet ist.

Dieses Produkt wurde entsprechend der folgenden Umweltkriterien entwickelt:

- ETSI EN 300 019-1-1: "Klassifikation von Umweltbedingungen, Lagerung," Klasse 1.2
- ETSI EN 300 019-1-2: "Klassifikation von Umweltbedingungen, Transport," Klasse 2.3
- ETSI EN 300 019-1-3: "Klassifikation von Umweltbedingungen, Stationärer Einsatz ohne Witterungseinflüsse," Klasse 3.3

Dieses Gerät funktioniert ohne Leistungsabfall während aller für Klasse 3.3 von ETSI EN 300 019-1-3 vorgeschriebenen Belastungstests.

Dieses Produkt erfüllt die EU RoHS Richtlinie 2011/65/EU und/oder gültige Ausnahmen. Bitte besuchen Sie www.adtran.com für ausführlichere Informationen zu RoHS/WEEE.



Warranty: ADTRAN will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found online at www.adtran.com/warranty.



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